INTERACTIVE FICTION, VIRTUAL REALITIES, AND THE READING-WRITING RELATIONSHIP

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of the Ohio State University

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The Ohio State University
1991

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ACKNOWLEDGMENTS

I was about halfway through the rough draft of my dissertation when I began to hear radio reports that the remains of Amelia Earhart’s plane might have been found: researchers had uncovered a wooden chest on a small island in the South Pacific. From the markings on the chest they inferred that it came from Earhart’s ill-fated flight, and plans were being made to scan the reef skirting the island to search for the wreckage of her plane. The researchers speculated that her aircraft, low on fuel, might have landed on a shoal just off the island and, eventually, as Earhart’s radio broadcasts went unanswered, slid under. In the intersection of those radio broadcasts with the writing I was trying to do, I felt an inkling of the larger communities in which we compose. I was just embarking on writing about my own encounter with a new technology, a technology of creating stories called interactive fiction on computers. I thought about Earhart as another pioneer exploring the possibility of technology. And as I write these acknowledgements today, and recount the helpful influences on this dissertation, I think it is fitting to reach back and out to that wider community of people who have used and developed new technologies: “For we all move in many circles out and away from the small-self of one meter,” as Scott McLean has said. It is probably
hubris to think of myself in the tradition of other, greater women contributing to our understanding of computers, but I would like to acknowledge here the indirect influences of Ada Lovelock, the world’s first computer programmer, and Grace Murray Hopper, who wrote the first high level compiler and coined the word “debug.” I would like to acknowledge these pioneers and some of the other predecessors to my own efforts to understand and influence the genres of computer narrative: Alan Turing, Brenda Kay Laurel, Marvin Minsky, Joseph Bates, David Graves, Abbe Don, and Allucquere Roseanne Stone spring to mind in an unlikely coterie.

We all move in widening circles. I began writing these acknowledgements on a flight back to Columbus from San Francisco where I had spent two weeks visiting my friend Judy at the Headlands Center for the Arts. The interdisciplinary artists at the Headlands Center gave me a shot in the arm just as I was beginning to lag in my own writing. The artists there, and their challenging, eccentric assemblages of materials and knowledge challenged me to make this an essay as rich, milky, and febrile as their own installations of compasses caked in ice, definitions of the River Styx, a hemostat nipping the binding of a book, corn stalks drawn in dried milk on the floor. One installation artist looked around her huge sunny studio and said to me, “the windows are in real-time, but the walls are historical.” This visit to the Headlands Center was valuable to me, and, ultimately, to this long essay, because I saw firsthand some results of rigorous rearrangements of the parts of our world, as well as
a faithfulness to the whim, the oblique, the uncatalogued, and the unknown; I observed art as a rhetoric of human inquiry. Thank you to those artists, the place and its groves of eucalyptus trees, and especially to the artist Anna Woodson of Chapel Hill who plans to be using pieces of my dissertation in one of her installations. I remember Inerio making sculptures from books in Calvino.

In addition to that serendipitous meeting with seven artists in the spring of this composition, I have other important influences to acknowledge here. Looking much farther back, I need to acknowledge the support of my family. I was lucky to come from a family that reads; I also come from a family that teaches: my grandmother, mother, and brother are teachers, as is my father, after a fashion, although I have a clear memory of him giving me the history of the Greeks when I asked him for help with an algebra problem. I would like to acknowledge here the importance of my family’s good influences.

There are numerous other people and places who bear mentioning as well. The street I grew up on, Hickory Hill Road in Tappan, New York, was a cooperative that fostered a diverse community rich in intellect, friendship, and respect for democratic debate. In addition to my mother there were fourteen other people who taught for a living on my road, including five college professors; my childhood was full of academic role models. I am thankful to my neighbors on that hill, especially another teacher and good friend, Teru Morimoto.
Other circles. Here at the Ohio State University, the weekly meetings of the study group I started in January, 1990 have sustained me, given me hope and energy when I felt discouraged, and supported my work during my general exams and in this dissertation. I especially want to thank the other two original members, Mindy Wright and Kelly Belanger, as well as Heather Graves, Carrie Leverenz, and Donna LeCourt, for their steady help and friendship. Jim Buckley, Cindy Cox, Ruth Ann Hendrickson, and Eric Walborn have also provided needed support at crucial points in this writing. The friendship and instruction of Keith Walters, Beverly Moss, Debra Moddelmog, and Roger Cherry have been important as well. I have been lucky in friends at Ohio State University. My dissertation directors, Andrea Lunsford and Jim Phelan, have shown a tolerance for the experiments, the false starts, and uneven thinking that naturally accompany an interdisciplinary dissertation in a new area. I want to thank them for that tolerance and also for participating in this experiment in collaborative directing of a dissertation. Lewis Ulman, too, has offered steady help; I have enjoyed our mutually caffeinated conversations about artificial intelligence, realism, and social constructionism. Andrea, Jim, and Louie have offered the support all graduate students hope for: they have been fair, sustaining, steady, and have offered exactly the right mix of nurture and challenge.

Finally, it is no exaggeration to say that this particular dissertation would never have been written if it weren’t for the encouragement, understanding, and
advice of my friend and partner Judy Doenges: through three different graduate programs, and from four different states, for the last seven years Judy has nurtured and encouraged me even as she has steadfastly pursued her own fiction writing. To Judy, because she has always helped me keep perspective, because we share a love for good stories of all kinds, and because of the dimension she has given my life and work, I dedicate this dissertation.

I think about how these acknowledgements place me, how I am located by my own tellings of the circles around this composition. I mean to acknowledge here all the fortuitous contexts that surround my dissertation’s exploration of what happens when a page becomes a window instead of a wall; but I wonder how the intention of the writer truly rises out of these words. I wonder whether I am freezing into space my own layered accumulation of influences, or whether I am simply misleading you, the reader, as I prepare you to read my dissertation on interactive fiction. Let me suggest you follow Calvino’s advice. Relax. Concentrate. Dispel all other thoughts. And begin.
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CHAPTER I

INTRODUCTION

The reader who opts for the old way of reading, for the one-way street, the reader who is determined to slide toward death by the shortest route, without putting up a fight—in other words, to read across rather than down—will be surprised to see that the chapters in this Testimonial are not given in numerical order. And he may rightly object to such poetic license. Why should these numbers be haphazard, and not the way they are everywhere else, in all crosswords and love stories in the world? The answer, once again, is quite simple. Because not everybody likes to read in order. And some do not like to write in order either.'

Introduction

During this last decade of the twentieth century, English Departments in the United States are animated by intensely felt debates about the relationship between literature and composition, the structure and content of the canon, and the very nature of authoring, reading, and form. These debates reverberate beyond Departments of English and echo in the academy as a whole in the form of hotly contested questions about objective versus subjective epistemologies, agency, the rhetoric and boundaries of separate disciplines,

'Milorad Pavic, Landscape Painted with Tea, “HOW TO SOLVE THIS BOOK ACROSS,” (New York: Knopf, 1991) 188.
and the methods by which knowledge is created, privileged, and conveyed. Because I write in the context of such interesting debates, my investigation of how interactive fiction reconfigures traditional relationships among readers, authors, and texts is necessarily informed by a desire to contribute to our academy’s working hypotheses about how language, reality, and subject in general relate. I view interactive fiction as a means to understanding better the plural possibilities of relationship between reader and text, self and world, or subject and object. Interactive fiction gives researchers a tool with which to probe the composing models of social constructionists and cognitivists, for example, as well as grants a window into how texts constrain readers and even into how the world constrains interpretations. These computer-based fictions, in turn, require researchers in Departments of English to reconfigure their critical theories and models of textual interpretation that are based on readings of paper texts.

I write within a critical community characterized as poststructuralist, and I am predisposed to see text and world as heterogeneous and fragmentary, open to multiple interpretations, and subject to rupture and aleatory influence. Interactive fiction, or stories read on a computer in which the reader takes on the role of a central character and writes into an evolving narrative, is a clear enactment of a poststructuralist conception of text and reader. The author and meaning are endlessly deferred, and textual stability could hardly be more challenged. Typically written
in the second person, interactive fiction is a disjunctive, playful, spliced, combinatory fiction that allows readers to engage explicitly the text in limited co-authorings: through the agency of a keyboard, readers type short sentences or phrases that appear on the screen and direct a computer program to select, sometimes randomly, responses. When I speak about interactive fiction in this dissertation, I am distinguishing it from hyperfiction, another computer-based narrative form that is based typically on a Hypercard platform, uses plot-branching, and does not require readers to type phrases and sentences to interact with the characters and the plot. Different from hypertext fictions (hyperfictions) because of the specific nature of its co-authoring opportunities, interactive fiction (and the hybrid processes of reading and writing it evokes) grants a new scene in which to examine how readers and writers make meaning of stories. It is a scene that is postmodern: heteroglossic and fragmentary, occasionally nihilistic, disjointed. Within this scene, interactive fiction evokes sets of readerly and writerly activities whose new visibility makes clearer the rhetorical dimensions of electronic texts in general.

**Problem Statement**

Interactive fiction and its innovative antecedent, virtual reality, provide a nearly perfect realization of poststructuralist's claims about the death of the author, the
instability of text, and the importance of reader response in identifying patterns, progression, or meaning in fiction. However, although the operations of interactive fiction can be encompassed by a poststructuralist criticism, these operations challenge us explicitly to extend our criticism beyond poststructuralism. It is the intent of this dissertation to examine reading and writing interactive fiction and to demonstrate how these electronic texts add a dimension to our critical understandings of the ethics of reading, the collaborations of composing, and the rhetorical triangle, as traditionally conceived. In short, this dissertation intends to answer the following four questions: What is the experience of reading and writing interactive fiction? How is this experience different from traditional, paper-based acts of reading and writing? What do interactive fiction and its antecedent, virtual reality, tell us about the reading-writing relationship in general? And how must we adjust our rhetorical theories and models to account for this kind of electronic text?

Background

As of this writing, interactive fictions have been commercially available for about ten years. In the past they have tended to be stories of adventure (Zork), detection (Deadline), romance (Plundered Hearts), or science fiction (A Mind Forever Voyaging), in short, goal-directed narratives that require readers to acquire things, solve puzzles, and
surmount various obstacles to achieve a particular end. The story’s computer diskette and instructions are often accompanied by materials such as maps, game pieces, code wheels, special pens, or matchbooks that serve the double purpose of helping a reader achieve her or his goal and helping publishers circumvent software pirates (by including hard-to-copy accessories of this type).

Infocom was perhaps the most prolific publisher of interactive fictions, publishing more than twenty titles between 1982 and 1988 including such well-received stories in mystery, fantasy, science fiction, and “tales of adventure” as Deadline, Wishbringer, A Mind Forever Voyaging, Leather Goddesses of Phobos, Suspect, The Zork Trilogy, Nord and Bert, Infidel, and many others. In my discussions of interactive fiction, I talk about the features of both commercially available fictions (such as those published by Infocom) and, more importantly, the interactive fiction systems currently under design. I include discussions of both kinds of stories, current and anticipated, because I wish that my dissertation might be of some value to designers in planning future interactive fictions as well as to rhetoricians engaged in analyzing them.

The commercially available interactive fictions such as those published by Infocom, known to hackers and computer aficionados as “text adventures,” are distinguished by their present-tense second-person narration, their nonlinearity, and by the gaps visible in their texts (signalled by a prompt and a blank section of screen into which the reader
responds). These interactive fictions are distinguished also by the roles required of the reader: she or he engages in the text as a character most often engaged in questing, sleuthing, rescuing, or solving. For example, Deadline, a popular interactive murder mystery, involves the reader as a detective who tries to solve the murder of industrial magnate Marshall Robner. The reader as detective can search rooms, interrogate characters, analyze clues, even eat or sleep, according to the sentences (or commands) she types into the story and that subsequently appear on the computer screen in the same size and typeface as the ongoing narration. The program selects which blocks of text to assemble and "project" according to the commands typed into the story by the reader, and according to their relation to the hierarchical instructions of the story's programs; in this sense, the story responds to its reader.

During the course of Deadline, for example, the reader (or user) might interview the housekeeper or analyze medicines suspected in the poisoning of Mr. Robner. The reader might rummage through a medicine cabinet, find a bottle marked "Sneezo" and then type "Analyze Sneezo tablets." The text that next appears would say: "Sergeant Duffy walks up quietly as a mouse. He takes the bottle of Sneezo brand decongestant from you. 'I'll return soon with the results,' he says, and leaves as silently as he entered."

Typically, users read all these commercially available stories in the role of a central character whose duty is to

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Deadline, computer software, Infocom, 1983.
solve a particular problem or set of problems; the narrative progression hinges on the reader performing this duty, and the programmer and program have anticipated a certain set of user responses. In commercially available texts, the reader's linguistic input is limited to statements of simple syntax and a vocabulary of about 1400 words. These commercially available interactive fictions are clearly related to more ambitious interactive media spaces, proposed three-dimensional computer-based visual simulations such as Myron Kreuger's "responsive environments" or Jaron Lanier's "virtual realities." Virtual realities may eventually replace today's computer-based interactive narratives by supplying three-dimensional interactive fantasies in which reader-users control the quality of their narrative engagement by choosing their temporal and spatial locations, body representatives ("puppets"), goals, and actions. Today, interactive fictions comprise one small segment of a proliferating educational and entertainment ("infotainment") software market, a market burgeoning with a growing number of computer-supported interactive multimedia presentations.

Although several articles have been written by critics in the last ten years about the phenomenon of commercially available interactive fiction, each treatment has tended to be cursory in its examination of how interactive fiction reconfigures reading, writing, and critical understanding of literate acts. First, for example, articles about the

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See, for example, *Learning with Interactive Media*, edited by Sueann Ambron and Kristina Hooper, and the discussions of educational applications of HyperCard currently evolving.
processes of reading interactive fiction (Buckles; Randall; Costanzo; Yellowlees; Niesz and Holland) focus primarily on asserting the "literariness" (Randall's phrase) of this new genre, or simply sketch, in general terms, how interactive fiction's form compares to that of traditional literature. While they provide intelligent discussions of interesting questions, these synoptic articles on reading interactive fiction seem to me to miss doing the painstaking, contrastive and crucial exercise of comparing particular texts. Chapter Two of this dissertation undertakes such a task by contrasting a particular work of interactive fiction with its counterpart in paper-based fiction, and the ramifications for our understanding of the processes of reading are drawn out.)

Second, articles about the processes of writing interactive fiction tend to be either discussions by programmers about their own adventure game programming languages (Betz; Lebling) or how-to essays addressing freelance writers who wish to compose in this new genre (Banks; Crawford). And while a growing body of literature (such as those by Heim, Selje, and Lanham) address the implications of computers for composition in general, none of it describes, in detail, the collaborative process by which programmers, authors, and readers compose an interactive fiction. Bolter's description of the new "writing space" of interactive fictions comes closest to detailing the layered collaborations that characterize the composing process of this new genre, but he combines his discussion of interactive fiction with a description of Afternoon, a work of
hyperfiction (a genre that, as I have mentioned, demands less reader interaction, is based on branching plot trees, and is, in general, significantly different). Clearly we need a complete description of the composing process of interactive fiction before we can begin to analyze it, and that description is precisely what Chapter Three of my dissertation provides.

Finally, those few published critical studies of how interactive fiction, virtual realities, and other fictional texts composed in an "electric language" (Heim) are transforming our hypotheses about reader-text relationships are faltering and incomplete, as any original discussion necessarily is. For example, Brenda Kay Laurel's concept of a neo-Aristotelian "computer-based interactive fantasy system," developed originally in her 1986 dissertation completed at Ohio State University, is clearly visionary and exciting, as well as being a harbinger of her current work with virtual realities and investigations of computer as theatre. Her work, however, does not go far enough in exploring how a selection of different narrative theories might be applied imaginatively to the new genre of computer narratives. Similarly, while John McDaid's attempts to link interactive fiction with quantum mechanics is clearly intriguing, and theoretical discussions by Lanham, Paulson, Bolter, and Costanzo and others about the implications of interactive fiction on textual transparency, the writing space, and our understanding of the mind-text relationship are clearly revolutionary, none of this criticism is adequate
to the task of presenting a comprehensive discussion of both existing computer fictions and their potential forms. Specifically, none of this criticism is based on a careful, specific demonstration of a particular narrative progression that would illustrate the general innovative process of reading and writing interactive fiction. While I view my own work in this dissertation as likewise tentative and incomplete, it is my hope that in my focus on current and potential interactive fictions I can advance our critical understanding of reading and writing in general in some small degree. It is my hope, then, that this dissertation will extend the inquiry into the rhetoric of electronic texts begun by the pioneers mentioned above.

Specifically, this dissertation attempts to extend our understanding of the processes of reading and writing interactive fiction through an integrative reading of recent discussions in narrative and rhetorical theory, composition, artificial intelligence, and feminist theory, supplemented by observation of two interactive fiction projects and a contrastive reading of paper-based and computer-supported stories. In a movement towards synthesis fostered in part by my close study of electronic texts, my method in this dissertation is multimodal, both hermeneutic and empirical. I examine both the textual products, as much as they can be finished products, and I observe the engagements of readers and writers in interactive fiction.
Chapter Outline

Following this introduction, Chapter Two of this dissertation examines the experience of interactive reading, that is, the reader's experience as she or he intervenes—through the agency of a keyboard, and as a character-participant—and directs the narratives. The chapter isolates what is unique about these interactive fictional experiences by comparing the experience of reading texts by Wilkie Collins, Robert Coover, and Italo Calvino with the experience of reading Deadline, a computer-based interactive text created by Infocom. I chose these three particular paper texts because they represent in paper form three of the narrative techniques typical of interactive fiction: multiple perspectives, nonlinear progressions, and second person address. My examination of these texts is informed by Wolfgang Iser's concept of an implied reader interacting with an indeterminant text and James Phelan's notion of a reader participating in a narrative progression.

After discussing Wilkie Collins' The Moonstone, Robert Coover's "The Babysitter," and Italo Calvino's If on a winter's night a traveler, I continue my discussion of the relationship of reader to text by examining its transformation within a new interactive setting, within the interactive detective mystery, Deadline. The catalyst for Chapter Two's subsequent discussion of interactive fiction's newly problematic ethical dimension of reading was a long and
helpful discussion within James Phelan's "informal seminar" (a meeting of advanced graduate students in critical theory) in which ten graduate students read diskettes of interactive fiction and reported on their experiences of these narratives. These graduate students reported on their strong sense of the ethical problematic of these texts and observed that these texts did not accommodate conventional critical readings (those based on paper texts). As a direct result of these informal discussions, in Chapter Two I explore the ethical dimensions of reading foregrounded by these new texts, a problematic dimension of reading related to the dissonance between the reader's mental representation of story, her or his actual options in guiding the story, and the textual representation of the reader in interactive fiction. I demonstrate that the locations of various readers are not adequately accommodated by the narrative progression offered by interactive fictions currently available by looking particularly at how interactive fiction makes explicit and visible the tension between textual constraint and plural interpretation. Identifying the variety of locations of composers on both sides of the textual transaction, I propose, would be a primary step towards understanding and influencing the rhetoric of interactive fiction.

Therefore, Chapter Three of this dissertation examines the processes of composing interactive fiction and its new participants, languages, and materials of collaboration. In this chapter I test a hypothesis that the difference in
interactive reading is the result of differences in how interactive fictions are composed. The new reader-text relationship established by interactive fiction gives the illusion that reading and writing are coterminous in this setting, an illusion easily ruptured by this chapter's close look at how interactive fiction is collaboratively authored. In this chapter I describe two interactive fiction projects currently in progress, the Oz Project at Carnegie Mellon University and Interactive Fantasies in San Jose, California. I show that current interactive fiction composing processes are harnessed to an outdated realist epistemology that posits a univocal, objectified reality and that ignores the force of social context in meaning-making activities such as reading and writing. It is that harnessing that so limits the reader's current experiences of interactive fiction. (Jayne Loader's short story "Wild America" lampoons current interactive fictions exactly on this point.) Oz and Interactive Fantasies are building "dense" worlds and the possibility of "subjective" encounters into their new interactive fictions, an effort that partly compensates for the Objectivist limitations of these earlier commercial stories such as Deadline.

In this third chapter I also suggest a social constructionist epistemology as an alternative to the objective, monologic epistemology currently codified in the current commercial interactive texts, a social epistemology that will acknowledge the influences of location--cultural, historical, ideological, and gendered--on the interpretations
of readers as they fill in the gaps or indeterminacies of these dialogic interactive fictions. All interactive fictions to date, including both the Oz Project and Interactive Fantasies, are based on structuralist conceptions of story that implicitly posit a single ideal reader. I develop a rival hypothesis claiming that the natural and necessary complement to a view of readings as contextually determined would be a composing process that explicitly acknowledges this variety. I suggest that future designers of interactive fiction follow the lead of Bates and Graves and create programs that support narrative interactions that are "rich" or dense (Bates) and "subjective" (Graves).

I question whether the notion of artificial intelligence and the very material of its compositions—the computer and its binary machine language underlying the scripts and algorithms of higher-level programming languages—might not be constraining the capacity of a reader to participate in a fictional world. In this chapter I describe further that the medium of exchanges between readers and writers of interactive fiction is a shifting multi-material of competing discourses of programs, programmers, writers, and readers. The layered negotiations of these competing discourses in the composing processes of interactive fictions foregrounds the importance of material in understanding the rhetoric of electronic texts.

The central occupation of Chapter Four is to develop the critical insight gained from the work of the previous two chapters and to suggest ways we might reconceive of the
rhetorical triangle, as it is traditionally viewed as a model of the communications transacted among readers, writers, and texts. In particular, I develop a critical perspective on the processes by which readers and writers of interactive fiction negotiate the layered materials and dissonant locations of these rhetorical exchanges. Current conceptions of the rhetorical triangle, such as those detailed in Kinneavy’s summary of interactions among readers, writers, and texts, are models based on either oral or paper-based literacies and an underlying epistemology that fails to encompass the interactive electronic text. Existing models of reading and writing fail to encompass interactive fiction, I argue, because they are limited to either social constructionist or objectivist epistemologies. The phenomenon of interactive fiction, in contrast, currently requires a model that bridges these two epistemologies. As a result, I suggest we revise our model of the rhetorical triangle to encompass the multiple reading paths, the layered collaborations, and the unstable texts characteristic of interactive fiction and virtual realities.

I offer a new model as an alternative to the rhetorical triangle, a model that bridges these two epistemologies, includes the new participation of a programmer and program, and that in general shifts our attention away from the participants in the rhetorical transaction to the processes, materials, and locatedness of those transactions. Traditional assumptions about the relationships among readers, authors, and texts have been under assault by
feminists, deconstructionists, poststructuralists, psychoanalysts, and reader-response theorists; interactive fiction administers its coup de grace. In this chapter I explicitly propose a new set of critical terms--materials, locations, and processes--as points of entry into describing the rhetoric of interactive fiction and electronic texts in general. I seek to describe the consequences of understanding electronic texts from the vantage point of these new terms for rhetorical critics as well as for designers.

Chapter Five, my conclusion, develops the hypothesis that future models of the rhetoric of electronic texts will need to account for the interactions of these three features instead of concentrating on the interactions of the participants. As it stands, the rhetorical triangle is an inaccurate spatial representation of the negotiations, collaborations, and competing discourses of interactive fiction and other electronic texts. Interactive fiction throws into confusion the boundaries between the inside and outside of text; the text and its readers and writers merge into a visually seamless collaboration that exposes the rhetorical triangle as a flawed model of the spatial transactions of the electronic text.

The rhetorical triangle buckles under the force of the changed temporal relationship between reader and writer as well. The traditional rhetorical triangle codifies a temporal relationship between reader and author (mediated by the text) that simply no longer exists in the electronic
text. Writing and reading can no longer be defined as activities occurring prior to or after the text becomes product, because resolution and closure are much more tenuous, and have the capacity to be serendipitous, in this new medium. The material of the textual transaction (the pixeled “print” on a computer screen) is a material that adjusts according to the ongoing processes of intervention and revision of both the author and the reader. In the textual transaction particular to interactive fictions, reader and author visibly coordinate and conflate across the computer screen, and the rhetorical triangle designed to model that transaction must conflate as well. Again, I propose in this chapter that we revise the rhetorical triangle to help in our analyses of electronic texts and that we begin instead with considerations of the material (or medium) of the transactions, the locations (historical, cultural, ideological, gendered) of their participants, and then the dynamic, recursive processes of the interactions of the new cast of participants. One of the central values of this study of interactive fiction is this insight it gives us into the proper tools for a rhetorical analysis of electronic texts.

Materials, Processes, and Locations

I conclude my dissertation with a brief discussion of how using materials, locations, and processes as terms with which to probe the construction of electronic texts will help
us understand literate exchanges in general. These three terms, and their implications as I have developed them in this dissertation, suggest three areas of research, with particular theoretical and pedagogical implications, to deepen our understanding of them. Current conversations about interactive fiction, virtual realities, and hypertext are carried on mostly in departments of computer science, while complementary discussions of the postmodern breakdown of narrative and the death of the author are heard primarily in the halls of departments of English and echo faintly, if at all, to the engineers hunched over their keyboards. In part because of this departmental insularity, computer applications bypass narrative and literary theories that might help guide their design, and a fruitful conversation between computer scientists and textual scholars has yet to occur. In this chapter I also address both of my potential audiences, systems designers and rhetoricians, and suggest ways of improving interactive fictions and virtual realities. It is my hope that this dissertation will provide a conceptual framework for designers of interactive fictions as well as help generate new rhetorical tools of analysis for our future encounters with electronic texts.

I expect this dissertation to lay the groundwork for a larger study of narrative, gender, and technology. I am writing this dissertation as a way to reconcile my own fascination with the new capacities of narrative facilitated by computer technology and my ambivalence about the scripted realities interactive fictions currently offer—a resistance
based, no doubt, on how I myself am historically positioned and socially constructed. As I consider how materials, processes, and locations coordinate to create the unstable literate exchanges of interactive fictions and virtual realities, I am aware how I must acknowledge these three features interacting within my own dissertation work; thus, I mention my own location. I come to this study as a white, middle-class feminist born in New York and educated at universities in the United States and Great Britain.

In this dissertation, interactive fiction and virtual realities become a new site for understanding a familiar social exchange between readers and writers. Part of the challenge of understanding the rhetoric (and dialectic) of interactive fiction is our natural desire to compare it to something familiar. In our search for the right analogy for interactive fiction, whether we choose cinema, books, or oral storytelling, and whether we demonstrate it implicitly in our metaphors of desktops, pages, and lightpens, or pick-a-path plot trees, we are sometimes blinded to the real possibilities of the computer medium and the art it can foster and inspire. On the eve of the twenty-first century, fifteen years after the development of the personal computer and ten years after the first commercial interactive fiction, I propose moving beyond analogy. In a movement parallel to the way interactive fiction conflates reading and writing processes, bridges contextualist and realist epistemologies, and breaks down the boundaries between reader and text, computer-supported narratives in many versions can push us
towards a new incarnation of story that is rich with
tentativeness, parallel possibility, and unboundedness. I
claim in this dissertation that the rhetorical strategies of
interactive fiction engage readers and writers in a
fundamentally new way, barely yet explored, and I remain
excited about the rich possibility for those of us who read
and write stories.
CHAPTER II
A MATTER OF THE EYE: READING INTERACTIVE FICTION

A book is a machine to think with.¹

In other words, not only do stories keep disappearing out of a book, but ever-new tales keep appearing in it. This is a matter of the reading, not the writing—a matter of the eye, not the pen.²

Thus begins a whole dynamic process: the written text imposes certain limits on its unwritten implications in order to prevent these from becoming too blurred and hazy, but at the same time these implications, worked out by the reader’s imagination, set the given situation against a background which endows it with far greater significance than it might have seemed to possess on its own.³

Introduction

At its most obvious level, reading interactive fiction is a process visibly different from reading a story in a book. Through the presentational device of a computer and the agency of a keyboard, readers or “users” of interactive fiction insert short phrases and sentences and direct a story’s point of view, sequence of locations, conversations with other characters, and scenes. Although this difference

¹ I.A. Richards, Principles of Literary Criticism 1.
in presentational device (computer versus book) is the most obvious difference between interactive and conventional reading processes, that primary difference supports other more significant differences in the form and the process of reading. Specifically, while in recent criticism reading has been viewed as an interactive process of co-constructing meaning from an unstable text, interactive fiction particularly gives a new prominence to the ethics of that process. The purpose of this chapter is to describe the experience of readers engaging with interactive fiction and to explore what that experience teaches us about the general reader-text relationship and its ethical dimension.

Jayne Loader's "Wild America" is a troubling short story that focuses on this ethical dimension of reading interactive texts. Her chilling tale lampoons one naive reader's attempts to negotiate interactive fiction's most notable (and troublesome) characteristic: its overt invitation to participate. In Loader's satire, "you" are an unemployed autoworker living in Detroit with an angry spouse, a sick baby, an empty savings account, and no hope of getting a job or welfare. Through a swift series of killings, thefts, a drug deal, and an encounter with an undercover cop masquerading as a prostitute, "you" are arrested, thrown into jail, and assigned a final score as "a menace to society." Loader's story makes it clear that "you" never really had a chance. The reader's responsibility for event and sequence in interactive fiction is developed in Loader's story as a readerly encounter with an oppressive script full of trick
requirements and an unrelentingly materialist culture, a narrative experience that critiques the consumerist contexts of our contemporary readings.

Loader's story satirizes one of the central features of the experience of reading interactive fiction: the genre raises an ethical problematic that is a key part of all readerly transactions with electronic texts, including virtual realities, multimedia hyperfictions, and interactive fiction. Readers or users of all truly interactive electronic texts bear a more overt and direct responsibility for the effects of their participation on the progress of the narrative. Loader's story resoundingly critiques the ethics of engagement invoked by current interactive fiction and demonstrates this mixed promise of involvement evoked by the illusion of participation that this new fictional form currently offers its readers. In fact, it is precisely this illusion of participation, which Loader so efficiently skewers, that embodies the central difference between reading interactive fiction and reading conventional fiction.

All current interactive fictions reduce reading to a scavenger hunt to some extent, and the participatory reading that Loader lampoons relates this scavenging to the blind pursuit of the trappings of the American Dream: the Chrysler, the motorboat, the TV, the Schwinn. However, Loader's story is most important for the question it raises about the ethics of participatory readings not only within particular treasure hunts but in general; she highlights the central question of the relationship between the "you" (or
“puppet,” in the language of cyberspace researchers’ ) that
moves through the electronic text and the “you” (the “flesh-
and-blood reader” in Phelan’s terms’ ) who exists outside the
text and guides that puppet representation. Loader
challenges us to examine how reading interactive fiction
gains an ethical charge because of the problematic
relationship it evokes between the reader and the “you” in
the electronic text, a challenge I hope I meet in this
chapter. The invitational form of interactive fiction and its
explicit opportunities for the reader to make responses
compound the effects of particular narrative techniques on
the process of reading.

In this chapter, my method of exploring the process of
reading interactive fiction is to undertake a contrastive
reading of three conventional (paper-based) texts and one
interactive fiction text. Several assumptions underlie my
method of study in this chapter, and I would like to make
those assumptions explicit and explain why I make them. The
first assumption is that interactive fiction is best
understood within the context of larger discussions about
readers, writers, and narratives that are based on how those
transactions are enacted in conventional (paper-based) books.

7 Allucquere Stone’s research on virtual systems, for
instance, discusses “puppets” as “body representatives”
within an animated computer text. She explains the interface
in virtual systems as “that which mediates between the human
body (or bodies) and an associated “I” (or ‘I’’s’).” In
interactive fiction, this relationship between user and
puppet is of course a relationship between the reader and the
“you” presented dynamically in a textual interface.

7 James Phelan, Reading People, Reading Plots (Chicago:
University of Chicago, 1990).
I compare interactive fiction's delivery system—its rhetoric, its explicit invitations, and its readers' heightened ethical involvement—to those of paper-based, conventional fictions. While I might have compared interactive fiction to oral story-telling, drama, or cinema, I have chosen to compare it to conventional fiction for several reasons. Both conventional and interactive fiction are alphabetic rather than iconographic and because of this congruity (or, in the terms of designers, because their interfaces are parallel) the two media support comparison. Second, our richest understanding of narrative is based on a long tradition of analysis of paper-based texts. I am connecting my study of this new fictional form to the tradition of literary study which surrounds me in my own Department of English and in which I have been trained; I study interactive fiction as though it were a member of the larger community of all fictions because of my own location. Further, as I move from discussions of the ethics of reading three conventional fictions to the ethics of reading interactive fiction, I am paralleling the transition readers at this particular point in history make as they shift from the familiar activity of reading paper-based books to the unfamiliar activity of reading the electronic text. Finally, my primary aim in this dissertation is to use interactive fiction as a tool to learn about the relationship between readers and writers in general, and aligning these electronic texts with conventional fictions is one part of that process.
The next assumption I have made is that careful readings of Wilkie Collins’ The Moonstone, Robert Coover’s “The Babysitter,” and Italo Calvino’s If on a Winter’s Night a Traveler... (henceforth IWNT) will help illuminate the process of reading interactive fictions such as Deadline. I chose the two novels and the short story because they allowed me to explore progressively, or in stages, readers’ encounters with three central features of interactive fiction: The Moonstone’s many perspectives, the nonlinearity of “The Babysitter,” and the second person address of IWNT each represents a particular narrative technique that is characteristic of interactive fiction and, I believe, contributes to the heightened readerly responsibility for what happens in the interactive text. In contrast, I chose to explore the interactive fiction Deadline because of its content rather than its form. The narrative technique of interactive fictions (and it is that technique, combined with the computer presentation, that I am claiming contributes primarily to the heightened reader involvement and related ethical culpability) is fairly constant across interactive fiction texts; Deadline, however, is anomalous in its content because it doesn’t involve the reader in nihilistic activities nor in a culturally male narrative (as do, for example, the Zork trilogy, Leisuresuit Larry, or Leather Goddesses of Phobos). By choosing Deadline, I am removing the effect an overtly misogynist content might have on my analysis of how readers resist the scripts of interactive fictions while at the same time they respond to their textual
invitations. In short, I hope my selection of *Deadline* will heighten the effect interactive narrative technique and textual form have on the ethical engagement of readers by interactive fiction.

The third assumption I am making in my exploration of the experience of reading interactive fiction is that the narrative theories of James Phelan and Wolfgang Iser will aid me in my investigation. Both theories are ones that bridge looking at the text (and textual form and discourse) with looking at the reader (and her or his socially constructed identity). A synthesized Phelan-Iser model allows me to examine the effects of these four narratives' nonlinearity, multiple perspectives, second-person address, and explicit invitation to the reader because both theories acknowledge the partnership of reader and text in constructing, in Phelan's terms, the narrative progression. Specifically, I use James Phelan's notion of narrative progression (the movement of a narrative through time) as a means of exploring the effects on the reader of the shifting perspective and arrangement in these narratives, and because of his work on how second person address works in Calvino. Phelan's concept of how instabilities and tensions operate in narrative discourse gives me a tool for evaluating the effects of these three narrative techniques on engaging the reader and making her or him ethically responsible for the events and outcome of story. Phelan describes his central concept of instabilities and tensions in the following terms:
In general, the story-discourse model of narrative helps to differentiate between two main kinds of instabilities: the first are those occurring within the story, instabilities between characters, created by situations, and complicated and resolved through actions. The second are those created by the discourse, instabilities—of value, belief, opinion, knowledge, expectation—between authors and/or narrators . . . and the authorial audience . . .

In short, I am extending Phelan’s theory of narrative progression by using it as a tool to explore the effects of particular narrative techniques on the reader’s ethical responsibility for sequence, event, and telos of narrative.

I add Wolfgang Iser’s discussion of the implied reader to Phelan’s idea of narrative progression in my study because Iser helps me shift from Phelan’s concentration on an ideal reader towards looking at the interaction between texts and actual readers. Iser helps me examine how Phelan’s “authorial audience” is also an implied audience and at how we flesh-and-blood readers occasionally chafe against the characterizations of that implied audience. In general, Iser illuminates the dynamism of the conventional reader-text relationship by describing it as a fluid and reciprocal relationship between an interpreting reader and a prefigured text. He describes “a virtual dimension” between reader and text wherein meaning is created, guided partly by the indeterminate text and partly by the reader’s own imagination; Iser posits reading as a process of individual

*Phelan, James, ed. Reading Narrative (Columbus: Ohio State University Press, 1989) 133-34.
readers actualizing an unstable text. Specifically, his concept of the implied reader—the prestructuring of this potential meaning of a text and the reader's actualization of this potential—helps us understand a text as a system of negative possibilities that readers fill in or negotiate as they reexamine and imagine their own world in contrast to the fictional one:

The reader . . . discovers a new reality through a fiction which, at least in part, is different from the world he himself is used to; and he discovers the deficiencies inherent in prevalent norms and in his own restricted behavior.16

According to Iser's model, reading is an imaginative activity of contrastive interpretation undertaken by individual readers. The reading process is "continually on the move," as the reader attends to the implications of sequent sentences, perpetually adjusting the virtual dimension of the text; Iser says, "This virtual dimension is not the text itself, nor is it the imagination of the reader; it is the coming together of text and imagination."11 Reading is a dynamic, transcendent, meaning-making activity negotiated through the gaps or indeterminacies of a text by the reader.

I follow Iser in believing a reader proceeds by a system of comparisons between her own experiences and that of the texts, looking at a novel as "a set of reactions, [that] the

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"Iser, 279."
reader is impelled to counterbalance . . ."12 However, I also use Wolfgang Iser to explore interactive fiction because his discussions of how gaps in a text function gives me a basis for contrasting the explicit gaps in interactive fiction with the invisible, shifting gaps of conventional fiction. Again, Iser extends Phelan, to some extent, by focusing on the range of "flesh-and-blood" readers there may be, and by positing a range of responses to the gaps (and, by implication, to the tensions and instabilities) implicit in a text as a reader encounters a dynamic narrative progression. While the individual models of both Phelan and Iser could probably be stretched to account for the reading experiences of interactive fiction, a synthesis of their models allows a more comfortable accommodation of the unstable texts and multiple readerships of interactive fiction.

Before computer-supported interactive fiction was widely available, a reader’s participation in a text was primarily invisible and limited to responding silently, within her own skull, to the prefigured text; she could respond aloud, if she chose, in the form of reviews or essays, in a conference presentation or in a casual conversation, but more often than not her traditional readings did not allow an active, visible rendering of response. Reading was a matter of the eye, not of the pen, and interactive fiction is significant precisely because of how it challenges that traditional relationship. The form of interactive fiction changes the nature of the textual relationship between readers and texts so that

12 Iser, 34-35.
reading becomes a newly responsive act of visibly inscribing self on text. In this sense, interactive fiction can be viewed as shifting textual literacy until it includes some features of oral exchanges.

Authors and playwrights have anticipated ways a text can invite the reader to inscribe the text for at least forty years. From the Crossroads Adventure Series, a series of "gaming books" where "each adventure is a thrilling tale, with the extra suspense and satisfaction of knowing that you will succeed or fail by your own endeavors,"13 to more sophisticated, self-reflexive narratives such as John Fowles' The French Lieutenant's Woman and Flann O'Brien's At Swim Two-Birds, authors have enlarged the conventional relationship between reader and text by allowing the reader to direct the narrative progression, choose episodic sequence, and influence closure. In these books, readers often choose between different readings in obvious ways, rolling dice, flipping coins, or adding up points to determine which section to read next. These paper-based interactive texts, in a primitive fashion, predict the kinds of texts facilitated by computer technology as well as suggest a range of narrative techniques and effects that function better on a computer platform.

In part because of the reader's newly visible inscriptions, interactive fiction revises the contract between reader and writer. The following discussion intends

to demonstrate how particular narrative techniques contribute to a heightened reader accountability for the progress of different narratives and their closure. I also suggest that this new culpability has not been sufficiently exploited by current designers of interactive fiction to create deeply satisfying fictional engagements.

**Analysis of The Moonstone**

*Wilkie Collins seems so to construct his [novels] that he not only, before writing, plans everything on down to the minutest detail, from the beginning to the end; no piece of necessary dove-tailing which does not dove-tail with absolute accuracy. The construction is most minute and most wonderful. But I can never lose the taste of the construction."*

*The Moonstone* by Wilkie Collins, a nineteenth-century "sensation novel" or detective story that implicitly asks the reader to assemble the complementary accounts, letters, diary entries, and family statements into a coherent narrative. This early detective story demands that the reader question and reconcile the conflicting, limited viewpoints of its multiple narrators to discover who stole an inherited gem. Specifically, a reader negotiates among the conflicting accounts and judgments of the six principal narrators in an attempt to identify the means, motive, and opportunity for the theft. Beginning with the 1799 "Storming of

Seringapatam," a letter of Herncastle's cousin, and ending with the 1850 statement of Mr. Murthwaite, the reader must create her or his own sense of what happened subsequent and consequent to the night of Rachel Verinder's eighteenth birthday, when a precious jewel was stolen from a cabinet in her bedroom. As critics have noted, "... the reader is misled by the text, which is a maze of false leads and blind alleys, of narratives that purport to provide a solution but also mask or conceal it ..." As the reader tries to solve the crime, her working hypotheses confirmed or dashed by every subsequent narration, sometimes even by every sequent sentence, she or he engages in an accretive process of discovery that is guided by narrators of varying reliability. As Gabriel Betteredge, a retired house butler, explains at the beginning of this novel, each narrator is responding to a request by Rachel's cousin and future husband, Franklin Blake, to outline her or his firsthand participation in the events leading up to the robbery: "the idea is that we should all write the story of the moonstone in turn—as far as our own personal experience extends, and no farther." The parameters of the accounts are further explained by Blake's footnote:

Nothing will be added, altered, or removed ... in any of the ... manuscripts which pass through my hands. Whatever opinions any of the writers may express, whatever peculiarities of treatment may mark, and perhaps in a literary sense, disfigure, the narratives which I am now collecting, not a line will be tampered with anywhere, from first to

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" Lonoff, 227.
* Collins, 8.
last. As genuine documents they are sent to me—and as genuine documents I shall preserve them."

The reader's experience of the narrative progression, then, in The Moonstone is a process of reconciling the instability of the conflicting viewpoints of the characters and the tensions of the changing relations between narrators and reader. The reader, in the words of Gabriel Betteredge, is "to be treated in all respects like a Judge on the bench." The narrative instability, for example, created by the detective Sergeant Cuff's absolute certainty that Rachel Verinder stole her own jewel and Matthew Bruff's contrary assertion that "If the plainest evidence in the world pointed one way, and if nothing but Rachel's word of honour pointed the other, I would take her word . . ." suggests an activity of judgment to the reader. The reader's judgment of the statement's veracity, while constrained by limited information, is aided as she or he negotiates the tensions between narrator and audience. The reader's judgment is finally swayed in favor of Rachel Verinder's innocence in part because of testaments to that fact in the narratives of Gabriel Betteredge and Franklin Blake, narrators we are inclined to believe, and because of testaments against that fact by Miss Clack, a narrator we are inclined to disbelieve because of her consistent hypocrisy.

" Collins, 183.
" Collins, 180.
" Collins, 180.
Examining a particular narrative within *The Moonstone* demonstrates how one set of instabilities and tensions operates on the reader and her or his evolving sense of the narrative progression. I wish to explore also to what extent the narrative technique of *The Moonstone* precipitates a readerly responsibility for the judgments she makes as she negotiates the unfolding story. Therefore, I analyze the narrative of “Miss Clack, niece of the late Sir John Verinder” with the question in mind of how the narrative technique of multiple point of view engages the reader. I examine how Clack’s limited viewpoint coalesces in the reader’s mind with other viewpoints and tempts the reader towards particular resolutions of tensions and instabilities that create a satisfying narrative progression.

The central instability of the whole of *The Moonstone* is, again, the question of who had the opportunity, means, and motive to steal the gem from Rachel Verinder’s cabinet. Several other smaller uncertainties fit into this larger puzzle, such as the question raised by Miss Clack’s inimitable acid-dipped pen: Why did Rachel jilt Godfrey Ablewhite? (As Franklin Blake reports in a footnote, Miss Clack’s pen has “unquestionable value as an instrument for the exhibition of Miss Clack’s character.”28) Miss Clack offers readers two versions of Rachel’s jilt, both versions contextualized by other events she unwittingly reports that serve to jaundice readers’ reception. The first version offered to readers by Miss Clack is Godfrey Ablewhite’s own

28 Collins, 183.
unhurried account of Rachel’s retraction of “a rash promise” to which, he tells Clack, he submitted readily because it occurred to him “that my true happiness is in helping my dear Ladies, in going my modest round of useful work, in saying my few earnest words . . .”³¹ In short, in this first version of the jilt, Ablewhite claims to Clack that his release from the engagement is a relief because he can now return to his true work with the Select Committee of the Mothers’-Small-Clothes-Conversion-Society.²²

The second version of the jilt given us by Clack comes later in her narrative upon the occasion of the elder Ablewhite’s confrontation with Rachel regarding her broken engagement. As he tersely says, “In plain English, it’s your sovereign will and pleasure, Miss Verinder, to jilt my son?”³² The reason Rachel gives for her “jilt” in this version is identical in language to what Godfrey reported earlier she had told him: Rachel says, “. . . reflection has convinced me that I should best consult his welfare and mine by retracting a rash promise, and leaving him free to make his choice elsewhere.”³³ In neither of Clack’s discussions of the jilt, then, is the reader given a satisfying reason for Verinder’s behavior towards Ablewhite, and the mystery

²² Collins, 237.

²³ The comical object of this society, the reader may need reminding, is “to rescue unredeemed father’s trousers from the pawnbroker, and to prevent their resumption, on the part of the irreclaimable parent, by abridging them immediately to suit the proportions of the innocent son.” (Collins, 184).

³³ Collins, 243.

³² Collins, 243.
surrounding the broken engagement becomes a minor instability that the reader must resolve.

When Clack reports Godfrey’s and Rachel’s complementary versions of the jilt, her report is surrounded by her descriptions of events and chance remarks that reveal progressively to the reader that something is seriously amiss with Godfrey and that the jilt is related in some oblique way to the disappearance of the moonstone. Clack’s first version of the jilt, for example, is preceded by her observation that the previous day the lawyer Bruff took Rachel on a walk to tell her, she guessed, bad news. Rachel confirms this conjecture the next day when she says that because of her walk with Bruff (and presumably because of whatever he confided) she “shall never marry Mr. Godfrey Ablewhite.”

Readers of this novel are inclined to like Bruff, a man who “in his hours of leisure, was equally capable of reading a novel and of tearing up a tract,” and because of the enjoyment of fiction readers share with Bruff, readers are apt to resolve the instability by accepting Rachel’s account; we figure she had good reason not to marry if she acts on the basis of Bruff’s advice.

Clack’s second version of the jilt, on the other hand, is preceded by even more troubling news of Ablewhite, which Clack reports even as she rejects it as “odious slander.” Clack intimates that Ablewhite has huge debts and that he has turned to Verinder in the hope that their marriage will

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25 Collins, 235.
26 Collins, 204.
27 Collins, 239.
alleviate his financial distress, an intimation that serves to make the reader wonder as well whether Ablewhite’s debts would be sufficient motive for theft of the moonstone. One effect on some readers of Clack’s narrative about the jilt is to make us suspect Ablewhite’s good character and to hypothesize that Rachel jilted him because Bruff made clear to her that Ablewhite wanted to marry her only for her money. After Clack indirectly suggests these unseemly possibilities in her reporting of Rachel’s and Godfrey’s complementary accounts, careful readers can find corroborating evidence in chance comments by Rachel’s mother, Mrs. Verinder (that she had confided her condition of fatal illness only to her sister, Godfrey’s mother), and Clack’s own revealing remark that Godfrey’s marriage proposal (which she overheard while hidden behind some drapery) had the same sound as his charity speeches at Exeter Hall. Because readers of The Moonstone are embarked on a gripping narrative experience in the spirit of all compelling “whodunits,” negotiating Clack’s limited report in the context of the larger discourse of the novel is the source of the reader’s enjoyment as well as one cause for his heightened involvement in the novel.

In fact, it is the tension in the discourse between Clack’s reports and what some readers have progressively assembled based on the earlier narratives of Betteredge and others that helps illuminate the relationships among Clack, Bruff, Ablewhite, and the Verinder mother and daughter. That tension among particular narratives is also one source of Clack’s narrative’s humor and reveals Clack’s hypocrisy. For
example, at the end of the elder Ablewhite’s confrontation with Rachel about why she had jilted her son, Clack interrupts him with a religious tract by Jane Ann Stamper. Her gesture is met by Mr. Ablewhite’s shout

‘Miss Jane Ann Stamper be _______!’
It is impossible here for me to write the awful word, which is here represented by a blank. I shrieked as it passed his lips; I flew to my little bag on the side table; I shook out all my tracts.

Clack’s avoidance of the word ‘damned’ is made more humorous by our knowledge of the word and her own pious, hypocritical exorcism of it from her printed text. Her laughable hypocrisy is likewise evoked by the silly metaphors and similes she draws, for instance, between faith and stockings28 and Oriental noblemen and evil passions.29 These tensions in the discourse of the novel, or dissonances between what the authorial audience and the narrative audience know, are one means of invoking a readerly reaction of enjoying privileged information and happily knowing more than any one character. These tensions further engage the reader in coalescing the narrator’s viewpoints into a privileged viewpoint that synthesizes outlook, predicts outcome, and involves the reader in a heightened narrative engagement.

A final example of how these tensions in discourse are working, particularly in Miss Clack’s narrative, is her persistent correspondence with Franklin Blake included in

28 Collins, 186.
29 Collins, 188.
Chapter Six, wherein she tries to persuade Blake to include various 'Extracts' from religious tracts in her narrative. Blake repeatedly refuses in his end of the correspondence, and finally Clack insists that Blake at least include some of their correspondence about their debate because

Some explanation of the position in which Mr. Blake's interference has placed her as an authoress, seems due on the ground of common justice."

Some readers find this correspondence humorous because they appreciate Blake's censorship all the more because they can well imagine the religious tracts Clack would like to include and because we have seen her missionary zeal operating in several other settings. Again, this tension in the narrative discourse, between what the narrator reports and what the reader infers, helps illuminate the relationship between Blake and Clack, as well as remind us about the rules of construction to the book as a whole. It is this particular interplay between the reader and the narrative instabilities and tensions that provides a heightened readerly engagement in The Moonstone. Multiple viewpoint serves to engage the reader in resolving the sets of instabilities and tensions evoked by conflicting narratives, an engagement that involves the reader actively in the text.

In general, then, the instabilities and tensions in The Moonstone function similarly to Iserian "gaps" which readers must fill in based on their understanding and judgments of

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50 Collins, 227.
the ongoing narrative. The Moonstone, it seems to me, uses an epistolary narrative strategy that follows Iser's description of Richardson: "the overall structure of the novel gives a shape to empirical reality, then this reality is split up among the varying viewpoints of the characters, and, finally, the multiplicity of concrete--but limited--aspects must 'coalesce' in the reader's imagination." In his general discussion of the epistolary novel, Iser adds that "the reader is confronted directly with the characters, and since none of the addressees writes in return, the reader must take their place." It is this double layer of implicit gaps shifting within the narrative--the instability of who stole the moonstone, why and how, combined with the instabilities among the particular limited narratives themselves--that engages the reader and entertains her or him. Iser and Phelan provide a framework for understanding how narratives such as Miss Clack's progress by explaining that the narrative presents the reader with reconcilable differences in point of view; the activity of reconciliation (or judging or choosing or resolving) is the activity that provides the humor and suspense for the readers of The Moonstone. I want to turn now to a more specific discussion of how different readers engage the indeterminancies of this novel based on their own contexts.

Susan Lonoff's Wilkie Collins and his Victorian Readers offers an excellent starting point for understanding the

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"Iser, 70-71.
Iser, 71."
English middle-class reading public that purchased Collins' serial publication in *All the Year Round* in 1867 and 1868. Those readers had a particular historical context to their readings, a context that is very different from the historical context surrounding readers today. While Lonoff blends her discussion of sources for *The Moonstone* with her discussion of the political questions or "topics of period interest" (p. 174) surrounding the composition, I want to focus here only on the latter, and that briefly. Collins' relatively sympathetic treatment of the three Indians who are bent on recovering the moonstone in England is a treatment offered in opposition to an event much reported and debated contemporaneously, that is, the event of Governor Eyre's slaughter of native Jamaicans in October 1865. The governor ordered his subordinates to shoot at rioters, and 586 native people died. Collins indirectly critiques this massacre (and those who supported it) as well as other Victorian attitudes; he specifically offers sympathetic portraits of domestics and professionals, and unsympathetic portraits of religious hypocrites. His dire indictment of Clack (and, by extension, of other "Samaritans" of his period), and his generous portraits of the professional class (Bruff, Cuff, and Candy) were attitudes contradictory to those commonly held by his readers. Lonoff traces in more depth than I can here the specific range and effect of Collins' social censure within *The Moonstone* in the context of his times.

However, Lonoff's discussions of how Collins influenced and chastised his contemporaries, evokes two claims regarding
the readership of The Moonstone, one minor and one major. The minor claim is that because of our historical distance from the narrative's time and from the time of its composition (written in 1868, approximately ten years after the supposed theft of the stone), contemporary readers misread or read differently the historically positioned commentary on servants or colonials, for example, as well as miss the specific historical referents or analogues. On the other hand, some twentieth-century readers draw out other, perhaps unintended, analogues in their contemporary rival readings. For example, Lonoff quotes a nineteenth-century Athenaeum reviewer who "thought that Lucy's friendship should have been made the means of saving Rosanna: [The reviewer says] 'The cloud that hangs over her horrible death might have been lifted by a true artist, and she might have been allowed to live and recover her right mind, under the tender influence of her friend, 'Limping Lucy.'" In my own contemporary reading of Limping Lucy's "influence," in contrast to the Athenaeum reviewer, I see a stereotypical portrait of Lucy's lesbian love for Rosanna Spearman. Limping Lucy's passionate avowals of love, her dream of going to London and "Living together like sisters," her comment that "No man is worth fretting for," her grieving for Rosanna that lasts years, all indicate to me the possibility of homosexual affection, an interpretation apparently not shared by Collins' earlier reviewer. I claim that my alternate reading of the minor character Limping Lucy is a reading

— Lonoff, 209.
fostered by my alternate location (historical, social, and cultural), and of the way I have constructed the notions of gender and sexuality. Whatever reading contemporary readers bring to Limping Lucy and the other characters within The Moonstone, my minor claim here is that as we negotiate our relationships with these characters, our negotiation is complicated not only by the limited multiple viewpoints but by our own historicity.

My major claim is that multiple viewpoint, combined with readers’ contemporary contextual locations, evokes an activity of coalescing or synthesizing narrative progression that increases a reader’s involvement in the text, and that it is precisely this construction of The Moonstone that makes the text so gripping and that foreshadows, albeit wanly, the reader involvement evoked by interactive fiction. The Moonstone’s multiple viewpoints create a particular kind of narrative instability that readers must labor to reconcile; it is within this activity of idiosyncratic resolution that textual enjoyment and involvement are invoked for readers.

Analysis of “The Babysitter”

... yes, the text and its metaphors do sometimes lead the way. Inner forces emerging from the narrative itself, whether as rebellious 'characters' or the 'spontaneous' eruption of event and imagery, are more to be trusted in the end than rational design, no matter how ingeniously contrived."

Postmodern fiction in general is distinguished by its non-linearity, its experimentation with sequencing, its juxtaposition of disparate media and voices, and its thwarting of reader expectations. Postmodern texts are commonly described as anologic, accretive, or organic, adjectives designed to get at this central feature of postmodern fiction: they are piecework narratives, fictions told in fragments. Postmodern writers who use these techniques include Julio Borges, Mario Vargas Llosa, Italo Calvino, and Milorad Pavic. Robert Coover’s metafictions are narratives in some ways similar to the work of these authors, and his short story “The Babysitter” in particular shares the postmodern narrative technique of progressing by disjunction and accretion. I turn now to that short story for an understanding of how multiple point of view is complicated by nonlinearity, how both these techniques may be operationalized in a paper text, and how that operation illuminates the process of reading interactive fictions.

In “The Babysitter,” the reader is engaged in a splintered story that forces her or him into an activity of judgment to a greater extent than did The Moonstone. The explicit gaps in the text and the disorientation they support invite the reader into a self-reflexiveness that is intensified by the achronological, disordered narrative. The specific textual features (such as the story’s short, unconnected paragraphs) that invite readers to reflect on their own habits of reading and assembling narrative
progression are this story’s version of the Phelan-Iser gaps and instabilities. The central instability of this story is the problem of the babysitter’s unfolding relations with a variety of domestic partners and the text’s conflicting accounts of those relations. A tale of horror, the unreliable discourse and typographical arrangement of the story compounds the horror and, I argue, ultimately causes readers to examine their own domestic contexts.

Typographically, the story is a series of unindented textual blocks, each separated by an inch of white space and three small circles drawn close together. Each block of text advances the narrative progression by providing additional details about the events of one strange night when a babysitter came to the Tucker household to take care of the kids. Each block shifts its narrative point of view, location, and chronological moment. But this is not Rashomon. In other words, we get more than the different versions of a night as reported by Dolly and Harry Tucker, Jack and Mark, and Jimmy and Bitsy: the night itself is refracted into multiple possibilities, and part of the story’s nonlinearity is its layered presentation of equally weighted, alternative, and mutually exclusive realities. While a straightforward chronological retelling was a firm foundation underlying Collins’ novel, chronology, sequence, and order in Coover’s short story are unpredictable and confused. One effect of the confusion is to impel readers to examine how they read texts and participate in their own domestic contexts; a related effect of the story is to help
some readers examine fiction's evocation of the traditional relation between subject and object, reader and text, observer and world. In general, the central preoccupations of Coover's story are serious questions about how we judge reliability in narrative, and, ultimately, how we identify and synthesize the relations among truth, language, and reality in the world.

In Coover's story, the convention of an unreliable narrator is compounded by unreliable narratives, and whereas in The Moonstone readers had to weigh complementary accounts of a theft, the principal readerly activity of "The Babysitter" becomes one of excluding conflicting accounts. Of course, such exclusions ultimately fail in this narrative; no narrator is ultimately reliable and no single narrative line emerges as the most likely. While Coover's story at first engages some readers in an activity of choosing among conflicting accounts, such an activity is so frustrated by the details revealed in subsequent textual blocks that readers must eventually shift to another activity of entertaining simultaneously contradictory narratives, unresolvable conflicts, and mutually exclusive accounts of events. Because Coover's narrative demands this new activity of its readers, these readers gain a new view of their old ways of reading: Coover's text disrupts one of the limits of traditional fiction and the singular pattern, particular sequence, and specific ending a traditional work of fiction usually invokes. "The Babysitter" implicitly asks readers to examine narrative conventions of linearity, temporal
sequence, and closure, and to assess their own working assumptions about how these conventions traditionally operate.

In general, Phelan’s notion of narrative progression holds that when a reader reads, she or he is always forming a hypothesis about the whole, while, at the same time, she negotiates the complexity of the parts of the narrative. During her reading of Coover’s short story, the reader is making predictions about the pattern of events in the Tucker household, but that activity of predicting is complicated, and ultimately stalled, by the variability in the narrators’ accounts of the night. Although “The Babysitter” initially challenges the reader to assemble a particular progression and to reflect on her or his own processes of interpreting that progression, the text almost immediately frustrates the reader’s efforts. The story’s nonlinearity compounds the effect of multiple narrators and creates an untraditional, shifting narrative progression that frustrates conventional readings and engages readers in a new way.

Part of the story’s initial invitation to readers to form a coherent narrative (an invitation ultimately revoked) is extended explicitly in the story’s cohesive devices, textual patterns which orient the reader navigating the fragmented narrative, devices I call seams or markers. When the text ultimately withdraws its promise of resolution, those seams and markers also fail to provide a singular coherence, a synthesis of the narrators’ conflicting accounts. The ultimate failure of these orienting devices,
these cohesive seams and markers, contributes to the main effect of “The Babysitter:” the effect of aiding readers in questioning our own patterns of reading, and, ultimately, of domestic living. While the seams and markers initially aid readers’ attempts to form a single narrative and choose among accounts, eventually they too fail to privilege a particular account, and the reader is left with her or his own reflections on her own domestic situation.

Coover’s first principle of construction is to fragment a narrative into conflicting pieces; to split the singular into the plural. The narrative techniques I call seaming and marking work against this splintering and initially provide cohesive ties in the story as well as offer points of comparison or places of judgment to the reader. Specifically, fragmenting in “The Babysitter” is Coover’s narrative strategy of shattering a story into competing pieces, both typographically, as in the section breaks in “The Babysitter,” and linguistically, as in the unlocated conversations and interior monologues echoing and unraveling throughout the story. Seaming, in contrast, is a narrative strategy invoked by Coover to counter the fragmenting of the story and works to create a coherent whole on both global and local levels in this story. On the global level, seaming bridges the fragments of the text by echoing earlier conversations or motifs in distorted forms, or by expressing a similar motivation or desire across characters. The repeated incanting of sexual desire, for example, is the most obvious seaming device: one flimsy coherence of this story
is constructed and expressed through these slant rhymes of desire. Seaming works locally, as well, as in the textual seam arching over the sectional break: "Bitsy peepees in the bathwater," followed by "Mr Tucker stirs a little water in his bourbon . . ." (p. 213). Tucker's drinking acquires an distastefulness because of this indirect association between alcohol and urine.

Marking is another of Coover's strategies of orienting the reader among the fragments of his text. While seaming depends on a concatenation of distorted echoes rippling through the text and tying it together, marking is the literal echo between sections, the event or sound or conversation that repeats itself word-for-word in various contexts. Marking allows the reader to identify parallel moments in the narrative and compare the veridicality of the conflicting incidents that surround them. As I discuss in more detail below, each of these three strategies (fragmenting, seaming, and marking) initially cohere in "The Babysitter" to compel readers into assembling a particular progression and choosing a particular narrative line; then the failures of these orienting devices propel some readers towards a reflexive examination of their own habits of reading and the conventions of representing truth and reality in narrative. The controlled interdependence of these three strategies show that even an exaggeratedly non-linear fiction is a principled representation, and their ultimate failure to provide a reader the means to choose among the conflicting
accounts spurs readers to deeper engagement in the narrative and in self reflection.

In short, Coover's "The Babysitter" is not an unmanaged assemblage of conflicting versions of reality, nor, more generously put, a cubistic rendering of a single reality. Fragmenting "The Babysitter" is a planned manipulation of conventional reader activities: sifting through evidence; listening to witnesses; judging the claims and warrants of conflicting accounts. The author's deliberate fragmenting of "The Babysitter" impels us readers to scrutinize our own processes of making order out of disorder. At the end of "The Babysitter," we are invited to understand the conflicting narratives as created by the unreliable logic of a dream ("I must have dozed off!" She exclaims) or as generated by the eerie, unsubordinated co-realities, the elisions of the television screen: just a story slipped in among the news, the aspirin ads, and the late late movie. "The Babysitter" forces readers to examine our central assumption that there is a governing logic in narratives and our naive faith that disparate characters, events, and settings are somehow reconcilable. Despite the seams that connect these different blocks of text, the texts cannot be reconciled.

Seaming is part of Coover's strategy to tease readers into believing that reality exists in the singular in this story, that there is a means of tying together the narrative he has shattered in disturbing and provocative ways. Under the shine of the unsubordinated, unconnected surfaces of "The
Babysitter" and within the disparate settings of television, bathroom, and parties, built into the narrative are the seamings that indicate the possibility of coherence, a possibility that ultimately fails, as mentioned above, on both the global and local levels. Seaming as a narrative device begins locally in the split between sections one and two, in Harry's response to Mrs. Tucker's opening call, "Harry! The babysitter's here already!" Harry's internal rifling through song titles, beginning with "That's my Desire," and ending with "Who's Sorry Now," foreshadows the story's dominant tensions—sexual desire and violence—and connects Tucker and the babysitter insidiously. Specifically, the lack of italics around the song titles causes readers to read the song title "That's my Desire" in at least two ways: as a song title, and as a response to Mrs. Tucker's announcement of the babysitter. Of course, the possibility of double meanings embedded so frequently in the text is one of the narrative's strengths. This embedded possibility of double response is one version of seaming used repeatedly by Coover to tie together blocks of text and to demonstrate sexual desire refracting through disparate characters and scenes.

In another instance of seaming, this same strategy of invoking a double response follows Mark's cry in the drugstore (to the pinball machine): "Hey, this mama's cold, Jack baby! She needs your touch!" The sectional divider is followed by "Mrs. Tucker appears at the kitchen doorway . . ." This time the seaming serves to link Jack's desire for
the babysitter to his activities on the pinball machine—-and to generalize Mark’s sexual desire for the babysitter to Mrs. Tucker. Coover’s seaming here stitches together machine and woman into a general—-and tangled—-sexual desire. Seaming also allows a motif of sexual violence to be foregrounded throughout the various scenes; the section describing the babysitter forcibly undressing the wailing Bitsy is followed by a section divider and then the description of an anonymous female: “Her skirt is ripped and she’s flushed and crying” as two men fight over her.

Coover’s seaming, his oblique echoes and mispairing of comment and response, in “The Babysitter” thwarts readers who expect sequent sentences to describe the same reality and for a female pronoun to refer to the nearest woman. In fact, ambiguous referent is one of the most common features of Coover’s story. If we define character as a unified set of motives expressed in predictable actions that are generated by observable causes, we can see Coover shifting that definition: violent sexual desire does not lodge within single bodies but is invoked instead within whole settings, versions of reality, and families. One man’s fantasy becomes another man’s action, in this story. The oblique references, the offkey echoes of this story are the seams that ultimately thwart readers’ attempts to assemble a single narrative progression. Seaming is the story’s means of stitching together the fragments of the nonlinear narrative, stitches that ultimately fray.
On the other hand, marking operates within seaming to help orient the reader as she decides between competing versions of reality. Simply put, the literal echoes within the story provide place markers, buoys in a turbulent text. For example, compare the conversation at the pinball machine noted above with the later section beginning "'Stop it!' she screams. 'Please, stop!' Mark holding her head and nodding at Jack when Mark says again, 'C'mon, man, go! This baby's cold! She needs your touch!" Readers remember having heard this conversation before, at the pinball machine. This marking permits the slam and ricochet of those pinballs to echo the violence of desire. Although marking would seem to extend to the reader the means of assembling a coherent narrative, ultimately marking serves to underscore the impossibility of reconciling these conflicting narratives.

One of the clearest orienting markers in Coover's story is the recurrent telephone call. During the course of the story the telephone rings sixteen times, and, eventually, readers hear sixteen versions of a telephone call. The ring of the telephone in "The Babysitter" is a marker that helps readers compare versions of the telephone call. Thematically, the telephone and the various voices it imports into the Tucker household signal the uncertain relations between presence and absence, of the shattered, unsure connections between houses or spouses. However, the ring is also a marker: the repetitions of the ring are an orchestrated reminder of the unreliability of earlier
versions of the evening; the repeated ring allows direct comparison of competing versions of reality.

As we readers attempt to make our decisions about what really happened—Did Jack get the babysitter to agree to a visit from him and Mark? Which "Hi, This is Jack!" conversation really occurred? Is the whole story a drunken stupor? Dream? Wet dream? TV show?—the cohesive devices of seaming and marking initially aid but ultimately constrain our attempts. At the final ring of the phone in the story, the babysitter answers completely exposed, unclothed: "She doesn't bother with the towel—what can Jimmy see he hasn't already seen?—and goes to answer." (p. 237) This final call and answer exposes the reader's essential voyeurism: through the agency of story we have seen the babysitter from every angle, we have repeatedly examined her body and her fantasies and several versions of the male fantasies around her. What more could be revealed? The markers of the repeated telephone ringing, recurring conversations, even the repeatedly emerging image of a girdle smeared with butter help us compare versions of reality as well as examine our own patterns of weighing evidence, choosing between accounts, and ascribing truth. However, despite the opposing movement of seams and markers against the fragments of "The Babysitter" readers are ultimately thwarted by the textual form and conflicting accounts in their efforts to choose an authoritative version of truth. That ultimate thwarting, or frustration, I argue, is one source of the story's mnemonic value and emotional intensity.
"The Babysitter," a seeming mess of unglued parts, coalesces through the reader’s encounters with its instabilities into a chilling, multifaceted portrayal of a typical night of the nuclear family. The inchoate mess reifies into a disturbing portrait of male and female sexual desire—distorted by TV and booze—so potent and intense it seems radioactive. Readers remake the ripped text, and the narrative’s seams and markers act as effective cohering devices (orienting devices that we will soon see interactive fiction lacks). In my previous discussion of how Coover orients the reader in her evolving sense of the narrative progression, I have focused on the activities of that reader as she compares accounts of events. "The Babysitter" forces the reader to confront mutually exclusive accounts in a way The Moonstone does not because Coover’s story’s limited multiple viewpoints are presented in a nonlinear pattern that makes the reader work harder, and at more levels, to coalesce this narrative into a coherent whole.

As a reader engages in the self-reflexive decision-making that comprises the process of reading "The Babysitter," she or he is responsible for the choices she makes beyond Coover's orienting language. She takes responsibility for the horror she chooses to believe in and for how she constructs that particular horror's reflection on her own domestic life. For example, when I choose to believe at the "end" of the story that the dishes were done and the baby neither choked on a diaper pin nor drowned, I am demonstrating my own naive faith in a predictable, civilized
world, a faith fostered in part by my own experiences as a child growing up in a middle class suburban neighborhood, babysitting, going to dinner parties. I take responsibility for the choices I make in interpreting Coover's narrative, while at the same time I recognize that my choices grow naturally out of my own social, gendered positioning. Ultimately, however, I recognize that Coover's story is irreconcilable, that the narrative itself resists resolution; my attempts to force resolution are not directly supported by his text.

Coover's invitation to the reader to resolve conflicting accounts, an invitation couched in the narrative's cohesive devices of seams and markers, is reneged by the narrative's essential irreconcilability. However, readers' efforts to synthesize accounts and achieve definitive closure are a symptom of an active engagement with text fostered by a nonlinear narrative and its multiple viewpoints. Those of us interested in interactive fiction gain two important insights from this analysis of "The Babysitter." First, we learn that a nonlinear narrative can successfully engage a reader when it is a controlled succession, a principled representation of related scenes and accounts. Second, that the work required of readers by nonlinear narratives such as Coover's story serves to heighten a reader's engagement in the narrative. The frustration, the thwarting of conventional resolution, involves some of Coover's readers in a newly active engagement with narrative.
**Analysis of *If on a Winter’s Night a Traveler* . . .**

In an interview about composing *If on a Winter’s Night a Traveler* (*IWNT*), Calvino described himself as "a more sadistic lover than ever . . . I constantly play cat and mouse with the reader, letting the reader briefly enjoy the illusion that he’s free for a little while, that he’s in control."\(^{33}\) Calvino’s novel is a book that flaunts its synthetic elements—its self-conscious analyses of the act of reading and its metafictional games—at the same time that it provides an explicit invitation to the reader to engage ethically and mimesically in the narrative. Like Robert Coover’s "The Babysitter," Italo Calvino’s *If on a Winter’s Night a Traveler* is a nonlinear narrative which invites its readers to reconcile the instabilities between characters and the gaps among accounts of events in a problematic reading process. However, the nonlinearity of Calvino’s narrative is guided by a mathematically determined combinatory aesthetic, and the reader’s self-reflection is complicated by a second-person, present-tense address that shifts among its intended audiences. Because Calvino’s narrative adds second-person address to a nonlinear narrative, and because its nonlinearity is guided by what is in effect an algorithm, my hypothesis is that the experience of reading *IWNT* is closer to the experience of reading interactive fiction than either Collins’ or Coover’s narratives. In all three of these

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\(^{33}\) Carl D. Malmgren, "Romancing the Reader: Calvino’s *If on a winter’s night a traveler,*" pp. 106-116.
narratives, the reader's activity is to follow the narrative progression. In Collins, the reader reconciles complementary viewpoints; in Coover, the reader does that as well as entertains simultaneously different versions of events and reflects on her or his own domesticity. In Calvino, all these activities exist as well as a progressively engaging, ludic encounter with second person address.

However, as we shall see, reading even Calvino's fiction does not approach the experience of reading interactive fiction and its conventions of mechanistic assemblage, unvarying second-person address, and ethical engagement of the reader. The layering of these features of interactive fiction in Calvino's narrative, however, fosters a related process of reading I would like to analyze here.

Like Coover's story, Calvino's novel is in the tradition of postmodernism, or novels that are about their own mysterious creation, fictions that purport to teach us how to read them and in the process teach us how to read ourselves, as if our secret lives were somehow their true subject, books that rarely let us forget that they are structures of language and not 'real,' not a mirror held to reality."

Structurally, this work of fiction is comprised of the first parts, or incipits, of ten novels, interleaved with twelve sections of description of the Reader's reactions to his experiences trying to read the incomplete ten novels. The ten incipits are titled and are characterized best as the

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first chapters of various kinds of pulp fictions: spy story, action adventure, Oriental sexual thriller. Carl Malmgren credits Mary McCarthy and John Updike with the insight that "these ten narrative starts" all share features ("eros, mystery, suspense") of the detective-thriller genre. The twelve numbered chapters, on the other hand, detail the character called Reader's frustrations with his inability—because of material circumstances such as mistakes in binding, manuscripts lost or stolen—to complete even just one novel and to consummate his relationship with the Other Reader, Ludmilla. These numbered chapters are conventional in their formulaic love story (eventually the Reader and the Other Reader are wed), but they are unconventional in their constant comments on the activity and situations of reading. In this sense the numbered chapters especially urge their readers towards self reflection and clearly demonstrate a textual form in which layered artifice engages the readers in a frustrating, constantly interrupted, participation.

_IfNT_ is a novel that foregrounds the synthetic at every level, and the reader's process of negotiating that synthetic raises his or her degree of participation and self-reflection. Several critics have outlined the combinative aesthetic of Calvino's _IfNT_, noting its roots in Calvino's participation in Oulipo (Ouvroir de Litterature Potentielle, or Workshop of Potential Literature), and Calvino himself has commented on the novel's artifice in his interview "Comment

--- Malmgren, 10.
"j'ai écrit un de mes livres" translated and paraphrased by Warren Motte:

Calvino states that one of the constraints underlying *If on a winter's night a traveler* was inspired by A.J. Greimas; specifically, he reveals that his novel is structured according to a series of models much like the semiotic square proposed by Greimas. . . . Each of the numbered chapters in the text (as opposed to the ten interpolated 'novels') is governed by pre-elaborated square models of this sort.

This semiotic square is diagrammed by Motte and shows a layered representation of book, book within book, reader, and reader within book. Greimas' semiotic square is just one of several "ludic combinatorial systems" experimented with by Calvino and the members of Oulipo.

Calvino's literary experiments such as *INVNT* explore potential literature, "that is, a text constructed according to a rigorous system of formal constraint, a text in which a strong ludic current balances the serious intent, . . . a text whose structure may be defined as combinatorial."38 Calvino himself says, in "The Novel as Spectacle," that contemporary fiction writers

. . . now know the rules of the "romanesque game," [and so] we can construct 'artificial' novels, born in the laboratory, and we can play at novels like playing at chess, with complete fairness, re-establishing communications between the writer, who is fully aware of the mechanisms he is using, and the reader, who goes along with the game because he, too, knows the rules, and knows he can no

38 Motte's "Calvino's Combinatorics," p. 81.
longer have the wool pulled over his eyes."

Just as the analysis of Coover's "The Babysitter" revealed a system of cohesive ties underlying its nonlinear narrative, Calvino's novel too is a formally crafted, coherent whole; his novel is a principled work based on tightly codified formal constraints. One result of this synthetic quality is an increased readerly responsibility for how she or he assembles meaning and reflects on his own life and context.

Many critics (Varsava; Hume; Rankin) note the large degree of authorial manipulation in *INNT*, often describing that manipulation in sadistic or sexual terms. One factor in this increased synthetic quality is *INNT*'s second person address. Phelan analyzes this relationship in depth, and I will present only a brief summary of his work here. Building on the rhetorical models of Rabinowitz and Booth, Phelan identifies part of the play in Calvino's *INNT* as the way the text separates the "you" address into addresses to three different audiences: the authorial, the narrative, and the characterized audiences. From Calvino's first sentence until the final resolution between Reader and Ludmilla, the authorial audience (us) is asked to be self-reflexive about our own acts of reading.

Phelan describes more specifically the progression of reading situations that the Reader encounters and claims their result "is that the authorial audience is led to

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reflect on the variety of situations and relationships that contextualize its own reading." Phelan claims that Calvino sets himself a very challenging narrative project. The challenge, in effect, is to emphasize the distance between the authorial and the narrative audiences and then get us to participate in the narrative audience in spite of ourselves."

But although Phelan claims the book pushes readers to examine their own habits of reading, he does not explore adequately how Calvino's narrative acts on different readers, nor on how different readers' activities affect their felt responsibility for the way the progression is understood or reconstructed, issues I would like to consider briefly here.

Because we each have a different self upon which to reflect, our readings of Calvino are complicated by our own identities as men or women, as historically positioned, social beings. When Calvino addresses "you," we are explicitly asked to consider ourselves the Reader (the name Calvino gives to the reader's representation in the text), with the resulting interesting dissonances analyzed by Phelan. Each time Calvino gives a trait to the Reader, he heightens the risk of dissonance between reader and Reader; in Phelan's terms, as Calvino assigns new traits to "You" the Reader, the screen gets thicker between characterized and narrative audiences. When the screen between the Reader and the reader becomes particularly thick, readers move away from involvement in the action and towards self-conscious

" Phelan, *People*, 156.
awareness of their own habits of reading and resistance to the narrative. Calvino's play with the thickness of the screen is part of his "sadistic love" of the reader, the "cat and mouse" game he enjoys and describes in the interview that opened this section.

However, there are some dissonances between reader and Reader that are individual and idiosyncratic. Calvino's Reader in general is identified as male, sexually interested in women, a bit of an imposter (as we can see from his humorous attempts to fake knowledge of contemporary fiction), and somewhat simple in his overtures to Ludmila, the Other Reader. Although Calvino uses the dissonances between reader and Reader as a point of play, I chafed against some of the characterizations, while I thoroughly enjoyed some of the wrong guesses about the Reader in other cases. For example, when the book asks to draw "a true portrait of you, beginning with the frame and enclosing you from every side, establishing the outlines of your form," I feel entertained by the subsequent portrait of the Other Reader (here addressed as "you") as well as acutely aware of the flawed representation by the Other Reader of me, which Phelan and other critics would argue is part of Calvino's fun with me, the reader. In the subsequent portrait, "you" (the Other Reader) become "an extroverted, clear-sighted woman, sensual and methodical" who maintains a clean kitchen stocked with half-moon choppers, an assortment of herbs, an

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Calvino, 142.

Calvino, 142-143.
idiosyncratically stocked refrigerator. I enjoy Calvino's guesses about me, the Other Reader as much as I enjoy his play with "you," the Reader, and in this particular instance I feel the text's guesses are flattering and funny.

On the other hand, my engagement in the text through the agency of my representation as the Reader or as Other Reader is disrupted by the author's occasional misidentification of my traits, settings, or actions. In Chapter Two's opening encounter between "You" and Ludmilla, for example, upon seeing "the young lady," the reader is told, "you have entered a magnetic field from whose attention you cannot escape." Further, this magnetic field is enacted by Ludmilla's haze of hair, her dimples, her "running a lovely and determined finger over the pale aubergine-colored spines" of books. While amused by this encounter, I am already pulling away in my identification with "you," the reader, and I pull away even moreso when "you" moves "around her like a rattlesnake," vying for Ludmilla's telephone number, trying to impress her with false knowledge of books "you" have never really read. These are not the ways I react to a pretty woman in a bookstore. Again, while my principal reaction here is amusement, I have two other reactions. Most immediately, my reaction is to pull away from a mimetic engagement in the text and to analyze its dissonances with my own experiences and traits. My second reaction is to observe the effect of the second-person address on me, the reader. This second person address engages me in Calvino's narrative

"Calvino, 29."
and impells me to a heightened attention to the thickening and shrinking screen between my real self and my representation in the text. More importantly, I recognize at the same time that this second person address fosters a here unrealized capacity to cause ethical discomfort, a capacity that depends on the actions of my representation within the text and the degree to which I identify with the characteristics of that representation. This capacity grows more likely when we remember Iser’s insight into how particular readers reconcile the gaps or instabilities, how they negotiate the varying depth of screen between reader and Reader.

Calvino’s text is clearly constructed to challenge us to reflect on our own habits and contexts of readings, but that overt reflection dulls our emotional involvement in the story. There is a contrary motion between this narrative’s self-conscious invitation to the reader and our ever-conscious awareness of all the tricks the narrator plays on us. This tension between readerly engagement and resistance, a particular quality of engagement fostered by multiple point of view, nonlinearity, and second person address, is a profoundly important feature of interactive fiction and a tension I explore more thoroughly below.

**Analysis of Deadline**

If we problematized a traditional detective fiction like *The Moonstone* by giving it a consistent second-person
narration and a randomly sequenced series of events, and if we complicated our reading process by engaging as a character who intervenes in the writing of the story, we might get a text like *Deadline*, a popular interactive murder mystery by Infocom. *Deadline*, in fact, is explicitly proposed as an updated version of a traditional detective novel:

Up until recently, the tools of the detective’s trade consisted of little more than a sturdy pair of shoes, a notepad, and a well-oiled revolver. But such traditional standbys have gradually given way to the computer, which by virtue of its precise and logical intellect provides the perfect complement to the keenly intuitive mind of the detective. In fact, it is now possible to conduct an entire investigation without leaving one’s computer terminal. 

In 1982, Infocom, Inc. published this interactive mystery by an MIT graduate, Mark Blanc ("Chief Architect"). The story’s advertising copy summarizes the game: “A locked door. A dead man. And 12 hours to solve the mystery.” Moving beyond the limited vocabularies and puzzle-oriented adventure games typical of mainframe-based computer fiction prior to 1982, Infocom’s story was innovative in that it cast readers in a particular role and facilitated dialogue, albeit stilted, with a “responsive” story and characters. It is my project here to examine the effects of combining multiple viewpoint, nonlinearity, and second person in a computer-

* From packaging material included with *Deadline*. 
based story, effects that shift the reader-text relationship playfully and radically.

In *Deadline*, the reader plays a detective who needs to investigate the apparent suicide of Marshall Robner, a wealthy industrialist; the reader must establish that that suicide was in fact murder, and, finally, arrest the right suspect. The reader is given twelve hours (according to an on-screen clock that advances one minute after each response is typed) to accomplish these tasks. After the reader loads the disk into a computer, the story begins with "you," the reader-detective, standing outside the door to the Robner estate. Although the reader may indeed proceed on thousands of different readings of the story, in fact he or she must perform only eight discrete actions (by writing them into the story) at different points in the story to solve the murder and find the evidence to arrest the right suspect. For example, the reader must find a set of papers in a safe, analyze fragments of a teacup for traces of "LoBlo," show a calendar notation to the dead man's son, and surprise the housekeeper so she drops a theatre ticket on the floor, among other actions, to solve the mystery. The clock is running all the while the reader attempts to solve the murder.

The packet of materials accompanying the story diskette and designed to aid "you" in "your" investigations includes a letter from Marshall Robner's attorney, Warren Coates, and transcripts of interviews and initial findings of earlier investigators. Elsewhere in the accompanying kit, instructions are given to the reader such as how to analyze
physical evidence, make arrests, or interrogate suspects. The reader is advised: "Since guilt must be established beyond a reasonable doubt, it is important to demonstrate the three crucial elements: means, motives and opportunities."

In addition to the lists of workable verbs, maps, and lab reports, the packet included with the Deadline story diskette includes transcripts of interviews with the central people in Robner's life: his business partner, son, personal secretary, housekeeper, and wife. Finally, in a section entitled "How to Use Computers in Detective Work," the rookie detective is given advice on "doing the legwork," "handling evidence," and "dealing with suspects and other people."

These packaging materials are necessary to initiate a novice reader into an unfamiliar place and activity of reading: the participatory text. More experienced readers, of course, know these conventions:

. . . experienced players seldom type more than a few words at a time. They usually pare their responses down to words that work: active verbs, nouns that name characters or manipulable objects, and some discriminating adjectives. Language thus becomes an instrument for probing fictional environments."  

For example, the "successful" reader would solve the mystery of Robner's murder by exploring the house and grounds, interviewing residents, and establishing the means, motive,

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and opportunity within the twelve hours allotted him. She or he would interact with the house, the characters, and objects in the story by using phrases or commands suggested in the accompanying instruction manual in a crude and explicit resolution of the textual gaps presented on the screen. Specifically, the reader would refer to her or his list of "Commonly Encountered Terms in Criminal Investigations" and use verbs such as "accuse," "analyze," "arrest," "follow," "fingerprint," "search," or "wait."

A hypothetical expert reading of Deadline would proceed as follows, taking place in real-time for about six hours from beginning to end: Even before loading the story diskette, the expert reader reviews the materials accompanying it, including the laboratory report stating that Marshall Robner died of an overdose of the drug Ebullion in his upstairs library. After loading the diskette, and then reading the first screen in which "you" are entering the story through the door of the Robner estate, "you," the reader-detective, meet Mrs. Robner. After reading her canned explanation of the parameters of the reading (when the will will be read and how long "you" the detective have to solve the murder, for example), you decide to explore the grounds and every room of the estate, drawing a blueprint of your findings and taking items from each room. For example, the reader decides to begin his "investigation" in the living room (executing this decision by typing "go north" and then "go west.") He continues by typing phrases (such as "look around" or "examine . . .") that allow him to explore the
dining room, kitchen, pantry, and maid's quarters, and all the other rooms on the ground floor. This expert reader moves between rooms by typing in the names of the cardinal directions, usually noting on a pad of paper the layout of the whole estate.

After reading the descriptions of the living room and all the other rooms on the ground floor, and after looking at the objects contained in each room, this reader attempts to interact with each object in the rooms, picking up the telephone, sitting on the couch, counting the silverware, or kicking a chair. The reader collects all objects she or he finds, carrying books, tickets, and a wooden ladder with her or him throughout the search of the house and grounds.

After typing dozens, if not hundreds, of phrases into the story to allow him to thoroughly explore all locations, the expert reader finds a number of clues throughout the house that lead him to make the required arrest of the murderers by eight o'clock at night. In the upstairs library, for example, he finds a partially erased message in which Robner threatens his partner, Baxter, about "the Focus scandal." He also finds a notation on Robner's library desk calendar saying "new will complete, call Coates." Armed with these two clues, the expert reader shows them to every character he meets. For example, he enters George's bedroom and shows them to Robner's son, George (who spends most of the story ensconced in his room listening to an unlikely mix of music such as bluegrass tunes, Bulgarian shepherdess songs, and a Hebrew prayer service). After the reader types
“show calendar to George,” George will get frightened and angry and eventually open the safe in a secret room connected to the library. An alert reader (and one who has the wit to type “hide on the library balcony”) follows George and catches him in the act of opening the safe. In that safe the reader finds and reads papers implicating Baxter in a business scandal involving Robner.

The successful reader also examines the library balcony and finds signs of a ladder having leaned there. He goes outside (by typing a series of directions to bring her downstairs and out the front door) and asks McNabb, the gardener, about his roses; McNabb then shows the reader fragments of a ceramic teacup in the rosebed. He asks Sergeant Duffy to analyze the ceramic fragments and learns that they are tainted with LoBlo, a medication which raises the toxicity of Ebullion, the drug that killed Robner. When the reader next shows the report to Dunbar, the housekeeper, she gets frightened and mad and drops a concert ticket. If “you” ask Dunbar about the ticket, she admits she went to the concert with Baxter the previous night. Finally, the reader who has found these clues and executed these rote interrogations next arrests Dunbar and Baxter. The story rewards this successful reader with a summary of evidence, explaining that the means of the murder was tea laced with LoBlo, that the motive was that Baxter was embroiled in an unlucky business deal with Robner and that Dunbar was in love with Baxter, and that the opportunity was there for Baxter when he dropped off Dunbar after the concert the previous
night. This summary of events in an expert reading of *Deadline* does not sufficiently describe the reader's race against the digital clock which advances after each response he types, nor capture the frustration of a reader's engagement with a program that responds only to a limited vocabulary and that does not allow the reader to use words it uses, responding with sentences such as "The word 'heirloom' isn't in your vocabulary."

*Deadline* demonstrates the central textual features of interactive fiction: its multiple points of view; its gaps; its nonlinearity; its second person address. By comparing *Deadline* to the fiction of Collins, Coover, and Calvino we can see how the character of interactive fiction is different, and how the commercial interactive computer texts available today are thin and inadequate. First of all, commercially available interactive fiction's nonlinearity is not underwritten by a coherent structure such as the straightforward chronology of Collins, the cohesive ties of Coover, or the "combinatory aesthetic" of Calvino. A reader in *Deadline*, for example, could spend twelve hours shuttling between the library and the balcony, hoping to surprise George as he retrieves key papers from the secret safe, but that would be a frustrating rather than a playful reading.

Second of all, interactive fiction's second person address is not a tool of some larger strategy of playing with the reader. The frustration that you the reader and the "you" in the text do not concur as far as actions taken, sentences spoken, or choices available is a frustration
compounded by a parser's limited understandings of the reader's typed commands. Even worse, the gaps made explicitly available within the text on the screen for readerly intervention often do not coincide with the gaps in the individual reader's mental representation of text. There are dissonances between the semantics of text and reader, and between the explicit and implicit gaps in the reader's assembling of progression. Key movements or conversations readers may wish to make or have with fictional settings or characters are constrained by the range of interventions the program has accounted for and allows. Finally, because of the reader's new control over the narrative, he or she has a new culpability for event and outcome, which the reader might chafe against even as she engages in the text. The presentational device of the computer and the new control over narrative direction it lends the reader heightens her engagement in the story, fostering a new quality of involvement that is heightened as well by the three narrative techniques we have seen operating in Collins, Coover, and Calvino. That new quality of involvement is both exhilarating and frustrating, and has consequences for some reader's felt responsibility for progression and closure in narrative. It is in this resistance that readers experience increased responsibility and occasional ethical discomfort.

Computer-supported interactive fiction in general makes readers' resistance to particular stories explicit. In interactive fiction texts such as Leather Goddesses of Phobos and Zork Zero, readers are asked to participate in acts of
killing and dying, indiscriminately and often. Because the reader often resists vigorously the "you" or the self the text implies is you, the reader's participation is often reluctant or ambivalent. Because he must often commit unconscionable acts to keep the story going, he may assume an attitude of expediency in his commands, killing and looting whatever will advance his cause. The reader executes this actively through typing, talking, interrogating, and restructuring the sequence of events, and the ethical dimension of his participation in reading fiction is heightened. An individual reader identifies more closely (and with more problems) with the activities required by a nonlinear, multi-perspectival narration and second person address in interactive fiction than in conventional fiction because of his public participation in making the text.

In contemporary interactive fictions, both male and female readers can feel trapped in rigid, fatally-scripted texts that silence dissent, force conformity, or compel other unpleasant textual collaborations for which he may feel culpable. Although these stories are uniformly advertised as participatory stories in which "You, the reader, determine what happens,"8 a more critical reading reveals that, in actuality, in many of these stories the reader does nothing more than attempt to stay alive in a scripted microworld. In current interactive fictions, a reader who offers a critique is silenced by the parser's claim of "incorrect" language or

syntax. In these stories, inappropriate vocabulary or syntax leads always to stasis or death, revealed to the reader by textual responses such as, "There is no verb in that sentence." Worse, inappropriate action commonly leads to the machine's response: "You have died," followed by the unlikely resurrection, "Would you like to play again?" In Zork, if a reader does not axe a troll to death, then he or she dies instead.

These examples provide extreme versions of a frustrating readerly engagement that is typical of much current interactive fiction. While Deadline avoids the misogyny and plunder mentality of other interactive fictions, Deadline has the common frustration of a parser that "comprehends" input with a limited range of replies and that inadvertently creates instabilities in the discourse between reader and Reader, or user and puppet. This is the most important commonality among Deadline and other interactive fictions and the source of the newly problematic ethics of reading fostered by interactive fiction: the complicated relation between reader and his self-representation on the screen.

I would like to argue here that the three narrative techniques I have explored in paper texts--multiple viewpoint, nonlinearity, and second person address--conspire within the field of a new presentational device to create a heightened involvement and ethical implication in the process of reading. A new relationship evolves between the reader and the story that is even more pronounced within stories with graphics or virtual realities. Although current
limitations in the technology create some of this ethical uncomfortableness, it is my feeling that the ethical problematic will deepen rather than disappear when the technology appears that will allow a more seamless relation between reader and text, or user and puppet.

Reading interactive fiction is to engage freshly with fictional texts and a new system of rhetorical and medial enhancement and constraint. Reading *Deadline* foregrounds reader responsibility for progression, a responsibility that might exist in all readings, but, in interactive fiction, is particularly obvious. As interactive fiction narrows the gap between the reader and the story, the gap between the flesh-and-blood reader and his representation in the text grows more visible and problematic. The interventionary, performative readings of interactive fiction, combined with the narrative techniques discussed above, create a new narrative experience.

**Concluding Remarks**

The experience of reading interactive fiction adds a new dimension to our understanding of the reader-story relationship in general. That dimension is characterized by a new range of readerly roles including the capacity for textual intervention, interrogation, sequencing scene, and radical restructuring of story. But that new range of readerly roles is itself currently severely restricted or constricted, with the result that the reader resists the scripts that imply a character different from her, that imply
a choice of actions that are very different from what she would ordinarily make, and force her to choose courses of action to advance the plot. The second person address, the constricted set of readerly responses, and the new medial surface restructure conventional reading experiences and collaborate to create an interactive reading experience currently troubling but potentially intriguing and potent.

In contrast to the invisible engagement of paper-based stories, interactive fiction engages readers in performative readings that are visible. Readers of conventional fiction do respond visibly as well, of course, in the form of reviews or critical articles, in conference papers or casual letters, but it is clear that paper-based stories do not invite intervention and direction to the same extent that computer-based ones do. Interactive fiction forces the reader to visibly inscribe and perform a part in the rolling text, and the range of mainstream and rogue readings supported by that text become very clear. The window into the processes of reading granted to us by interactive fiction and its delivery system—the computer, programs, keyboard, and screen—allow us further a clear view of some of the questions of reader responsibility for sequence and quality of event thrown into prominence by this medium.

Paper-based or conventional fictions do not make as explicit as do interactive fictions the range and kinds of resistance readers bring to their texts, nor do conventional fictions have the capacity to engage readers as powerfully, and sometimes with as much ethical tension, as interactive
fiction ultimately can. Some of interactive readers' resistance to narratives is due to shortcomings in the technology, in the sorry lack of stories' natural language recognition, for example. However, the new quality of reader engagement and resistance may also be related to the way this new genre is composed. The following chapter will explore the composing process of interactive fiction in the hope of better understanding the sources of this new reader experience, its discomforts and enhancements.
CHAPTER III

A MATTER OF THE HAND:

COMPOSING INTERACTIVE FICTION

... the question is not whether we will ever build machines that will think like people but whether people have always thought like machines.¹

The true literature machine will be one that itself feels the need to produce disorder, as a reaction against its preceding production of order ... .²

If at one time literature was regarded as a mirror held up to the world, or as the direct expression of feelings, now we can no longer neglect the fact that books are made of words, of signs, of methods of construction.³

Introduction

Interactive fiction's flexible form and layered narrative technique lead readers to become implicated in the sequence, content, and closure of these stories to a greater extent than is typical in conventional fiction. This increased reader responsibility for the narrative progression

³ Italo Calvino, "Right and Wrong Political Uses of Literature." In The Uses of Literature (Harcourt, Brace, Jovanovich, 1986), 99.
is countered ironically by a frustrating rigidity of stories' scripts, characterizations, and range of interventionary actions available to the reader; the relationship between you-the-reader and "you" on the screen is especially problematic. At the end of the last chapter, I hypothesized that the differences in the quality of reading fostered by interactive fiction might be related to differences in the processes of composing it. In the present chapter, I explore this hypothesis and lay the groundwork for developing Chapter Four's theoretical understanding of the reading-writing relationship as it is evoked by interactive fiction.

In her article "Cognition, Context, and Theory-building," Linda Flower proposes building theories based on observations, observations that become the basis for a comprehensive knowledge of writers and their situations, and observations that add to the specific knowledge that is a necessary component of "grounding and testing a developing theory within its own framework." Flower acknowledges the earlier work of Lauer and Asher on building theories of composing and "the rhetoric of inquiry" as she forges her own two-pronged approach to developing appropriate models: she encourages our community of researchers to engage in a method of building a theory from empirical observations; and she encourages our community away from divisive, insular models of composing processes and towards a model and "an interactive theory" that will evenly account for the

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constructive, cooperative, and mutually mediating influences of cognition and context on the acts of writing. Flower suggests that observation-based theory-building will strengthen our ability to make claims about what happens when people write:

Observation-based theory is built from the union of two sources of evidence: it springs in part from an intuition or argument and in part from the complementary evidence of close, systematic observation and data.\(^2\)

In this chapter, I respond to both parts of Linda Flower's suggestion. I parallel Flower's path away from false dichotomies of cognition and context and towards an understanding of how they together influence the particular process of composing interactive fiction. Specifically, I call into question the information-processing models upon which commercially available interactive fiction and Flower's earlier theories are based and suggest an alternative combined cognitivist-constructionist model that acknowledges the powerful and profound influences of social context (as well as cognition) on all facets of the collaborations that characterize this unique composing process. I am able to question this information-processing model because of my observation and analyses of two particular instances of composing interactive fiction.

At the time that I write this, interactive fiction commercially available is generally the product of collaborations within commercial software companies. Those

\(^2\) Flower, 297.
collaborations are often among members of a design team (comprised of programmers, writers, and a producer) assembled by the firm. Steve Peterson's "The Design Process" provides an overview of the conventional design process of computer game designers such as interactive fiction composers.  

Peterson describes the six steps in a "standard design process" (a process he defines as distinct from the subprocesses of programming and implementing graphics and sound) and traces the process from generating the initial idea, writing a proposal, implementing and refining the design, to shipping the game. A thorough review of the literature on the composing processes of authors of any computer software reveals that, as in the Peterson article, a large majority of articles focus on the latter steps in this process, such as on how to implement designs or prepare a game for a publisher, and ignore the former. Very few descriptions of the complete process of composing computer software of any kind currently exist, and no process-oriented discussion of a particular interactive fiction project has been published previously.

Because so few articles describe adequately even a

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"Peterson, in the *Proceedings of the 1990 Computer Game Developers' Conference*.

"I am indebted to the current issue of *QuestBusters: The Adventurers' Journal*, Volume 8 (3), for information on the current state of commercially available interactive fiction and adventure games. Its March 1991 description of the annual Winter CES Conference held January 10-13, 1991 in Las Vegas describes the latest entertainment software products available from *Accolade, Broderbund, CinemaWare, Electronic Arts, Interplay, Konami, Mediagenic, MicroProse, Origin, Sierra, Software Toolworks, Spectrum Holobyte, and Virgin Mastertronic.*"
portion of the process of authoring any entertainment software, those few articles are worth outlining here as predecessors to the following discussion of how interactive fiction is composed. For example, some essays on the underlying structures of programs that produce “literature” (Meehan; Lebowitz; Yazdani; Chamberlain and Etter) are available. These reports, however, focus typically on analyses of the output of computer programs and not on the collaborative process of writing the programs, their rules, and their scripts. For example, William Chamberlain and Thomas Etter have written about their program called “Racter” (named after raconteur) that generates nonsensical poems and stories. Racter’s prose, collected in a book called The Policeman’s Beard is Half Constructed, according to its programmers is prose generated “in the manner of Dada artists... who wrote poetry by randomly picking words from a paperbag.” These literature-producing programs are different from interactive fiction’s layered programs in that they do not allow the range of reader interventions that is crucial to a true collaboration between reader and author as they co-create an evolving text, but their occasionally fortuitous combinations of phrases suggest a serendipity that interactive fiction might be able to exploit.

The best existing source of descriptions of the composing process of interactive fiction are accounts written by expert designers for novices (Betz; Peterson; Crawford; Lebling). For example, in two separate articles, David

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Kurzweil, 253.
Lebling describes his process of writing Zork, its underlying language (the MDL language\textsuperscript{5}), and its programs. Betz, on the other hand, describes his own programming system, AdvSys, written in C. These retrospective accounts by programmers and designers provide simple descriptions of the parsers, object-description facilities, and languages they used to build simple, text-based stories that are, most often, fairly thin games of adventure. The accounts often include discussions of data structure and control structure within their programs (Betz; Lebling, p. 52) but they seldom go deeper into the process of construction, nor discuss the philosophies or epistemologies that guide their choice of subject, medium, or conception of story. Again like Peterson, they provide only overarching conceptual descriptions of the process of computer game design. Novice computer game designers might do well to start here for a

\textsuperscript{5} "Zork: A Computerized Fantasy Simulation Game," in Computer (April, 1979), 51-59, includes this example of MDL language, which I include as a simple illustration of the kinds of texts that invisibly underlie the texts on the screen:

\begin{verbatim}
<ADD-ACTION "READ:"
  "Read"
  [(REABIT REACH ROBJS ROBJS TRY)
   "restrictions on characteristics and location of
    objects for defaulting--filling in an unadorned 'READ' command.
    The object must be readable and accessible."
   ["READ" READER] DRIVER]
  "READER is the function, and the form 'READ object' is preferred (the
   'driver')"
  [(REABIT REACH ROBJS ROBJS TRY) "WITH" OBJ ["READ" READER])
   "specification for 'READ objj WITH obj2' ['READ READER']"
   "specification for 'READ objj THROUGH obj2'"
\end{verbatim}
description of the processes of writing a game, but in
general these descriptions are cursory and attend too heavily
to the technological parts of the composing process and too
lightly to any underlying literary theory, if such even
exists in the designer's plans.

The only other accounts of the process of composing
interactive fiction come from literary critics who have
speculated on its form, "literariness" (Banks; Costanzo;
Ziegfeld; Randall; Buckles), or significance, or who have
written cursory descriptions of the layered programs and sets
of instructions underlying interactive texts (Niesz and
Holland; Bolter). In their article exploring the features of
interactive stories, for example, Niesz and Holland include
an example of the Basic programming code underlying one
popular adventure game, but do not discuss its consequences
for the quality of reader engagement; in a similar move,
speaking about a higher-level programming concern, Slatin
conjectures that the data structures underlying the
computer's representation of knowledge are sometimes in
dissonance with the reader's own constructed knowledge, in
hypertexts. However, these brief descriptions and analyses
are static, snapshot portraits that insufficiently describe
the layered and dynamic collaborative process of composing
that characterizes contemporary authorings of interactive
fiction.

To add to the existing accounts of how interactive

9"John M.Slatin, "Reading Hypertext: Order and Coherence
in a New Medium." College English 52 (1990) 870.
fiction is composed, in the following section I describe the composing processes of computer game developers operating within two independent interactive fiction projects. These two projects, Oz and Interactive Fantasies, are devoted to defining central questions about plot, characterization, and user interfaces, while proposing and implementing a variety of interesting answers. I have chosen to describe these two projects for a variety of reasons, including ease of access."

One important reason for my selection of Oz and Interactive Fantasies is that the interface they currently employ is purely text-based; this type of interface, as I mentioned in Chapter Two, will make my later study of how reading and writing are altered by the new medium easier to undertake."

Another reason that I report on these two specific projects is that they represent "cutting-edge" research efforts and so have some predictive value. Finally, both Bates and Graves share a genuine commitment to exploring and shaping the exciting capacities of this new genre to engage readers or users. It is my belief that the research and design underlying these two interactive fiction projects conducted

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I was a student of Joseph Bates while completing an M.A. degree in English at Carnegie Mellon University, and I have been a partner in an interactive storywriting project with David Graves for three years; In both cases, my former participation in the discussions surrounding these interactive fiction projects granted me a degree of access for which I here report my gratitude.

Contemporary commercial companies, on the other hand, are experimenting with various human interfaces; to the text interfaces of early interactive stories, some computer adventure games available today have a "point-and-click" interface (such as Accolade's The Deadlock Files) or are menu-driven (as in MicroProse's Darklands).
outside major commercial firms predict the shape of future interactive fiction, because of the project heads' commitment to good design and to solving the principal questions of this evolving genre in interesting and successful fashion.

The following descriptions of these two interactive fiction projects are different in kind because the current status of each of these projects evoked a different method of study. For example, Joseph Bates' Oz Project is a longterm, large-scale, mainframe-based interactive fiction project that has a clear plan to engage in six fields of inquiry over the next ten years or more. My study of the Oz Project was conducted primarily through e-mail exchanges with Bates and other members of his team as well as through close analysis of several technical reports, conference presentations, and class notes from Bates' graduate seminar in advanced artificial intelligence (devoted to issues in interactive fiction and synthetic realities). This kind of information-gathering seemed best suited to help me provide an overarching description of a large project. The Oz Project is in the midst of a longterm process of accruing a library of world parts and solving problems of natural language generation, characterization, and plotting; in short, Oz is a cumbersome, longterm process slowly cohering.

My report on the current status of David Graves' Interactive Fantasies, on the other hand, is not an overarching description but a narrative of the genesis, evolution, and completion of one particular interactive fiction. In addition to careful reading of Graves'
conference papers and a paper published in the *Computer Game Developers’ Journal*, my method of study there was to conduct retrospective interviews over the telephone in two two-hour periods, two weeks apart, followed by Graves’ editing of the transcripts of those interviews (the whole of which are included in Appendix A of this dissertation). Because the scale and status of Graves’ project is different from Bates’, perhaps because Graves does not have the same academic support or funding, this narrative seemed the best representation of his work currently in process. The interactive fiction projects of both Bates and Graves are important experiments in moving beyond the thin, rigid stories of commercial interactive fictions such as *Deadline* and represent the promise of computer-based stories that will synthesize social constructionist and Objectivist understandings of the reading-writing relationship. It is my hope as well that these two different accounts of unique creative processes will provide complementary portraits of the current status of composing interactive fiction.

**The Oz Project**

Members of the Oz Project, located primarily in Wean Hall within the School of Computer Science at Carnegie Mellon University, are engaged in an interdisciplinary effort to create dense, rich interactive fictions that will provide participants "with the experience of living in a dramatically
interesting simulated world that includes simulated people."""60
Dr. Joseph Bates, currently a Research Professor in the
School of Computer Science at Carnegie Mellon, directs the Oz
Project research group comprised mainly of graduate students
in computer science as well as faculty and students in the
departments of English and Drama. Bates says that the reason
he embarked on this project was that he "wanted to build
[his] dreams and have someone else be in that world."""61

The following description of the Oz Project is based on
my experiences as a graduate student in a seminar taught by
Bates and devoted primarily to discussion of issues in
interactive fiction, as well as discussions with Bates and
other researchers during several subsequent visits I have
made to the Oz Project. In addition, I am summarizing two
papers presented at recent conferences by Bates, e-mail
entries posted by members of an Oz Project internal
discussion group, and my own observations during a two-day
period in December, 1990. Further, I have asked Bates to
review and comment on a draft of this description, which he

60 *ArtCom*, November 1990, 10(9).

61 Bates made these remarks in a private conversation
following the drama experiments conducted at Carnegie Mellon
University on December 9, 1990.

62 At that time I observed a series of drama experiments
orchestrated by Margaret Kelso of the Carnegie Mellon
University Drama Department and designed and participated in
my own narrative experiment. Mark Kantrowitz, a Carnegie
Mellon graduate student developing a natural language base
for Oz, and I created a "free" interactive fiction wherein I
took the role of the narrator and Kantrowitz the user-player.
We wished to simulate the experience of interactive fiction
when unconstrained by a reluctant parser or serious
misreadings, an experience I hope to write up in a separate
article.
has done; I have incorporated the changes he suggested. Finally, I am in daily contact with members of the Oz Project through an electronic-mail discussion group and, in fact, recently named the group's current demonstration, a murder mystery story (involving a poisoning) I suggested calling Tea for Two. Because Oz Project research and the story Tea for Two are ongoing projects, much of what I write in the following description is subject to change.

The immediate and longterm goals of Oz are complementary efforts to create a medium beyond "static stories" and to create stories that are active and interactive. The overall goal of the Oz Project is to create these "constructed yet unpredictable worlds" and to provide users with rich experiences of these worlds, most immediately through a text-based interface and, eventually, through a multi-media interface. In more general terms, Bates sees the Oz Project as "a place to study mind--the analysis and synthesis of mind." The interactive fiction project at Carnegie Mellon plans to use existing artificial intelligence technology to improve the state of the art of interactive fiction and build dramatic worlds that users can engage in in a variety of ways. As Bates recently stated in an e-mail message addressed to members of his research group

My long term goal for Oz is to provide modern IF [interactive fiction] technology in a sufficiently well packaged form that individuals or small groups can build worlds... [O]ur main goals should be the development of science/art and the accompanying

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" private conversation, December 9, 1990.

" private conversation, December 9, 1990.
technology, the eventual packaging of our technology for individuals, and keeping our research group open to ideas and comfortable for all who want to pursue this research."

Specifically, members of the project team are pressing forward on these areas of research by together building a prototype of an interactive mystery novel (*Tea for Two*) and dealing with questions of modeling as they arise. Their goals over the next five years are to accumulate a large "library" of settings, characters, and plots (and other "meta-knowledge" that will direct the arrangement and editing of this library) that writers and artists can recombine and tailor to create new works of interactive fiction. They see possible applications for this technology in entertainment and in training in interpersonal skills.

The goal of Oz within the next ten years is to move beyond text-based interactive fiction systems and to create "synthetic realities," that is, three-dimensional simulated environments enhanced by computer-generated sounds and graphics and encountered, perhaps, via a helmet and a "data glove."

"E-mail message sent 6 March 91 12:40:24 EST to interactive-fiction group from Joseph Bates. Subject: Kinds of Worlds.

"These data gloves or cyber gloves have been described in articles in *Mondo 2000*, *The Media Lab*, and *The Journal of Computer Game Design*, and are currently advertised as available from VPL Industries and Autodesk. They are a commercially available alternative interfaces for engaging with computer simulations. Typically, the gloves are composed of fabric and have electrodes attached or sewn to that fabric. The helmets are usually built from either rubber diving masks or bicycle helmets and sometimes include the display screens from very small Radio Shack television sets."
will be replaced by animation; text generation will be replaced by speech generation; and parsing will be replaced by speech understanding. In short, the researchers of Oz see their efforts moving beyond a pure text interface and advancing to replacing the text interface with facilities for speech, animation, and gestures, guided cooperatively by program and user. Bates' organization of a "Synthetic Realities Workshop" at the 1990 Association of American Artificial Intelligence meeting was an effort towards building a community of researchers to collaborate on making such synthetic reality systems a virtual success.

To realize their longterm goal of realistic and dramatic computer simulations, researchers at Carnegie Mellon University are currently involved in many daily tasks of modeling and programming "large numbers of world parts, such as physical objects and settings, parts of minds (planners, plans, kinds of social knowledge), sets of linguistic rules, and components of narrative and dramatic theories" in Common Lisp, with substantial use of the Common Lisp Object System, on Mach/Unix workstations. While interested in the narration of these worlds, the primary focus of their current research is to build "the simulations behind the interface, which we call the deep structure of virtual reality." Thus,

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"ArtCom magazine.

*Lisp stands for "list processing;" Lisp, MacLisp, InterLisp, ZetaLisp, and FranzLisp, among other languages, all merged into Common Lisp.

members of the research group participate in modelling different parts of the programs that make up Oz by collaborating and corresponding over the electronic mail network that links their offices. The subject of their discussions is the ongoing production of an Oz synthetic reality and its pure text-based interface, physical world simulation, character models, a natural language generator and understander, and theory of drama, all written in Lisp:

The world graph [of Oz] indicates rough 3D arrangement, plus relationships between objects... Plot enforcement is currently embedded in the behavior of objects in the world and in the rules driving the characters (in the form of scheduled actions, for example)."  

To help his research team’s daily work, Bates has divided the work necessary to realize the Oz Project’s ambitious longterm vision into six sets of questions or problems. The six sections of inquiry defined by Bates are outlined as follows:

- physical world simulation
- the minds of simulated characters
- the user interface (and narrative voice)
- theory of drama
- the world-building environment
- artistic use of the system

Carnegie Mellon graduate students are engaging the central

issues of these six areas by modeling everything the reader needs to maintain a rich illusion of participation in a story and for the artist (or writer-programmer) to have a sufficient "library of parts" with which to produce rich stories.

Building "rich, deeply modeled underlying worlds" with which the reader-user will interact involves writing several layers of instructions for the computer. At the lowest level, the level of "the real machine," a programmer composes a program in machine language, "the long strings of 1s and 0s that are all the hardware can really understand." This built-in program is called an interpreter or a compiler and can "write things on the screen and cause the other hardware (e.g., the chips of the memory and processor) to behave in selected ways." In the Oz Project, programmers run a higher-level program called "the Lisp system" that, for all intents and purposes, transforms any "real machine" into a machine that can run Lisp programs. (In general, Lisp programs not only perform reasoning tasks, "but are actually intended as theoretical models of how humans perform those tasks." Once within the Lisp system, these programmers run another, higher-level program called Oz:

"Bates, 1.


"Bates, private e-mail message, 10 April 1991.

Oz includes a framework for running a collection of other programs (called the 'agents' of the world). These agents are written in other languages, usually called the 'architectures' of the agents. These programs do not deal with their external world in terms of terminal screens. Instead, they think they are truly in a world — they have eyes and ears and hands. The agent programs manipulate the eyes and hands, and therefore go through a general process of sense, think, act."

Bates' model of the Oz architecture, then, can be understood as a high-level description of a system of hierarchically-related programs operating together on several levels to collaboratively create a rich simulation of a world populated by deeply simulated objects and characters. The reader interacts with these layered programs through the agency of the computer keyboard and the terminal screen.

Each of the six areas of inquiry currently engaging researchers at Oz subsumes many smaller problems or areas of research that inform the ultimate shape of the layered program design. According to Bates, the work to simulate the physical world is ultimately intended to "provide just enough of a physical reality to let authors construct interesting characters and stories." Oz uses the Lisp programming language to model the descriptions and behavior of objects (including the bodies of characters) and provide a commonsense model of the physical world. The goal of this part of the project is to provide rich and varied models of all classes of objects (including animate objects, such as people) in the physical world. The process of composing

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75 Bates, same e-mail message.
76 ArtCom.
simulated objects in the physical world involves writing Lisp code, debugging that code, and then testing the object through a user’s interaction with it. Many of the daily discussions posted on the electronic-mail discussion group of the Oz Project involve debugging these models or posing questions and debates about how these evolving models of objects and characters should coordinate and work.

Simulating the minds of independent characters within the model of the physical world is more challenging than modeling relatively static objects. Currently Bates uses two frameworks for designing the “minds” (i.e., the computer programs that simulate mind) of characters, although these models are expected to change quickly. One is a goal-driven reactive planner called HAP, and the other is based on the Prodigy planner.” Other systems may eventually be linked to Oz’s model of the minds of characters, including systems under development by Allen Newell at Carnegie Mellon University and John Laird at University of Michigan (the developers of SOAR), and Doug Lenat at the Microcomputer Consortium (MCC) in Austin, Texas. In brief, the ultimate goal, and the daily activity, of these researchers involved in this aspect of Oz, is to represent explicitly, and deeply, the beliefs, goals, plans, and emotions of synthetic

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Bates acknowledges the work of Agre and Chapman at Massachusetts Institute of Technology and the work at Yale of Firby in the development of HAP. Bates links the development of Prodigy (a “planner/learner”) to the work of Jaime Carbonell’s machine-learning group at Carnegie Mellon University.
characters, "who will be able to discuss their mental lives (if they so choose)."\textsuperscript{78}

Ultimately, the programs that underlie these simulations of physical objects and characters are tested through a user's interaction with them over a computer terminal. The user interface, which "connects human agents to the simulated world," is the second area currently being explored by Oz Project researchers. The Oz interface is based on "Glinda," a natural language generator designed by Mark Kantrowitz, a graduate student at Carnegie Mellon. Kantrowitz characterizes Glinda as the "natural language generation module" of Oz, or

\begin{quote}

an implemented natural language text generation system which uses the propagation of features during generation to license generation rules. These rules control the selection, organization, transformation and combination of elements from the input semantic and pragmatic representation within a uniform, multi-level linguistic framework.\textsuperscript{79}
\end{quote}

At present, Bates' group uses a general purpose bottom-up parser with a simple grammar and ad hoc semantic and pragmatic analysis. They are considering using instead a word-based parser because they think it might be more appropriate "for processing short, syntactically limited,


\textsuperscript{79} Mark Kantrowitz, Technical Report (CMU-CS-90-158, July 1990), abstract.
possibly ill-formed input,"* which they find typical of readers of interactive fiction. I report these details of Kantrowitz’s work without fully understanding the range of computational problems that need to be solved before Glinda can “narrate” to the user a story in a variety of rhetorical styles. I can report, however, that Kantrowitz’s work hopes eventually to approximate Hovy’s experiments in rhetorical transitions. Specifically, the work on natural language text generation in the Oz Project is linked to “Pauline” (Planning and Uttering Language in Natural Environments), a project completed at Yale University as Eduard Hovy’s Ph.D. thesis in 1987. Pauline is a text generator capable of saying “the same thing in many ways to achieve various effects.**

Next, one of the most important problems that Bates and his researchers are tackling is how to develop a computational model of how drama and stories work, the “metaknowledge” mentioned at the beginning of this discussion. Developing the narrative and dramatic theories that will be implemented in Oz is aided by “live” improvisational experiments in drama, conceived and coached by Margaret Kelso, among others, and informed by the work on dramatic theory begun by Brenda Kay Laurel in her 1986

* From the overview of Oz presented in ArtCom. While such a parser would help readers successfully avoid the frustrating experience of not being “understood,” Bates’ model of the reader’s input here reveals a predisposition to see the reader as having a limited participation in these stories.

dissertation, "Toward the Design of a Computer-Based Interactive Fantasy System." Laurel relies on Aristotle's *Poetics* in her dissertation as a means of understanding and generating plot, character, spectacle, and creating an automated playwright. Laurel's encapsulation of Aristotle is one source of Oz's working theory of drama and the source of their conception of plot structure as comprised of complication, climax, and resolution. Although interested in the possible applications of Aristotle to Oz, Bates says, "it is enough to know that the author constructs the text by hand through much effort... although he may not follow any particular theory such as Aristotle." The Oz Project is currently debating rival theories of dramatic presentation and narration, and this is one area that is changing quickly. The central issue in the Project's discussions is how to reconcile the creative tension between scripting plot and allowing the dynamic interventions of the reader/user to have real effect on quality and sequence of event. The current model of Oz is negotiating gingerly between the two poles in this tension, a negotiation that will eventually have important ramifications for the reader's experience of the narrative progression. Careful discussion and implementation of a particular theory of drama will precede a reader's satisfying engagement with his "body representation" or "you" on the computer screen and with his puppet in virtual systems. The proportion of reader control and selection of

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Bates' comments following his review of this manuscript, May, 1991.
event, sequence, and quality of encounter will shift according to which dramatic theory is ultimately chosen to guide Oz's constructions; the degree to which the reader experiences ethical culpability or even general responsibility for event will shift as well. The Oz Project is also currently choosing among several ways to codify plot and to suggest a route through the text for the reader.

Finally, beyond these important questions of modeling physical worlds and characters, designing a satisfactory narrating device in the form of a natural language text generator, and developing an adequate theory of plot and drama, Bates is particularly concerned that the technology that he is building be used by artists, and that its development be guided by the needs of artists and writers building worlds. He hopes to have the population of Oz users grow as the system develops, and he hopes they will assist in constructing a substantial library of world parts. My own future students of creative writing at University of Puget Sound may even join in this endeavor. Bates' goal here is to have artists help us all "learn the potential of interactive fiction as a new art form and to guide the development of Oz toward reaching that potential." In the next several years, at any rate, collaborating in this regard with the members of the Oz Project will mean artists learning to program in Lisp as well as learning how to build complex systems.

Because this description of the Oz Project provides an overview rather than a particular view of an evolving composing process, I will complement this overview of Oz with
a more detailed description of a particular instance of interactive fiction composing in the following section.

**Interactive Fantasies**

The second interactive fiction project I wish to describe is Interactive Fantasies, a recent project undertaken by David Graves, Tim Brengle, and a small group of other computer game development professionals based, for the most part, in San Jose, California. My description of this project is based on two recent telephone interviews conducted with David Graves; three years of informal conversations and electronic-mail exchanges on a Unix bulletinboard (rec.arts.int-fiction) and, more privately, through Bitnet; my own participation in writing an interactive fiction with David Graves; close examination of Graves' "Interactive Fiction Writer's Guide"; and a careful study of Graves' notes for conference presentations at the annual Computer Game Developers' Conference, particularly "Bringing Characters to Life" (1989) and a more recent presentation called "The Automated Playwright" (1991). Transcripts of the interviews are included in Appendix A. Quotations not explicitly cited in the following discussion may be assumed to derive from these two interviews.

David Graves, the interactive fiction platform architect of Interactive Fantasies, reports that he first became interested in writing interactive fiction when he saw the
original *Adventure* game in 1978. He became intrigued with the idea of reader involvement in fiction and determined "to be involved in this fascinating, creative form." Graves is unhappy about the current state of commercially available interactive fiction, and he created Interactive Fantasies to explore and develop a more truly participatory fiction. He is presently involved in several interactive fiction projects at various stages of development.

In the hope of contributing to the improvement of interactive fictions, about two and a half years ago David Graves and Tim Brengle formed Interactive Fantasies and registered the new company with the local business bureau. Their longterm goal was to produce high quality, saleable interactive fiction. It is worth noting that in Interactive Fantasies, contrary to the Oz Project, the role of programming and writing a story are two separate skills relegated to two different individuals. In this particular arrangement, David Graves is the primary programmer and Tim Brengle, the writer.

In order to illustrate Interactive Fantasies' process of composing, a process that Graves calls "iterative and incremental" and through which an idea becomes an interactive fiction, I will briefly describe the steps (as Graves described them to me in two retrospective interviews) that Graves and Brengle undertook to create their latest

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"The iteration and incremental refinement are crucial to this process. It seems impossible to conceive an interactive work right at the start, so we end up creeping up after it in draft after draft." —Graves, March, 1991.
story. Because the story is still in the process of being written and sold, specific details of plot and program are not revealed. (Both Brengle and Graves have contracts of non-disclosure.)

Brengle and Graves initially met over an e-mail network when Graves wrote Brengle a note about interactive fiction software. Shortly afterwards, they began to meet regularly and planned to compose a story together, a story in which the theme is "the struggle of a youth moving into adulthood and achieving his own dreams." Brengle decided on this theme and plotted the high level structure of the story, with a beginning, middle, and end. Then, by stepwise refinement, we began implementing story ideas in software. It would involve exchanging disks, seeing how each piece worked, doing further refinement, and building up an interactive story piece by piece.

Brengle composed the story in notebooks which he frequently shared with Graves in order to look "for decision points that allow meaningful interaction" and involve the reader "in the plotting process." In my description so far, the process is characteristic of Graves' other projects:

I find a writer and we agree on a theme. The writer will start mapping out the highest level theme. We start talking about it. Because of the thousands of years of conditioning, I think people see plot as a single-threaded condition. We look for the places in the plot where we can fracture the story. For each assertion in the plot I look at reversals or subdivisions that allow for significantly different plot flows.
Reversals, in Graves’ terms, “are simply negations of assumptions in the plot.” Subdivisions, on the other hand, “are places where—instead of a single event to reveal the personality of the character, we might want to have different events to show that attribute of character.”

In the particular case of composing this story with Brengle, however, the two co-authors decided that “on this particular project, character interaction was the dominant theme.” Graves and Brengle set about trying to develop “a strong model of the emotional and cognitive world” and a model of personality that could be implemented in software. Because of their disparate backgrounds in psychology and biology, Graves reported to me, this became a particularly interesting step in the process:

That probably sounds like a big piece of work. Tim and I both have diverse academic degrees which contribute to this effort. I have degrees in computer science and biology with an emphasis on animal behavior, whereas Tim has degrees in mathematics and psychology, so we had a heyday of defining a model of how the mind works. At that point, we had raised the software platform to a level at which a work of interactive fiction based on character interaction was possible.

In the case of this particular story, this step was followed by extensive discussion and arguments between writer and programmer about “what some of the different directions might be” in the story. According to Graves’ handbook for writers, the author has control over “theme, motivations of characters, and how they express themselves.” However, he and Brengle acknowledged that the author eventually loses
control of sequences of events and the moment at which a character will reveal herself or himself.

In the process of negotiation, Graves (the programmer) and Brengle (the writer) would argue the relative dramatic benefit of any given “story element” versus the difficulty of implementing it in software. In his own colorful example, Graves explained:

For example, in a puzzle-based game you need a strong software model of the physical world. Some things such as modeling rope can get very complicated. A rope, for example, can have two ends that are located in different places, such as different rooms. Things can be tied to one end or the other with all sorts of complicated physics implied to the reader. Allowing the reader to express his own creativity in terms of using the rope becomes very complicated. At this point, the programmer may ask the writer, Is the rope essential to this part of the drama?

Graves and the other writer conducted these negotiations both in person and on disk. In general, Graves often implements a small part of the story and returns the disk to the writer so that he or she can “see one chapter or one section of the work in an interactive format.” In addition to discussions in person, in the instance of Graves and Brengle’s collaboration, they discussed issues on the telephone and even occasionally play-acted sections of the story. The goal guiding these discussions was to identify parts of the story that were not taking advantage of the interactive context. Graves emphasizes, “I hope I’m making clear that we’re not looking for bugs in the software but we’re criticizing the impact of the interactive experience.”
Eventually a working draft of the story was completed, and the co-authors approached a publisher to market their product, a process that will continue until "all parties are happy with it. Then it could take another six months to go the full route with the publisher for contract negotiations, package design, manufacturing, and distribution." The whole process, with both men working on it part-time, has taken approximately three years so far.

Graves draws a strong distinction between the stories Interactive Fantasies hopes to produce and the products currently available commercially. Graves characterizes the goals of Interactive Fantasies as "to develop an environment in which truly subjective interactive fiction can be developed," in contrast to the "objective" interactive fiction he thinks is all that is available today. Graves distinguishes between subjective and objective interactive fiction in his discussions:

In subjective interactive fiction the reader makes decisions that influence the plot of the story. In objective interactive fiction the reader makes decisions that affect point of view or availability of information. 

Graves sees many other limitations to the products available today and is hoping Interactive Fantasies will improve on them in its parser, models, and interface, as well as in its more realistic models of plot and character. Graves claims

"According to Graves, copyright operates for interactive fiction "the same as all other software. You get a copyright for the exact content of a set of computer disks."

"See interview notes in Appendix A."
that interactive fiction's industry "is focused on the low levels" of the hierarchy of Aristotle's understanding of the elements of fiction: "[Commercial computer game developers are] focused on spectacle and music in the form of computer sound effects and computer music." He hopes to have his own research focus on higher levels of development such as working out a theory of how a reader and a story can interact together and create a satisfying plot.

Graves is basing his preliminary work on how to influence plot, or what he calls a system for an "automated playwright," on what he has read of George Polti's *The Thirty-Six Dramatic Situations* and *The Morphology of the Folktale* by Vladimir Propp. Graves' concern with how to guide plot in these systems is related to his sense that current interactive fiction provides its users with only "a syntactic model" of the physical world. He wants to direct plot in a software model which, alternatively, simulates "understanding of the semantics of character interaction."

Graves is also interested in how character is modeled in interactive fiction. One subject of the discussions he and Brengle shared in the development of their story was a concern for creating believable, interesting, and convincing characters. His own background in biology and Brengle's in psychology have contributed to their understanding of character and their efforts to build "a character platform"
that emphasizes the importance of personality. They are particularly interested in penetrating the conundrum of how to simulate free will in characters. Graves reminds us that the computer maintains a model of the actions of the reader (or player-character) and says he thinks of the reader as just another participant in the story, as "an equal of the fictitious characters. The reader has patterns of choice and actionable attributes just like the fictitious character."

Clearly, as Graves' and Brengle's models of character grow deeper and more flexible, so will their models of the reader. And, just as clearly, they recognize the problems inherent in accurately modeling the reader and his or her reactions:

One of the major complications of voice in interactive fiction is resolving the split persona of the reader as protagonist. The reader is enjoying the story as audience but is also a participating character in the story. The reader has within his own mind concepts of what's happening in the story and how he feels about it, but also the software is maintaining a model of the reader/character's situation in the fictive world. Even a simple matter of stating what the reader sees or feels becomes complex because we don't have that much control of what the reader feels, right? Is it legitimate for the work of interactive fiction to state to the reader, You are filled with fear? Or should we simply present a fearful situation and assume the reader is filled with fear by it?

In general, as Graves looks beyond current interactive fiction, he feels sometimes frustrated by his own composing process, particularly with the problems involved in leaving the static paradigm behind. For example, it's really easy to get stuck writing static plot trees. Since it's impossible to write a story with
thousands of different branches, we end up pruning the tree and develop a ‘discover-my-plot’ interactive fiction work.

Graves wants to resist the puzzle-solving he sees as the traditional format of interactive fiction and move towards stories that would stress character interaction:

In a puzzle-based interactive fiction work, the emphasis is on the physical world. There are objects to be manipulated in the story. Modern parsers and artificial intelligence technology can support limited interactions in a physical domain. In a work that stresses character interaction, you also have a model for the emotional world and the information world. You have a software model of all the objects that exist in this world. The software also models what each character knows (the information world) and feels (the emotional world).

Artificial intelligence and parser technology do not currently support Brengle’s and Graves’ dream of computer simulation of deep, realistic conversational exchanges between reader and character, and they see a clear need for improvement of user-interfaces. In general, the long term goal of Graves and Brengle’s Interactive Fantasies is to create works of interactive fiction that would have the following characteristics: convincing models of the physical world, characters with intelligence and emotions, and dramatic interactions between reader and story and between characters within the story.”

The Objectivist Paradigm and Interactive Fiction

I began this discussion of how interactive fiction is composed in order to evaluate the hypothesis that the reader's sense of the scripted rigidity of the interactive text and her problematic ethical engagement is a result of the way these texts are authored. These two brief descriptions of the Oz Project and the Interactive Fantasies Project confirm this hypothesis in some ways and have particular consequences for the future development of the genre. The descriptions of these two projects also suggest that interactive fiction authored by Oz or Interactive Fantasies holds more promise than any commercial interactive fiction yet available. As Bates and Graves and Brengle compose against the interactive fiction genre as it currently exists and work towards richly modeled, "subjective" interactions between story and user, they are implicitly reacting against earlier interactive fictions that were more tightly linked to an Objectivist view of user, text, and world. From the previous two project descriptions, it is clear that these projects are reacting against the limitations of commercial interactive fiction that relies on an Objectivist epistemology and posits a universe that is univocal, monolithic, and describable. Readers of all interactive fictions, of course, chafe against this characterization of the world, and some readers experience an ethical discomfort in their scripted encounters; 'Oz and Interactive Fantasies work against these Objectivist rigid
scripts and offer readers a better chance to truly participate in fictive worlds. As I undertake the following discussion of how Oz and Interactive Fantasies implicitly critique Objectivist views of the world codified in earlier interactive fiction it is important to note that I am not a philosopher, and my understanding of Objectivism is limited here to the way it is encompassed by rhetorical discussions such as those by Rorty and Cherwitz. I use Objectivism and realism interchangeably in the following section.

In order to observe how Oz and Interactive Fantasies are implicitly critiquing the Objectivist paradigm, and in order to suggest how they might extend such a critique, I would like here to make explicit the link between interactive fictions such as Deadline and their Objectivist underpinnings. Specifically, an Objectivist paradigm underlies current commercial interactive fiction models of the reader-text interaction, and that paradigm ultimately limits the activities of the reader and prevents an adequate illusion of participation. This Objectivist epistemology is operating within these stories in the theories or “metaknowledge” that they use to guide their plots, characters, and processes of composing as well as in their composing materials (the binary digits and the layered computer programs, rules, and instructions).

First, an Objectivist epistemology is evident in the theories underlying the composition of these stories. In particular, an analysis of the two descriptions of the layered composing processes of Oz and Interactive Fantasies
reveals an Objectivist understanding of reading that operates to a much greater, and more limiting, extent in commercial interactive fiction. This Objectivism operates by ignoring the various locations of the reader and conceiving of the process of reading as a coding and uncoding of a single true text. Despite the flexibility, complementary divergence, and overlap of interactive fiction's layered programs in both projects I have described, the epistemology underlying Oz and Interactive Fantasies still privileges a singular model of reader and reality, a limitation whose consequences are more obvious in the limited scripts of stories like Deadline.

This Objectivist epistemology is apparent also in both projects' consideration of an Aristotelian theory of drama and in their conception of the relationship between story and discourse. The Objectivist epistemology, as summarized below, clearly informs the composing process of these two projects:

... as a set of shared commonplaces in our culture, [Objectivism] takes the following general form: The world consists of objects that have properties and stand in various relationships independent of human understanding. The world is as it is, no matter what any person happens to believe about it, and there is one correct 'God's-Eye-View' about what the world is really like. In other words, there is a rational structure to reality, independent of the beliefs of any particular people, and correct reason mirrors this rational structure."

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Both Bates and Graves reveal further the Objectivist epistemology underlying their theories or "metaknowledge" in their presentations of world and in their conception of narration as a transparent presentation of world. Oz and Interactive Fantasies share the limitations of commercial interactive fiction in their explicit construing of language as a transparent representation of an existing, singular world. For example, in Bates' adaptation of "basic cinema techniques" to explore how they might be translated into narrative techniques in interactive fiction, he and Smith discuss how to transform the following techniques in filmmaking: lap dissolve; close-ups; repetitions; flashbacks; and zoom-freeze, among others. Smith and Bates explore particularly the means filmmakers use to connect a world model and the narrated version of that world (a dualistic split between story and narration that is related to Chatman's distinction between story and discourse). In their conception of the possibility of a cinematic technique in interactive fictions, they reveal their epistemological predisposition to construe knowledge as universal and the world as monolithic, and discourse as the straightforward reflection of this reality. Their models do not yet adequately allow for the notion that worlds are co-constructed in a relationship between the individual (a problematic concept itself) and the world around her. The ways Oz and Interactive Fantasies conceive of the relation between text and reader misses the insights that language speaks us as much as we speak it, and that all human
understandings are idiosyncratic, partial, and dynamically composed.

Oz and Interactive Fantasies share another limitation of all interactive fictions to date, a limitation likewise linked to an Objectivist conception of reader, text, and world. An Objectivist epistemology is operating at a lower level of these two projects, within the very material of these presentations of story. The binary, digitized program that comprises the lowest level subtext of these stories is a material that limits subjective interactions between fiction and user, between objects in the story and reader predilection, for example. A simple example of the inflexibility (or difficulty because of sheer possibility) of programming objects is Graves’ discussion of the difficulties modelling rope, mentioned above. Because of the way computer programs constrain their models of objects in the physical world, the reader’s experience is also constrained in ways that are more visible and more frustrating than in conventional fiction. The reader at the present time, for example, could not macrame a basket from that rope unless the programmer has foreseen that possibility and allowed for it in his world model. Readers are constrained from idiosyncratic or novel interactions with objects and characters.

Finally, the dissonance between implicit and explicit textual gaps discussed in Chapter Two as one aspect of a reader’s unsatisfying experience of interactive fiction in general is a symptom of the Objectivist paradigm as well. To
review quickly, gaps operate on two opposing levels in interactive fiction: implicit and explicit, or semantic and textual. The dissonance between these two kinds of gaps occur when, during the process of reading, the reader’s questions about the progress of the text do not coincide with the gap inviting the reader to respond. When the implicit gaps in the reader’s understanding are in dissonance with these explicit gaps on the screen, the illusion of participation is ruptured, and the reader is left unable to participate satisfactorily in making sense of the text. I see this failure as a symptom of the Objectivist epistemology underlying all interactive fiction. This epistemology is the cause of the interactive text’s failure to accommodate the variety of reading responses and various understandings of the world a reader might bring to it.

Debates about the problems of an Objectivist epistemology currently rage in a variety of fields, and insights from these other fields aid in this particular critique of the composing processes and materials of interactive fictions. In contrast to these systems’ codification of a single, describable world, opponents of the Objectivist epistemology in other disciplines suggest an based on an opposing need to consider the context or background knowledge of the person (user, reader, or writer) engaged with the story. Within the field of artificial intelligence, particularly, the Objectivist epistemology has been resoundingly criticized in several articles about the computational model of mind (West and Travis; Dreyfus and
Dreyfus). These critiques explain that the central metaphor of artificial intelligence is the flawed conception that intelligence is "a kind of mechanism—a subtle and complex processing of information." Two recent critics of the present computational metaphor of mind, West and Travis, claim that a "methodological Cartesian dualism" is a necessary precondition to conceiving of computers as deep simulations of thinking. This Cartesian dualism within mainstream artificial intelligence models sees that "our brains themselves are machines." Or, as Kurzweil states more succinctly, "while certainly very complex, our brains are clearly governed by the same physical laws as our machines." Opponents (such as Dreyfus and Dreyfus) of the current artificial intelligence models of mind, while quick to criticize sharply the materials and goals of interactive fiction, are much less clear in their suggestions of alternative metaphors or methods for understanding and modeling mind.

The debate between Objectivists and social constructionists in general is furthered by the heated discussion between artificial intelligence's champions and

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1. G. Johnson, 16. This metaphor derives originally from Rene' Descartes' *Treatise on Man* and construes a dualism between rationalism and matter (and helped lay the groundwork for the building of calculating clocks, the precursor of computers).


founders (H. Simon, A. Newell) and its critics (Weizenbaum, Dreyfus, Putnam, Haugeland, and others). While it is not my intent here to enter into this general debate, artificial intelligence’s working model of the process of reading is certainly relevant to an examination of interactive fiction, especially in its failure to model context-dependent reader response. This failure is made explicit in Schank’s concepts of scripts, plans and goals (here summarized by Kurzweil):

If we consider carefully the process of reading and understanding printed language, it becomes clear that we are dealing with a multiplicity of talents: at the character level, pattern recognition; at the word level, the syntactic analysis of word sequences; and at the higher levels, the decoding of semantics, the retrieval and updating of our knowledge base, and an understanding of ‘scripts’ about the subject matter being written about, to name only a few of the intelligent processes involved.”

As is typical in current artificial intelligence models of human behavior, neither Schank nor Kurzweil consider the much larger layers of cultural, social, and historical contexts operating in our understanding of printed language. Even the apparently promising alternative metaphor of “connectionism” offered briefly by West and Travis and discussed at greater length by Obermeier, fails to make the much larger and more important step to acknowledging the effects of context on the way our neural networks model knowledge."

" Kurzweil, 145.
" Klaus Obermeier, Natural Language Processing Technologies in Artificial Intelligence (New York: John Wiley & Sons, 1989), 61.
Although clearly an advance over commercially available interactive fiction, the knowledge structures of the layered programs of Oz, as formulated by Bates and his research team, and the structuralist conception of narrative posited by Graves and Brengle, still fail to provide sufficient accommodation of the rich variation in human understanding, a failure I would link to the limiting influence of the Objectivist epistemology underlying their conceptions of fiction. A different epistemological model from Objectivism would help projects like Oz and Interactive Fantasies to provide more satisfying fictive worlds for their users. Such a new epistemology would explore more comprehensively how interactive fiction's stories, and their digitizations of plot, character, and participants, can adequately engage and represent the reader. The ways that Graves and Bates are modeling knowledge, story, and reading are still missing a crucial part of the transactions between readers and authors, the part that admits that the meaning of a story is evoked in a relationship between the reader and her or his contemporary world, between participant and context, a very important point that is discussed in greater detail by Iser, Rosenblatt, Bleich, and contemporary reader response critics. Fortunately, there is a loud counterdiscourse to advocates of an Objectivist epistemology: the discourse of the social constructionists, the post-structuralists, the connectionists, and the advocates of interpretive communities, discourse that I argue instructs composers of interactive fiction to more adequately understand and predict
the transactions between reader and story. Social
constructionists directly counter the cognitivist assertion
that the knowledge structures of the mind correspond with the
structures of the world. Social constructionism offers the
insight that neither self nor knowledge is unified,
universal, or context-independent. Writers and programmers
of interactive fiction need to press more actively against
the illusion, identified here by Slatin, that "[t]he fixity
of the printed text as an object in physical space makes the
text as an object in mental space seem equally stable and
fixed." Readers of interactive fiction are let loose in new,
unfamiliar worlds, and their responses are even less likely
to be governed by convention, yet the scripts are more highly
conventionalized (in the tradition of the adventure, the
romance, and the spy story) than in traditional fiction.
Because of the Aristotelian dramatic theories and Objectivist
materials underlying these constructions, the readers' truly
free experience of narrative is likewise decontextualized and
tightly constrained.

Readers of interactive fiction need representations of
reality and of themselves within the fictive world that are
polycentric, polysemantic, and polysemic and that allow for
the idea that mental representations of text are dissonant
and conflicting. Instead of relying on an Objectivist
epistemology to inform their models and systems, interactive
fictions should seek an epistemology that acknowledges no

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Slatin, 872.
single "ideal" reader and that recognizes that neither self nor knowledge is unified, universal, or context-independent. When we read and write the new fictive cybertext, we need to engage in models of story that open up to us and explicitly accommodate our idiosyncratic understandings; we need a story that lives up to its explicit invitation to engage. We need systems of stories that accommodate the anxieties, idiosyncrasies, and pleasures of users embarked on itinerant readings of the cybertext. These new interactive fictions, that both Oz and Interactive Fantasies approach and approximate, need to model not only the process of readers' interactions with the physical world in the text but also to write stories that allow readers' interactions with other characters and their assembling of narrative progressions to be flexible. The new interactive fiction must actively seek to accommodate multiple interpretations, especially interpretations not foreseen by either writer or programmer.

To some extent, Graves and Bates are already answering this challenge. Rather than explicitly anticipating the variety of "real readers" in their works by building in sets of questions or a series of algorithms that would check audience response and adjust the story accordingly, these two composers of interactive fiction are laboring to write deeper, more flexible stories that will accommodate a wide variety of reader responses. Graves' attempts to shift from "objective interactive fiction" to "subjective interactive fiction" are admirable attempts to achieve this purpose, and Bates' attempts to give density to the fictional world will
simultaneously develop a wider base for reader response with the result that a greater variety of readers may be able to engage the text in a true participation. Instead of building in social constructionist views of the reader in the medium of the story itself, these efforts by Bates and Graves may create works of fiction of sufficient depth to allow the multiple readings that some great conventional fictions allow. Satisfying readings will arise from the interaction of the text and those contexts and interests that influence us.

The key point for composers of interactive fiction, then, is that the richest texts are those that are the most dense, offer a variety of roles for their users-characters to play, and offer a wide range of options to the reader to influence sequence, order, and conversation in the text. From the social constructionist viewpoint, stories that follow these guidelines will be the best interactive fictions because they will evoke the greatest range of response among a group of readers and give any one reader the greatest participation in co-creating the experience of the text. In Phelan's terms, these new interactive fictions will "function as semiotic phenomena that will offer many avenues of interaction for all readers."\(^6\)

Today, most commercially available interactive fictions are impoverished texts that at best raise ethical questions,\(^*\)

\(^*\) In my remarks of the last two pages I am especially indebted to James Phelan for his insight into the consequences for the composer of a social-constructionist view of the reader-text relationship.
and, more typically, disappoint their readers. The tasks that they ask of their readers are not emotionally engaging nor fully satisfying in any way. I encourage designers of interactive fiction to move away from these diminished models of reading, reader, and text, models I see as limited because they are linked to Objectivism, and towards stories that are rich not only in their density and subjectivity, but that are novel in the subjects they explore, flexible in their creations of the relation between reader and reader-representative, and unconventional in the roles they offer readers and the stories they tell. Such rich stories will naturally evolve, I believe, as designers make the move towards computerized fiction systems that rely on a synthesized, more comprehensive epistemology.

The next chapter fulfills the dual purpose of exploring what interactive fiction offers us in the way of understanding the reading-writing relationship as it is invoked by the electronic text as well as offering an alternative theory to guide the composing process of interactive fiction and understand its construction. Such a theory necessarily admits the importance of both text and reader, and cognition and context, into its understanding of interactive fiction.
CHAPTER IV

RECONCEIVING THE READING-WRITING RELATIONSHIP

In the technologies of handwriting and printing, the human mind was the only activator of signs; in this new technology signs also become active outside the mind in the electronic circuits where the text itself resides. The reader must therefore learn to read in a new way, by cooperating with a text that is directed by its own economy of interpretation.¹

Cognitive simulation—mental model-making—is what humans do best. We do it so well that we tend to be locked into our own models of the world by a seamless web of unconscious beliefs and subtly molded perceptions. And computers are model-making tools par excellence . . .²

Digitality is with us. It is that which haunts all the messages, all the signs of our societies.³

History is a story Western culture buffs tell each other; science is a contestable text and a power field; the content is the form. Period.⁴

² Rheingold, in Brenda Laurel’s book, ed.
Introduction

The Rhetorical Triangle and the Electronic Text

James Kinneavy has summarized clearly the history of the so-called "communication triangle," drawing connections between contemporary discussions of structures and patterns of the language process (Katz and Fodor; Shannon and Weaver; and Berlo, among others) and Aristotle's discussions of "the interrelationships of expressor, receptor, and language signs as referring to reality."\(^{101}\) Kinneavy further draws connections between these particular terms and more general descriptions of factors in the communication process: "components (signal), the interpretation given to the components (reference to reality) and the use given the interpreted components by the users (encoder, decoder)."\(^{102}\)

Mathematicians and logicians, too, use more general descriptive terms--grammar, language, and calculus--to describe the variation among participants in the rhetorical triangle. Kinneavy explains how these more general views of the triangle allow it to be itself interpreted in a variety of different ways and be put to different uses. My own view of the communications triangle as a flawed representation of the transactions facilitated by the electronic text may be seen as part of this long tradition of revising and extending the rhetorical triangle.

\(^{102}\) Kinneavy, 20.
In this last decade of the twentieth century, the rhetorical triangle has come under attack from poststructuralists, feminists, and psychoanalytic and reader-response theorists because they have found various inadequacies in the triangle’s representation of the central relationships among readers, writers, and texts. In this chapter, I join that critical chorus, because my research into the phenomenon of interactive fiction reveals this model’s central incapacity to encompass the rhetorical activities surrounding the electronic text. The purpose of this chapter is to establish and explore an alternative model of how reading and writing relate, reciprocate, and cohere as these activities are invoked by the electronic text.

Reading and writing in general are complementary and interdependent activities of making meaning, organizing experience, and participating in the conversations (past and present) of literate communities. While there are some obvious differences between reading and writing, between consuming texts and producing them, it is clear that the constructive activities of reading and writing rely on each other in profound and fundamental ways. As researchers build models of these interdependent processes, we must consider how all electronic texts challenge these models of composing based solely on paper texts. New models must be made to account for our observations that the electronic text introduces a grave instability to reading and authoring, form and content, and that it exploits a substantial change in presentational device. This chapter proposes a new set of
descriptive terms (materials, processes, and locations) to replace the rhetorical triangle’s participant-based descriptions of communicative transactions. I will use these descriptors to probe how the processes of reading and writing have been transformed by their new location in an electronic site. I use interactive fiction as a particular example of electronic text in which to explore the new dimensions of the reading-writing relationship.

The Rhetorical Triangle and Interactive Fiction

Interactive fiction performs visibly, on a screen right before one’s eyes, a dynamic illustration of the poststructuralist preoccupation with the fragmentation of subject, the death of the univocal author and the objective text, and the competing, dissonant contexts of reading and writing acts. The visible contests between the interactive fiction reader (as she or he socially constructs the story) and author (as facilitated by a dynamic text and its underlying layers of instructions) add to the mounting evidence in favor of poststructuralist interpretations of text-making activities. The failed contests between the novice-detective of Deadline and its resistant text that will not yield crucial clues when addressed in the wrong syntax, for example, demonstrate visibly the dissonant contexts between readers and authors. Interactive fiction not only visibly demonstrates this poststructuralist predisposition to question the roles of readers and authors, but it also explicitly performs the poststructuralist critical enterprise
of redefining (or shattering) the rhetorical triangle.

Two specific insights into the experience of reading and writing interactive fiction in particular pressure us towards a newly configured rhetorical model. First, there is the problematic quality to the reader's experience of existing interactive fictions (of which an ethical discomfort can be one symptom) due to the fiction's underlying programs and dramatic theory guiding these texts. In particular, in current commercial interactive fiction, participants' reading experiences are constrained by rigid scripts and an inadequate theory and model of the reading process embodied in the underlying programs, the programs that digitize and direct reader response, incident, character, world, and plot. In the previous chapter I explored some possible causes for this frustrating reader experience in the composing process of interactive fiction. The composing process of interactive fiction as it is revealed in the products of commercially available interactive texts, and, to a much lesser extent, by participants in Oz and Interactive Fantasies, creates reductive world models and fails to account for the vast variety of context-dependent conceptualizations and understandings brought to stories by their users. The first insight developed here applicable to reformulating rhetorical models is that the very materials of interactive fiction, the layered texts that comprise its dynamic stories, dramatically shift the relationship between reader and author.

A second insight into building a rhetorical model for interactive fiction is that a social-constructionist
interpretation of the processes of reading interactive fiction accounts for some of the textual "stiffness" encountered by readers and provides a valuable alternative epistemology to programmers and designers who work in this medium. At present, these stories inadequately consider the varied locations of their readers, as evidenced by the rigid gender identifications of "you" in Leather Goddesses of Phobos, the reader's rigid characterization as a sentient computer in A Mind Forever Voyaging, and the reader's limited range of actions available in the Zork trilogy. However, while writers and programmers may do well to reconsider their system design in light of the alternative epistemology of social constructionism, such an epistemology is an inadequate basis for a theoretical model that would encompass all facets of the experience of electronic texts. The implication of this insight pertinent here is that the rhetorical model that encompasses interactive fiction must be built on both realist and social-constructionist epistemologies.

Models of reading and writing processes currently proposed inadequately encompass the phenomenon of interactive fiction. Interactive fiction demands a synthesized model that encompasses its dynamic, layered text and that uses a different set of descriptive terms to probe its dimensions. In the following discussions, I propose a working draft of a model that will describe the fluidity and dynamism of reading and writing electronic texts. I explain how the model I propose administers the coup de grace to the rhetorical triangle by adding a program, programmer, and context to its
cast of influences and by shifting our focus away from the traditional three participants (the reader, author, and text) of the rhetorical triangle. Interactive fiction demands a model of the interactions between reading and writing that is both social and cognitive, that accounts for these stories' new medium of delivery, and that highlights the interactions of the materials, processes, and locations in these transactions.

The experience of reading is changed dramatically by the electronic text, and interactive fiction gives us another insight, a window into those changes. With paper texts, reading is an activity of the eye; writing is an activity of the hand and the eye. In both processes the eye or the hand traverses the page, but the eye leaves no traces (save its own visible rhythms of pauses and dartings). This difference in visibility of the process is related to a researcher's degree of access as she or he formulates understandings of it. When researchers study reading, for the most part they study an invisible process (although some researchers try to infer the nature of the process by tracking eye movements or listening to readers' thinking-aloud protocols). When we study the writing process, on the other hand, researchers have a much easier time of following a visible trail (in the form of drafts) of at least part of the writer's iterative, revisionary process of knowledge-making.

Interactive fiction changes our sense of reading because it makes its multilinear paths visible. Its textual form puts pressure on the rhetorical triangle because the roles of author and the reader overlap and become mixed. In addition to its pressure on the spatial metaphor of the rhetorical triangle, interactive fiction exerts pressure on the traditional temporal relationship suggested by the existing lineaments of the rhetorical triangle. On one level, this seems a simple observation of the synchronous composing processes of reader and author of electronic texts. But a closer examination of this medium's built-in capacity for dynamically-linked co-authorings shows that the new temporal relationship between readers and writers has important consequences for authorial control over order, sequence, and content that has grave consequences for our models. A new rhetorical model needs to reflect these changes.

Interactive fiction invites us towards a model of reading and writing that acknowledges the new temporal and spatial relations between readers and writers, accounts for the influences of both context and cognition on their composing processes, and is based on a coordinated epistemology that synthesizes Realist and social views. In this chapter I examine how traditional literate exchanges are transmogrified by interactive fiction and demonstrate how the electronic text shifts, alters, and amplifies our models of reading and writing.
Shortcomings of Present Reading and Writing Models

Introduction

Models of communicative transactions between readers and writers in the past have been based on how those relationships are transacted over the paper text, particularly across the plane of the pages of a codex book. Because interactive fiction shifts the location of the communicative transaction to the computer, with unpredictable consequences, earlier models might not be able to account for this new version of a traditional rhetorical relationship. Particularly, interactive fiction requires a model of rhetorical transactions that describes both the Objectivist theories underlying its programs and knowledge structures and the social constructionist theories that provide the best explanation for a reader's various frustrations with the electronic text. Interactive fiction provides a particular new site for a larger discussion of how readers and writers interact within the shifting boundaries of the electronic text. This new site is a computer screen, a vertical plane upon which researchers can observe a visible clash between two competing epistemologies, social constructionism and Objectivism, and, through the dust raised by that clash, see how these interactive fictions radically reconfigure hypotheses about reading and composing.
Existing Models of the Reading-Writing Relationship

In 1983, Sandra Stotsky published a synthesis of current research on reading and composing relationships and suggested directions for future research.¹⁴ Stotsky presents a comprehensive overview of rhetorical models of reading and writing in the form of a taxonomy of the kinds of studies conducted, all studies based on how readers and writers relate across the plane of paper texts. She summarizes the results of three types of studies: correlational studies, studies examining the influence of writing on reading, and studies examining the influence of reading on writing. She closes her essay with a call for a different set of studies to explore the reading-writing relationship in greater depth, over longer periods of time; she asks researchers to conduct comparative studies (contrasting the performances of good and poor readers and writers), longitudinal studies, and case studies. Stotsky’s summary of reading-writing models is typical in that it is a taxonomy based on research methodologies; it is also typical in that it leaves largely unexamined the important influence of the epistemological basis underlying each study she cites. Other taxonomies or overviews (Newkirk; Kucer; Shanahan and Lomax) of how the reading-writing relationship has been previously conceived, on the other hand, are limited by their being so embedded in research either on contextual influences or on textual

processing that they do not mention models or theories based on other epistemologies or on other ways of conceiving of the complexities of the relationship.  

In short, few researchers in reading or writing have satisfactorily attempted the work that Stotsky suggests in her conclusion, the work of building deep and comprehensive theories that describe, over long periods of time, the complementary processes and relationships of reading and writing. Those contemporary researchers that have undertaken such important work are typically constrained by their position within research communities whose shared epistemology emphasizes either cognitive or social contextual understandings of the composing process and exclude the counter understanding. While offering important insights, these researchers' models are inadequate to account for interactive fiction because of the particular epistemologies upon which they are based (whether explicitly called realist or Objectivist, social constructionist or relativist) and because they do not provide the synthesis of cognitivist-contextual epistemologies that is necessary to account for interactive electronic texts. It is clear from my ongoing study of interactive fiction that a model that would account for its layered textual dynamics must synthesize insights from both social-constructionist and cognitivist outlooks, and no such model currently exists.

105 For example, the overview of Timothy Shanahan and Richard G. Lomax is so embedded in literature on text processing and the cognitive model of reading and writing that "the three theoretical models of reading and writing" it discusses does not even include a contextual model of that relationship.
To my knowledge, no one has undertaken a discussion of how the reading/writing relationship is shaped by the epistemologies underlying how it is modeled. In the following section I briefly offer a summary of models according to their epistemological basis and identify reading and writing models as either realist or social constructionist (based upon the studies' problem statements, methods, and reported results). My intent is not to offer a comprehensive summary but to demonstrate selectively the limits of several of these models owing to the biases of their designs and underlying epistemology, and to demonstrate the pressing need for a more inclusive model that can describe the textual dynamics of interactive fictions. I recognize that all models are necessarily bound by their underlying epistemologies, but my goal here is to demonstrate that the communicative transactions of interactive fiction require a model based on a new, comprehensive epistemology that includes both cognitive and contextual understandings.

Cognitivist Models of Reading and Writing

Many of the models of reading and writing generated by researchers in the interdisciplinary field of cognitive science are supported by a realist epistemology. This epistemology conceives of a reader's relation to text as similar to an observer's unilateral relation to the world:
Ontologically, [realism] claims that much of the world does not depend on humans (or any other sentient entities) for its existence. Epistemologically, realism contends that humans are capable of knowing at least some aspects of the real world as it is in itself.106

A realist epistemology sees the world as comprising a single truth, a definable text to be read, instead of sharing the social constructionist perspective that sees the world as a text that we collectively, and idiosyncratically, write. Sharing a realist epistemology allows researchers to distinguish sharply between subject and object and to contend that there are universal and describable processes underlying a reader’s encounter with a text and a writer’s conceptualization of a text. For example, Bracewell, Frederiksen and Frederiksen propose their realist-based model of composing and comprehending discourse as the first step towards “a unified account of literacy.”107

Realism views the finished text as static and knowable. In Kucer’s discussion of realist text processing models, for example, he explains

readers are seen as passively decoding or abstracting an author’s intended meaning from the text. Their role in the process is one of identifying each word on the page by matching its sound with the appropriate lexical meaning stored in long-term memory, and then linking the words


syntactically. Writers, on the other hand, play a much more active role: generating, structuring, and encoding their meanings onto the page.108

The central metaphor of a realist, or cognitive scientific, understanding of the reading-writing relationship is this view of the relationship as a process of coding and decoding a describable meaning. This metaphor underscores the cognitive view of reading and writing processes, which conceives of them as universal, goal-directed activities. This view holds the assumption that the two processes are parallel activities of making meaning or problem solving; misunderstandings or misreadings of texts are understood as flaws in the process of coding or decoding this universal meaning. These models do not permit easy discussion of the influences of cultural knowledge or other social constructs on text processing.

Studies that rely on this realist epistemology and its underlying assumptions of describable, universal processes of meaning-making and a clear, separable distinction between the knowledge embodied by texts and in their users, have been conducted by Flower and Hayes; Scardamalia and Bereiter; Schank and Abelson; Rumelhart; Tierney and Pearson; as well as Bracewell, Frederiksen and Frederiksen. These studies build hypotheses about the particular processes of reading and writing through expert-novice comparative studies, self-observations, observations of school children’s composition

processes (such as Scardamalia and Bereiter’s studies conducted outside the classroom environment), and metasummary and analyses of earlier studies. While there are several important differences among the particulars of the text-processing models developed by these studies, a shared realist epistemology clearly underlies their discussions (their terms and their metaphors), their diagrams, and their methods of study, and those shared characteristics are what make it inadequate for a model of the textual transactions of interactive fiction.

The specific methodology that supports the models and theoretical propositions within this realist epistemological research group is frequently that of analyzing “think-aloud protocols,” which these researchers argue provide a record of some of the cognitive strategies and mental representations of texts employed by people engaged in composing or reading. (Flower and Hayes and Scardamalia and Bereiter most often employ this method of analysis and model-building.) This research methodology has been hotly debated because of its claims to represent the cognitive processes of readers and writers, a debate carried on between David Dobrin and Erwin Steinberg, among others. At any rate, analyzing protocols, framing research questions to address strictly cognitive activities, and employing a false comparison between expert and novice readers and writers, are activities typical of researchers who accept a realist view of the world and ignore the effects of context on composing acts.
Despite stereotypes to the contrary, however, the cognitive view does acknowledge in a limited way the influence of contextual knowledge on composing activities, influences designated as "task environment" in the Flower-Hayes model or the "content space" (broadly characterized as "beliefs") in the Bereiter and Scardamalia model. Bracewell, et al, recognize contextual influences as part of "framing processes" a reader undertakes. Tierney and Pearson do not propose ways of accounting for context but acknowledge that their account fails to "thoroughly differentiate how these composing behaviors manifest themselves in the various contexts of reading and writing."\textsuperscript{109} A fairer criticism is that designations of context within these cognitivist models are insufficiently developed and that they are constrained by the larger, epistemologically-linked characterization of the whole process as a universal pattern of goal-directed problem-solving.

Research based on the cognitive perspective that explores the effects of context more closely typically understands contextual influences in terms of schemata dissonance. Schema theoretic studies acknowledge cursorily the influences of the task environment on reading and writing and admit the effects of purpose on composing activities. For example, Tierney and Pearson refer to schema studies that "have shown that if readers are given different alignments

prior to or after reading a selection, they will vary in what and how much they will recall." Likewise, Vipond and Hunt contrast kinds of readings that readers create according to whether they are reading "to learn or remember the material," an information-driven reading, or reading to follow a story, a point-driven reading. Cognitive scientists in general acknowledge the effects of reader's context and purposes in their models under the names schema, frames (Minsky), or scripts (Schank and Abelson), but in each case the term offers little more than a superficial label for the deep and profound effects of cultured, gendered, historical, and social positionings of readers and writers encountering an evolving text or narrative progression.

The last two chapters of this dissertation developed the position that a realist epistemology underlies the materials and theoretical underpinnings of the reading-writing relationship in current commercial interactive fictions as well as, to a lesser extent, the constructions of Oz and Interactive Fantasies. As the last chapter showed, a clear symmetry exists between the model of story-making that underlies current interactive fictions (including Oz and Interactive Fantasies) and a cognitivist epistemology. Chapter Two's exploration of the reader's experience of interactive fiction suggested that this realist preconception is responsible for the dissonance between reader and text, between the idiosyncratic individual and his particular paths through these sometimes unyielding electronic texts.

"Tierney and Pearson, 266.
The realist epistemology implicit in the programs and programmer's conception of the reader-text relationship in interactive fiction likewise provides an inadequate framework for understanding the whole textual transaction. The opening screens of Deadline (the interactive fiction examined in Chapter Two), for instance, demonstrate how a realist reading-writing model inadequately describes the experiences of reading interactive fiction. A typical experience for a reader of Deadline is to have the story inadequately respond to her phrases or sentences. For example, while a reader in Deadline may type a series of phrases that will allow her to go to the library and pick up a telephone, hear a dial tone, and dial a number, she is unable to actually reach anyone by phone during the course of the story (although she is able to eavesdrop on a short conversation early in the story). If the reader-player types "Press 911," or asks to dial any number I tried, the story responds, "Pushing the number has no effect." Further, when the reader-player proposes to the story some unforeseen combination of objects, such as "Hit Baxter with the telephone," the story responds, "You rethink your planned action" or, in other situations, even executes a default reprimand: "This sort of shabby behavior is disgusting." In general during Deadline, when the reader-player types a response that does not match a response "understood" or "expected" by the program, the underlying programs provide a default answer that is sometimes frustrating for the reader.
A subtler version of this frustration occurs at the
higher level in the story Deadline. When "you," the reader-
player start the story-diskette, you are told that you are
"standing just north of the entrance to the Robner estate." If the reader chooses to knock on the estate entrance (as
"you" must do to begin the investigation of Marshall Robner's
murder), the following screen invariably appears:

Mrs. Robner appears, walking down a hallway from
the north. "Hello," she says. "I'm Mrs. Robner. Please come in. I'm afraid I really can't help you much. This is surely a terrible waste of time, not
to mention upsetting, having all these police
marching around the house. This has been a trying
time, as I suppose you can understand. As I told
Mr. Coates and the other detective, you may look
around but you must be out by 8:00 o'clock at the
latest. Oh, I almost forgot . . . Mr. Coates will
be reading my husband's will at noon in the living
room. You may attend if you wish . . ."1

The reader is then told that Mrs. Robner heads away from
"you" towards the kitchen. A reader familiar with other
Infocom interactive fictions might choose to follow Mrs.
Robner, might try to interrogate her, might sleep until the
reading of the will at noon, or might explore and map the
house. However, such an experienced reader would be
accommodating (or constraining) his readings to his expert
sense of the textual conventions (and boundaries) of this
genre. A novice reader of interactive fiction, on the other
hand, might attempt all sorts of interesting behaviors at
the beginning of the story such as shaking Mrs. Robner's

1"The second screen of Deadline, if the reader-player
types "Go south. Knock on door."
hand, fingerprinting Mrs. Robner, or asking her for a cup of tea and talking with her about the NBA Finals. Of course, Deadline does not permit such interesting behaviors, and the reader who attempts them is told that certain words are "not in your vocabulary," or that "detectives are expected to know how to conduct an interrogation; please re-read your casebook for remedial instruction."  

The story's addresses to novice readers show clearly the realist epistemology that guides them. A realist model of reading and writing would interpret the new reader's frustration (and his or her occasional ethical discomfort) as a result of a mismatch between the program's transcription of the underlying synthetic world (including characters, objects, and behaviors of both) and the reader's ability to decode that transcription. Instead of framing the problem of a frustrating reading experience in the way a social constructionist theory would (that is, instead of seeing that the story has an insufficiently rich field underlying it, an inadequate parser, and an inability to support multiple interpretations), realist theories of reading and writing would look for ways to better guide the reader's interpretation of the text, to help the reader achieve the expert behavior which, in this case, would be executed by his or her perfect reconstruction of the text and of the means, motive and opportunity for Robner's murder. Realist models of reading and writing clearly do not provide the tools to

112 Responses appearing in the text of Deadline when the program is not recognizing the reader-player's input.
programmers and writers who need to frame the problems of readerly frustration differently in order to create more satisfying reading experiences. These models also do not describe in general the reader’s experience of interactive fiction in the ways I have discussed in Chapter II.

Social Constructionist Models of Reading and Writing

A social constructionist epistemology, on the other hand, underlies a different set of reading-writing models and account for different aspects of the experience of reading and authoring interactive fiction. Social constructionist theory shares a contrary set of assumptions and methodologies that compensate for some of the limitations of cognitivist models and epistemology but that have their own inherent weakness. Broadly speaking, these models posit that meaning is always socially or culturally grounded, and that any model that attempts to account for the complex literate activities of making meaning through reading and writing must consider them as contextualized activities. In contrast to the cognitivist characterization of the reading-writing relationship, this relativist perspective

argues that ... symbol systems are socially grounded; that they are in place and are sustained by social and cultural groups ... before you or I were born. The process of changing from a newborn into a fully functioning adult is the process of becoming the kind of conscious creature that our symbol systems make us into."³³

According to a social constructionist epistemology, location is the single most important consideration in understanding how meaning is made. How an individual is located physically, socially, sexually, culturally, and historically, by herself and others, and how she is positioned according to class, gender, and nationality, among other influences, make location in all its multifarious complex variability surge forward as an essential consideration in understanding how meaning is made, valued, distributed, or suppressed. Social-constructionist models of reading and writing embody the claim that the locations of readers and writers will affect individual understanding, purpose, and strategies of making knowledge. Among those who have constructed reading and writing theories based on a social constructionist methodology include Heath; Lunsford and Ede; Bartholomae; Troyka; Sternglass; and Cooper.

Contextualist models of the reading-writing process often explicitly call into question the epistemology that underlies the text-processing cognitivist models and much of contemporary research in artificial intelligence. For example, Marilyn Sternglass characterizes her graduate students' reading and writing processes as knowledge-building activities and says they are very different from descriptions based on "computer-simulated models or studies undertaken in sterile, laboratory-like settings."14 She explains her own

research has demonstrated a wide variety of composing processes:

Although I do not wish to argue that the processes are idiosyncratic, I will present evidence here that interpretations of reading and writing tasks are so influenced by a range of contextual, intellectual, and personal factors that individuals cannot help but interpret tasks based on complex sets of factors that are unique for each individual.\textsuperscript{15}

Social constructionist models are typically based on naturalistic methodologies such as case studies and ethnographies that attempt to compile "thick descriptions" of literacy events in an effort to account for the depth and complexity of the shifting relations among readers, texts, and writers. These contextualist models of the reading and writing process are often developed by those who study second language acquisition and the effects of differing cultural backgrounds on making meaning (Alderson and Urquhart). For example, Steffensen and Joag-Dev report on a study of how readers' experiential and social-cultural background influenced their interpretation and comprehension of a written account of a wedding ceremony. Within the domain of second language acquisition, contextualist researchers investigate cultural interference at all levels in the composition and comprehension of texts. We can see echoes of contextualism also in the work of David Bleich on gender in

\textsuperscript{15} Marilyn Sternglass, The Presence of Thought: Introspective Accounts of Reading and Writing (Norwood: Ablex, 1988) 2.
reading and writing and Louise Rosenblatt's reader response criticism.

Sternglass's useful summary of researchers who have characterized contextual influences on reading and writing provides the rationale for her own naturalistic research within a particular classroom setting. Her review of contextual or constructionist conceptions of reading and writing includes Cooper's argument in favor of an "ecological model of writing" whose "fundamental tenet is that writing is an activity through which a person is continually engaged with a variety of socially constituted systems." Sternglass reviews also the work of Deborah Tannen, Donald Spence, and Robin Lakoff as examples of contextual perspectives that acknowledge the importance of participants' social and cultural locations in constructing and reconstructing discourse. In its observations of the particular, idiosyncratic, and contextually located aspects of literate acts, observation most typically gathered in naturalistic studies, social constructionist theory often fails to produce generalizable models. A social constructionist model of reading and writing is inadequate for interactive fiction, for this reason and, more precisely, because it cannot describe the layered processes of computer-generated texts. This model does not adequately describe the effects of the medium, the layered symbol systems, and the particular texts that programmers and writers construct. Social

Sternglass, 48-50.
Sternglass, 48.
constructionist theories of reading and writing do not have the tools to describe the layered, Objectivist-linked texts that comprise the programs of these stories.

For example, in *Deadline*, each character in the story has a specific script he or she follows. At particular times, each character executes a particular activity: Mrs. Rourke prepares food in the kitchen, George reads in his room, a will is read aloud, all at particular times. Further, particular minor characters repeat activities over and over; if "you" stay with Mr. McNabb, the Robner estate's gardener, long enough, you will see him execute the following four activities in the same order: Mr. McNabb examines his work, mows the grass, picks weeds, and wipes his brow, over and over. (I would wipe my brow, too, if I had to mow, pick weeds, and examine my work every minute, in the same order, in the same degree of detail.)

My point is that the insights of social constructionism are irrelevant to the descriptions of particular links among layers in these programs, and as synthetic characters grow deeper and more "life-like," as they do in virtual realities, for example, their behaviors still will be algorithmically-bound in ways that would not be explainable by an existing social constructionist theory. Social constructionism does not allow for the constructed (programmed) worlds that do exist independent of the observer or user's interactions. The scripted behaviors of characters such as McNabb and George are predictable, repetitive, and not subject to change in the way real people are subject to the effects and
influences of their surroundings. Characters and objects "existing" in the synthetic worlds of interactive fiction are artificially situated, and the scripts of their behaviors are not explainable according to their contexts. I am not a skilled programmer myself, and do not want here to provide a description of the mechanics of this phenomenon in great technical detail. However, I would like to mention that within the layers of programs that comprise Oz, for example, there are clear, definable, and mathematically linked programs that guide the behavior and artificial personality of characters and that coordinate in rigidly predictable ways. A social constructionist model does not describe the inalterable link between a story's particular description of a place and a character's behavior within it. It does not accept that Mrs. Robner is always going to answer the door in the same fashion; McNabb will always wipe his brow at the same moment; George will always play the same records, over and over. These characters operate in a sealed world with predictable consequences, and social constructionism does not adequately describe that utter, literal, predictability.

These coded connections between program layers typical of electronic texts are one aspect of the movement from a static to a dynamic text and introduces a new dimension into the creation of text that is not adequately accounted for by a social constructionist model of reading and writing. The scripts of behaviors and locational changes of synthetic characters occur without real regard for the positionings or locations of their users. For example, The Daily Herald will
be thrown on the porch at the same time during every reading of *Deadline*, and that newspaper will contain the same article every time you read the second section's description of "the Focus scandal." Of course, the sense you the reader make of that newspaper's account of the business scandal, and how insightfully you connect that scandal with Robner's apparent suicide, is idiosyncratic and subject to change. However, in a metaphorical sense, the story's engine keeps driving on, regardless of the idiosyncratic readings we bring to it. While paper texts certainly support multiple, idiosyncratic readings, too, interactive fiction's explicit gaps and the reader's engagement of those gaps make the dissonances, the variable screens, between reader and text particularly visible. The dynamics of interactive fiction texts are described poorly by a social-constructionist model of reading and writing.

I include this summary of reading and writing models and underlying epistemologies not to be comprehensive but to demonstrate that their general range is insufficient to describe interactive fiction and, ultimately, any electronic text. I certainly recognize the differences among studies and models grouped together here, and acknowledge the vigorous debates within the contextualist and cognitivist epistemologies regarding where knowledge and meaning originate, methods of study, and how to build models or posit theoretical propositions. I am aware that I have smoothed over differences among these theories and have barely touched on the systems of warrants and claims that underlie them.
However, my main point stands: that interactive fiction is not described by existing models of reading and writing because those models are limited to two conflicting epistemologies, and the composing processes of reading and writing interactive fiction move between and beyond these two epistemologies.

It is this movement I investigate in particular in the next section of this chapter. The following section proposes a new conception of model that both adequately describes the existing processes of composing interactive fictions and has a certain predictive value for the ways programmers, writers, and readers might conceive of interactive stories and create richer, more satisfying ones. That is, I hope to model not only the existing conditions of creation but to suggest some future directions for people working in this exciting medium.

**The Challenge of Interactive Fiction as a Radical, Synthesizing, Dramatic Force of Change for Models and Theories of Reading and Writing**

*Introduction*

Recently, Deborah Brandt has offered researchers in literacy a way to synthesize cognitive and social constructionist understandings of reading and writing by offering us a view of literacy not as "a technical capacity that is introduced into various contexts" but as a cooperative relationship of technology and context; she views

reading and writing as "forms of metacommunicative knowledge" consonant with the demands of their pluralistic cultural contexts." Her critique of the realist epistemology and "strong text" conceptions of literacy held in the work of Walter Ong, E.D. Hirsch, and others is the first serious attempt to model the cooperative influences of cognition and context and to show how literacy is primarily an "intersubjective involvement"; that literacy is primarily a function of readers and writers understanding the activities and roles of their counterparts; and, finally, that "textual relationships are less logical than they are social." Brandt indicates a possible synthesis of Objectivist and social constructionist epistemologies, and this synthesis is very important in modeling both literate processes in general and electronic literacies in particular. It is a synthesis I have likewise tried to invoke in my combination of Wolfgang Iser's and James Phelan's models of how readers negotiate texts.

Although Brandt's model does not go far enough to describe the layered, dynamic, collaborative processes of making meaning that characterize interactive fiction and other electronic texts, adding her insights to current discussions of the influences of the computer on composing can help support a theory to describe the processes of composing interactive fiction. Recent discussions of computer literacy usually subscribe to the "strong text"
version of literacy and see computers as the latest in a long line of technologies transforming consciousness (Lanham; Ulmer; Heim). Cindy Selfe’s discussion of “Redefining Literacy: The Multilayered Grammars of Computers” (1990) is typical in its ties to a realist epistemology and its accompanying assertions that technology transforms consciousness. Selfe, like Lanham and Bolter, sees computers pushing users to a new electronic typography that will reconfigure genre, form, textual status, and eventually the cognition of the users themselves.

Despite the problems obvious in that assertion, Selfe’s basic insight is an important one: computers are requiring of their users and their instructors a new range of conventions that are drastically different from those required of and fostered by print literacy. Selfe contrasts computer texts with the characteristics of “the world of print,” especially its linearity and spatial orientations, and discusses how the computer fosters an alternate layered literacy. Selfe follows this observation with the provocative assertion that computer users might internalize the new formal conventions of computer texts and, because of that internalization, reconfigure their understandings of the world. Bolter, too, sees a relationship between the physical form of messages and their rhetorical form. In their assertions that technology transforms consciousness or styles and patterns of thinking, Selfe and Bolter are implicitly offering an electronic textual version of the “strong text” Objectivism of Ong and Havelock, which is frequently invoked
by critics in composition and computers (Costanzo; Ulmer) but
is problematic because it is reductive.

However, when we read Selfe against Brandt, a more
accurate picture of computer literacy emerges. Rather than as
a new delivery system transforming consciousness, the
electronic text needs to be considered as a partner in a
newly complicated transaction between makers and users of
texts. Interactive fiction in particular must be considered
a new medium for traditional social transactions that gives
us exciting insights into story, form, and making meaning,
but that is in itself not a transformative medium. Rather
than focusing on the technology or delivery system of the
transaction, we need to focus on this phenomenon as an
unfamiliar version of a familiar social exchange.

In order to understand this idea fully, and to combine
the insights of Brandt and Selfe into a single model
explaining how reading and writing cohere in this particular
medium, I propose rethinking our rhetorical model of the cast
of participants who encounter interactive fiction and other
electronic texts. That cast is comprised of programmers and
writers in the initial stages of composing, and readers or
users at the other end of the transaction. In the middle of
these transactions is the delivery system (Welch), medium
(McLuhan), or element (Heim): the computer screen and its
dynamic arrangements of pixel-based print. The following
section explores the roles of these four participants in the
electronic textual transaction, making a case for shifting
our focus from the participants in these communicative
transactions to each participant's location, material, and process. I hope to build towards an explanation of electronic literacy acts that offers researchers an opportunity to coordinate realist and contextualist views of literacy and to examine electronic texts through another lens.

**Materials. Processes. Locations**

Interactive fiction allows critics to observe firsthand that the traditional focus of the rhetorical triangle on the participants in its transactions (readers, authors, and texts) inadequately illuminates many of the interesting relationships in the communicative transactions of the electronic text. Specifically, electronic (or computer-supported) documents implicitly require a new focus on the materials, processes, and locations of its composing activities prior to and following its appearance on the computer screen. Spatially, the rhetorical triangle must shift to represent the composing processes shared between readers and authors; the two participants' activities complement each other, collaborate, and cohere in ways not adequately represented by the triangle's shape. Temporally, the electronic text forces the rhetorical triangle to represent the synchronous composing processes of readers and writers collaborating to create a particular narrative progression. In brief, through the new temporal and spatial relationships among readers, authors, and texts, and through the introduction of an important fourth participant, the
programmer, the whole enterprise of the traditional rhetorical triangle folds up and disappears when confronted by the computer-supported rhetorical acts of the twenty-first century. While I recognize its continuing value as an enduring tool of analysis, I would like to propose an alternative set of descriptive terms and ways of framing the relationships of the rhetorical acts surrounding electronic texts.

Materials

In an oblique echo of the poststructuralist assertion that the author is dead, electronic texts demonstrate that the notion of a stable text is fading fast, too. Interactive fiction demonstrates the new importance of the textual materials of communication, a multi-material that is layered and deep and related to what Baudrillard and Eco call the hyperreal, the simulacrum, the false that indicates the actual. The central features of an electronic text are its depth, its malleability, its altered visibility, its new intangibility or untouchability, its element, and, in general, its new social dimension (its synchronous and mutual inscribings, and its levelings between readers and authors). Briefly, these characteristics may be developed as follows.

The new depth of the textual material is related to the layers of programming code that underlie the "final," pixel-based text that is visible to the user. Beneath the visible interaction between user and screen is a deep, hierarchically-linked series of programs, scripts,
instructions, or textual codes that "read" one another to determine which has precedence, which rule will fire, and which text will appear to the user. An interactive fictional character's relation to his or her synthetic world is governed by such sequences of rule firings, for example, and the perceived malleability of an interactive text is, as we have seen before, actually constrained by these hierarchical rules.

The new visibility of interaction between user and story also has several material layers. On the one hand, interactive fiction permits users (and researchers) to view a trace of a reader's interaction with a story, of his or her mental representation of the progression, and of his or her sense of what actions or incidents are cohering in interesting ways. However, the material of the electronic text is visible in another important way: the computer screen is a more public space than the codex book. A person reading and writing at a computer screen is having a textual encounter that is public in a new sense, that is visible to any casual observer. This new publicness to his encounter with the fictive world may have effects on his readings that have not yet been explored.

The element of the textual material is different as well. The element of these textual transactions permits a "monitored" exchange that is intangible and untouchable in new ways, and that subtly changes the processes and possibilities of symbolization. Heim distinguishes between
the medium and the element of computer texts in the following way:

The element . . . is not a tool for symbolization but the significant backdrop or horizon on which symbols move . . . Element emphasizes the conditions of symbolic experience and the implications of the mode in which things are represented.\(^{12}\)

The element of interactive fiction conflates its reader and story, subject and object, in a uniform, leveling inscribing across the vertical screen. Further, as Richard Lanham and others have eloquently explored, the element of computer texts allows a new variability and instability into the texts themselves and thus into paper-based conventions of canonization, textual emphasis, and establishing authority.

The metaphor of layering, introduced by Cindy Selfe and others into discussions of computers and composition, describes to a limited extent the parallel processes of text-making in this medium. However, layering alone doesn’t capture the dynamism of the competing processes involved in the literate acts. A working analogy to the layered processes of electronic texts would be time-lapse photography of the creation of sedimentary rock. The layering is a shifting, accretive, and cumulative process, and the material of story is significantly shifted by it. Text has a new suppleness, and its layers blend and blur in a spontaneous concatenation of counterdiscourses colliding. This is the material, the element of the interactive text. One challenge

\(^{12}\) Heim, 102.
to the interactive fiction writer is to properly use this new material in all its possible forms, to account fluidly for variant readings.

Locations

The second descriptive term I suggest to complement the insights of the rhetorical triangle is locations. The varied locations, in all senses, of readers and authors is a familiar area of investigation to researchers interested in how knowledge is socially constructed. However, electronic texts in general highlight the importance of readerly and writerly location because of the new visibility of their textual interactions and, in particular with interactive fiction, the range of their narrative techniques that explicitly ask the reader to deeply engage in the story. Because of the new visibility and heightened engagements of these textual encounters, dissonances among the reader's view of the world and the writer's grow more pronounced in ways that I have discussed above, particularly in the relation between the reader and the "you" of the story.

Historical differences, gender differences, and differences in patterns of assembling the narrative progression, all become very obvious within this element of textual exchange. Researchers into the dynamics of electronic texts need to examine the sources of these dissonances through close examination of the competing discourses and world views of programmers, authors, readers, and programs. These contextual factors of composing and
interpretation of interactive fiction are significant influences on Graves and Brengle's conceptions of character and free will, for example, as well as in Bates' group's working plot in Tea for Two.

Processes

An analysis of the dynamics of electronic texts such as interactive fiction must necessarily observe interactions among their users and participants over time. Extending here another insight into the limitations of the traditional rhetorical triangle, analyses of these new rhetorical processes describe the sequences of activities and mentations typical of users, programmers, authors, and participants in all stages of their textual composings. Although, as I have noted above, the temporal relations between makers and users of texts have been dramatically shifted by interactive fiction, processes remains a useful descriptive term to explore the dimensions and progressions of maker-user relationships. It is only through process-oriented analyses that researchers will capture how readers and electronic texts change over time.

Describing the Activities of the Central Participants in the Composing Processes of Electronic Texts

If we apply these three terms--materials, locations, and processes--to an analysis of interactive fiction, it is my belief that we will draw a more complete picture of its
dynamics as well as be better able to analyze what has gone wrong when these stories occasionally fall flat. I would like to offer in general terms a preliminary description of how these three terms extend our understanding of the rhetorical collaborations of electronic texts as well as sharpen our analysis of their participants' contributions.

The newest participant in the design and collaboration of electronic texts is the programmer whose materials, locations, and processes provide the most useful and comprehensive description of this key player. The programmer’s materials are a computer, a computer keyboard, monitor, and central processing unit, and a variety of programming languages invoked through a keyboard into a computer. The programmer’s composing process, as discussed earlier, is a process of designing and “building” worlds in layers of these programming languages, working in a coded, algorithmic version of prose with symbols that look like print-based symbols but are comprised of pixels on a vertical screen. The location of these programming activities is most typically within a first world technological context—either an academic institution or in a computer company, sometimes among hackers—and also within the beliefs and cultural groundings of his community. The programmer’s creative process is one of coding and debugging programs’ representations of cognition invoked in the form of rules and scripts. Those representations are based on her or his own limited sense of how knowledge is represented and created in “the real world,” on the conventions of the particular
programming language, and on the constraints of the particular programming task she or he may be trying to solve.

The writer participant in this new composing process, on the other hand, is either the same person as the programmer (as in Oz) or is another person collaborating with the programmer (as in Interactive Fantasies). The writer’s location is complicated in all the ways the social constructionists say it is; her location is a layered location comprised of the intertexts of the social, cultural, gendered, historical groundings of her composing community. Her ideas for the narrative, her processes of negotiating with programmers and users, her patterns of work all are likewise influenced by her own social, cultural, historical, gendered positioning. The writer’s composing material is typically paper or computer screen, and she may have occasional difficulties in making the transition between the two media. Her composing process is a collaborative process of mediating between the prose she writes for the reader, the programs and systems underlying that prose, and her own predictive sense of how readers might read or misread, use or misuse, the text. To a greater extent than traditional authors, the interactive fiction author must engage in an anticipatory composing process. And in this anticipation, the author endlessly recedes from control. Heim describes a parallel loss of “human presence” within the electronic text:

The language of direct assertion gets poured into the electric element, where the logic of manipulative power reigns supreme. It becomes possible to treat the entire verbal life of
the human race as one continuous, anonymous
code without essential reference to a human
presence behind it, which neither feels it
must answer to anyone nor necessarily awaits
an answer from anyone. The absence of
personal presence so proper to the written
letter will be not just absence but
anonymity.  

Not only is the participation of the programmer and the
writer usefully described by these three terms, but the
participation of the electronic text’s readers or users are
usefully described by these terms as well. The electronic
text is located halfway between reader and author, and it is
an intertext in a new egalitarian sense; it interrupts
boundaries between self and other and creates jarring,
seaming postmodern syntheses between reader and story,
consumer and producer, world and fictive world. The
important thing about the user’s process of encountering the
interactive text, on the other hand, is that it is
continually a process: these stories, in theory, have no
necessary closure, no grand finale, no resolution. In
summary, we need models that capture these reiterative,
recursive, dynamic, conflating processes that take place in
this unstable, paradoxically untouchable medium that we are
starting to look at, as well as through. The layeredness of
these texts allows new room to play that researchers haven’t
described yet, and because of the invisibility of some of
those layers, new parts of the composing process are likewise
unexposed or opaque.

If we look again at the opening screens of Deadline, we

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122 Heim, 213.
can see a concrete example of how the rhetorical triangle does not describe the interactions and how probing the story with the descriptors I have suggested may offer a more comprehensive description. The screen I particularly want to look at again is the one containing the initial appearance of Mrs. Robner:

Mrs. Robner appears, walking down a hallway from the north. "Hello," she says. "I'm Mrs. Robner. Please come in. I'm afraid I really can't help you much. This is surely a terrible waste of time, not to mention upsetting, having all these police marching around the house... Mr. Coates will be reading my husband's will at noon in the living room..." 133

The traditional rhetorical triangle would explain this communicative transaction as the author's introduction to a reader of a particular character through the agency of a text. Such a characterization would miss interactive fiction's central interactivity, the reader's part in evoking this particular screen. The reader's response to Mrs. Robner, written into a scrolling text, will generate in turn one of dozens of possible responses about Robner, the room, the will, or the task of discovering the murderer, for example. The traditional communication triangle would also miss the range of possible relations the reader-player might have with Mrs. Robner, as well as the layered rules underlying this particular block of text and responding to the reader's input. Finally, such a characterization would

133 Opening screen of Deadline. (See note on page 17.)
miss the imbedded instructions on how to progress through the text, or assemble the narrative, instructions that come in the form of Mrs. Robner's suggestion to the reader that Mr. Coates will read the will at noon and that are enacted by the reader choosing to write into the text an intent to visit the library at 12:00. Looking at the materials, processes, and locations of this particular transaction, however, lets us see all these new relations as well as the central instability of the text (the reader-player has no obligation to attend the reading of the will, for example), the co-authoring collaborative roles of reader and writer (the reader could choose to ask Mrs. Robner about her husband's murder), and the generally changed process of negotiating the unfinished, evolving text.

Conclusion

Electronic texts such as interactive fiction require a theory of the reading-writing relationship that helps define a rhetorical model of materials, processes, and locations of its participants and that synthesizes insights from both realism and social constructionism. Interactive fiction makes visible the constant tension between participants who hold to these two competing epistemologies, a tension revealed through the clashes between a variable reader and a developing story over a vertical screen. However, in the
dissonant collaborations appearing on the computer screen, interactive fiction suggests a balance, a stereoscopic picture, of a synthesized cognitivist-contextualist theory.

Indeed, this synthesized version of a cognitivist-contextualist theory of reading and writing might look something like the "feminist objectivism" of Donna Haraway, which holds that situated knowledge is always dialectical and that acknowledges the constraints of both context and cognition. Haraway argues for a "coyote discourse," a compromise between the social constructionists and the relativists, or "a practice of objectivity that privileges contestation, deconstruction, passionate construction, webbed connections, and hope for the transformation of systems of knowledge and ways of seeing." 124

I see Selfe's metaphor of the layered literacies required of computer users informed by Brandt's insights into the social dimensions of literacies and by Haraway's attempts to synthesize Objectivism and social constructionism. I see the metaphor igniting and becoming a dynamic model of the shifting, layered locatings of authors, readers, and texts interacting in interactive fiction. This dynamism leads naturally to problems of a lack of closure, blurred distinctions between subject and object, and meanings endlessly deferred. The following chapter develops this theory and set of descriptive terms further and suggests

three research questions to extend our knowledge of the transformative rhetorical acts of interactive fiction and virtual realities.
CHAPTER V

CONCLUSIONS AND IMPLICATIONS FOR RESEARCH

Since writing came into existence, the evolution of the word and the evolution of consciousness have been intimately tied in with technologies and technological developments. Indeed, all major advances in consciousness depend on technological transformations and implementations of the word.¹

My view of the future of desktop publishing . . . is one where the bezel becomes a proscenium and agents are embodied to any degree of literalness you may desire. In the longer term, as holography prevails, little people will walk across your desk (if you have one) dispatched to do what they know how.²

The older metaphor of reading is undergoing a transformation in a textual space which is consensual, interactive, and haptic, and which is constituted through inscription practices—the production of microprocessor code . . . The boundaries between the social and the natural and between biology and technology are beginning to take on . . . generous permeability.³

The real is produced from miniaturised units, from matrices, memory banks and command modules—and with those it can be reproduced an indefinite number of times. . . . It is a hyperreal, the product of an irradiating synthesis of combinatorial models in a hyperspace without atmosphere.⁴

¹ Ong, 42.
Conclusion

I write about interactive fiction and virtual realities in the last decade of the twentieth century as a participant in poststructuralist conversations about the death of the author, the disappearance of the text, and the "tyranny" of the reader. I write as a graduate student fulfilling her last requirement within an English department engaged in its own critical conversations about shifting rhetorical frameworks, the crumbling canon, changing degree requirements, and the troubling relations among those who practice the analysis of literature and those who study how writing is created, relations that provide an inexact reflection of the larger debates among those who would assert the primacy of reader over author or of literature over composition. I mention these competing and overlapping contexts to acknowledge my sense of this dissertation as being part of a much larger conversation and to demonstrate my critical predisposition towards considering reading and writing as contextually directed and meaning as socially constructed.

This critical predisposition has been strengthened by my recent analyses of the competing processes of reading and writing operating within texts of interactive fiction. As I have explored in the last four chapters, interactive fiction

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129 Any recent discussions of Foucault and Barthes, for example.
130 See, for example, work on interpretive communities by Stanley Fish.
invites its readers to collaborate in its narratives by offering the promise of participation, yet currently reneges on that promise by not offering the depth nor the range of narratives contemporary readers require. These narratives are currently thin and unsatisfying owing to an underlying composing process and material based on a realist epistemology; new interactive fiction projects, however, are trying to move beyond these thin models of character, plot, and world. In my work in this dissertation, I am pressing forward towards framing and understanding the complex interactions of interactive fiction and other electronic texts.

During the present period of astounding and rapid computer technological change, boundaries between human and machine are shifting and unsure,\textsuperscript{131} and computers are proving to be a medium both projective\textsuperscript{132} and constructive. Readers are becoming users who project their personalities onto their computers and who use the new technology to construct their own dreams or fantasies. Mainframe computers were built for the first time less than fifty years ago; personal computers appeared on the market in the United States only seventeen years ago. The ultimate influence of computers on storytelling effects and practices is, of course, largely unknown. My role as a researcher in rhetoric and composition is to help build the theories and models that account for and explain the systems and techniques of human expression as

\textsuperscript{131} Stone.

\textsuperscript{132} Sherry Turkle, The Second Self. See her discussion of how users project their personalities on the computer.
they exist, prospering or constrained, within particular cultures, ideologies, or technologies. When I look in particular at the rhetoric of interactive fiction, I am exploring a computer-linked phenomenon whose form, content, and means of communicating are nascent, evolving, and uncertain. The larger connections among culture, computer, and story are unclear as well. In some senses, this dissertation is necessarily a tentative exploration of these issues, but I am acutely aware of the possibility of predicting computer influences on narrative that will quickly age or seem unlikely.

On the other hand, I write in particularly interesting times and in a particularly interesting position as an individual personally making the transition from paper to multimedia computer texts. As I fulfill my role as a researcher in composition and rhetoric and examine the phenomenon of interactive fiction in particular, I am laying the groundwork for an exciting lifetime study of the relations among narrative, technology, and culture, particularly of the rhetoric of computer texts and the ideological and cultural systems that contribute to their content, form, and delivery. I undertake such a study at the pertinent historical moment.

Theory-building in general is a painstaking, iterative process of observing, hypothesizing, revising hypotheses, and observing again. The principal work of this dissertation, then, has been a first step in a long-range plan of building a theory of how the computer ultimately will shape narratives
and how readers and writers will in turn shape them. My working hypothesis is that this particular incarnation of story—interactive fiction—will ultimately question nearly every preconception we hold at the end of the twentieth century about narrative or textual order, coherence, plot, and the rhetoric of story. After observing the interactive fiction projects of Oz and Interactive Fantasies, and after my examination of how particular narrative techniques cohere in this medium to engage the reader, my working hypothesis develops further and suggests that computer fictions will require we shift our rhetorical focus from the participants in these communicative transactions to the materials, processes, and locations of these unstable texts. It is my hypothesis that close examination of these three features of computer fictions will ultimately allow us to model how these texts achieve their effects as well as suggest to designers and composers how they might improve their computer-based narratives.

I arrived at this particular hypothesis through building and ultimately discarding a rhetorical cube to represent the collaborations of participants in interactive fictions. That cube was intended to expand the rhetorical triangle and to represent the layered, cooperative interaction among readers, authors, programmers, and texts (R-A-P-T). However, I rejected that cube as inadequate for representing the full range of computer texts because its static geometric representation seemed rooted in an analogy between paper and computer texts. Other than introducing the central
participation of the programmer, it offered little in the way of new information. I thought it important to search for a new representation of these crucial relationships that would look beyond naming the participants in these rhetorical transactions and that would highlight the particular differences: the layered material of the texts, the varied and influential contexts of the participants, and the processes over time during which the participants changed.

I offer this rhetorical cube as an instance of the mental exercise of hypothesis-building that prepares the ground for theory. Instead of a rhetorical cube, I moved towards the set of descriptive terms I introduced in Chapter IV because materials, processes, and locations more comprehensively expressed the central features of this new rhetorical transaction. The next step in understanding how the rhetoric of interactive fiction operates, acts on its users, and is formulated by its makers, is to expand our understandings of these three features. Therefore, I propose the following three areas of research as part of the information-gathering enterprise that characterizes the next step in my work of developing a theory of computer fiction.

**Implications for Future Study**

The first area of inquiry for developing this theory is, of course, how materials and technology affect the composing processes and products of interactive fiction. I will continue my analysis of how the new materials of electronic
texts affect story by returning to my comparisons between *Deadline* and *The Moonstone*. Such work will help develop an understanding, in much greater depth, of the central differences in the materials of these two texts and how these differences influence readings. Such study will explore electronic textual material's presentation, quality, and depth, and the reader reception invoked by these textual features. These two particular works, *Deadline* and *The Moonstone*, have interesting similarities in subject, publishing history, and popular reception that will make such a study rich.

My method of exploring the differences in the material of these narrative constructions will include looking at their constructive processes. I will begin by examining the rough drafts of Collins' novel and his own articles about his own composing process. I will compare these asynchronous drafts with the synchronous layered texts comprising the visible text of *Deadline*. In addition to examining closely how Collins' drafts predict his published text and how *Deadline*'s microprocessor programming code underscores and influences that story, I will interview or read interviews with the authors. Collins' prefaces and essays about his own composing process, read in conjunction with the existing drafts of *The Moonstone*, should illuminate his own sense of how serial publication, for example, influenced his composing process. I will interview Steve Meretzky, the author of *Deadline* and a regular participant in The Computer Game Developers' Conference, about his composing process and his
own sense of how his story and program affect the reader’s response to story and her responsibility for sequence of event. I would like in general to develop and describe far more closely, in a comparative analysis, how these particular materials connect the writer’s intention with the reader’s interaction. The theoretical implications of such a study will be to enhance our understanding of the relationship between technology and literacy, to trace further the trajectory from orality to literacy to videocy (Gregory Ulmer’s term for electronic literacies).

My deeper analysis of how these two texts operate will further include a new discussion of how the historical context and publishing histories of these narratives influence their drafting process and reception. To answer the question of how to map the constructive processes of interactive fiction we need to explore three related contexts: the reader’s idiosyncratically assembled notions of coherence and direction; how he or she builds working hypotheses about the narrative’s probable outcome; and her or his surrounding culture. In particular, mapping these constructive processes necessitates our examining how readers are assembling particular narrative progressions and the relations between this activity, their immediate cultural context, and their own history of reading story.

A complementary analysis in this thorough study of how materials and technology affect authoring and reading will be to perform a comparison of the class, income, and education level of these two readerships. To a large extent, my
dissertation has ignored a material analysis in this sense of the influences of cost on the readership of interactive fictions, and I would like to address that gap in this study. To aid me in compiling this more complete picture of the materials of the electronic text, individual readers will need to report on their processes of assembling these narratives. I will interview them at different points in their initial readings of each story to see what they are projecting as means, motive, or opportunity as well as narrative closure. I will divide The Moonstone into the installments it was originally published in and ask readers to project what will happen next after each episode. I will ask readers of Deadline what they project upon their finding each of eight central clues. In general, I would like to learn a lot more how the materials of these stories facilitate and constrain the reader's contribution to the narrative's arrangement and closure. Some of the questions I hope to answer about interactive fiction through these comparative readings are: What are the confounding effects of rereading? How do these new texts challenge a reader's sense of plot? What happens when reading is no longer goal-directed? What are the ethical consequences of the reader's link to the central character?

My general aim in undertaking such a study is to assess how these paper-based and computer-based stories use different materials to enhance their systems of narrative techniques and influence the quality of the reader's engagements. When we explore how these two texts connect the
user to their story, how they are related to the surrounding culture, and, finally, how they connect their users to his or her representations in the text, we are learning about ethics and responsibility in reading in general. I would also explore the cultural antecedents to the detective novel and ask the question whether Lanham’s claim that computer technology (and its underlying binary system and codes) itself requires a reader to participate in particularly thin genre fictions. It is my sense that a close engagement with these two texts would provide rich loam for generating ideas about how the materials of construction change the experience of reading.

Second, I hope to extend our theoretical understanding of how the reading and writing processes evoked by the computer text currently engage readers and authors and how they might be changed to improve that engagement. One means of expanding our understanding would be by observing and interviewing first-time users of virtual reality systems. That is, I would observe first-time participants in the experimental, multipurpose, multimodal environments called virtual or synthetic realities—in which “operators” participate through “a head-mounted, wide-angle, stereoscopic display system controlled by operator position, voice, and gesture”[1]—and would examine the process of such interactions both to describe them as well as to provide a historical record of this particular interesting moment in

history. In her rationale for her own work observing office workers accommodating their former styles of work to newly computerized offices, Shoshona Zuboff discusses the importance of recording the experiences of first-time encounters with new technologies. One of the newest technologies of our own generation is the technology of virtual (or synthetic or artificial) realities. Our generation is the first to design and experience computer-based alternative worlds, non-verbal artificial realities in which users can take on different bodies, different skills, and different personalities. These artificial realities may be harbingers of a large-scale transition to entertainment technologies that will engage their users in fictions (as foreseen cynically by William Gibson in Neuromancer).

Clearly interesting, novel, and problematic, these technologies are experienced by users who should be interviewed in depth both to leave a historical record of their impressions as well as to add to our information about the processes evoked by these new technologies. Zuboff’s present work provides an important record of users’ encounters with virtual objects as she explores the effects of the transformation of familiar physical tasks into a two-dimensional symbolic medium. First-time computer users in offices, for example, complain about the intangibility and untouchability of computer representations of three-dimensional data: desktops, pages, letters, mail:
For most people, interacting with computer information is even more abstract than interacting with words on paper. Paper at least is tangible—you can pick it up, carry it around. When I first started interviewing employees for whom computer work was new, they'd say things like 'I can't touch my work anymore,' 'My work is floating in space,' or 'My work is lost behind the screen.'

Zuboff calls the process by which the computer digitizes objects into a binary informational representation, "informing." Informing, or taking "three-dimensional objects and events and then translating and displaying them as data" takes on a new dimension in virtual reality systems because of artificial reality's implicit invitation to its users to engage in co-constructing interactive narratives. Stone also analyzes the shapes and effects of the "virtual body" by analyzing the scene of telephone sex workers (and, presumably, the dissonances between reality and projected reality).

One method of describing the processes of users' encounters with this particular set of electronic texts and virtual reality systems is to conduct retrospective interviews as well as a new kind of discourse-based interviews as part of a "debriefing" procedure at a virtual realities development project, such as University of Washington's Human-Interface Laboratory. I would ask users to view a videotape of their own interactions within the virtual world and to explain their choices of activity. My interview questions would be designed to get at their

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134 Shoshana Zuboff, Interview in Omni, April 1991, 13 (7): 68.
sensations, their narrative sense, their hopes for the evolving story, the quality (and intensity) of their engagement, and their progression through the narrative experience. I would show participants records of their own engagement in the synthetic environment and ask them to report on their thoughts and feelings at various junctures. Identifying the particular junctures and seams, the virtual equivalent of chapters, will be my first challenge.

Restrospective and discourse-based questions would evoke the user's sense of how he or she assembles order and coherence. I would attempt to extrapolate what guides their choices, and what constitutes virtual reality's version of plot. I would also ask, What is the user's relation to his or her body representation? Is it a comfortable relationship? What creates closure in these environments? What felt most engaging? What catalogue of narrative techniques works to the best advantage in this system? My questions would hope to illuminate the ethics of participation in these virtual worlds as well. For example, Stone raises the question of what if, in a virtual encounter, one player whacks another player over the head, and the actual user dies of fright? Would the player be culpable? What about issues of privacy? What laws apply in the virtual world? These questions are examples of ones that would plumb the new kinds of connections and ethical questions between users and their puppets that I hope my observations would also begin to describe. Such a record would not only help
rhetoricians to build a model of electronic texts and provide documents historically useful, but such a project would be of assistance to the designers of these systems as they explore the new field of interactive narrative and plan future technology to support other user experiences.

Finally, to help build a rhetorical model that would describe and foster improved versions of electronic texts, we need to ask questions that will illuminate the locations surrounding the programmers, readers, and writers of these texts, studies that likewise require a descriptive methodology. In order to explore fully the influence of the locations of users and makers of interactive fiction, I would undertake a comprehensive three-month case study of the Oz Project and compile a thick description of its participants' contexts by collecting and analyzing their daily e-mail postings, log entries, and program print-outs. I would also tape record their discussions at the weekly "world-building" meetings and interview each participant individually to assess his own locatedness as well as thoughts and goals about the evolving project. I am using "locatedness" here to describe the immediate contextual influences on researchers at the Oz Project, influences such as class, race, income, level of education, or previous experiences with fiction.

More importantly, I would consider the larger context to the Oz Project. I would examine how the institutional framework affects the individual project design and how that Project is located as far as funding and the shared ideologies of its makers (including class, gender, and
general world view). I am particularly interested in how these institutional contexts influence the way researchers guide creation of these fictional worlds, the way research questions are framed and solved in this community, and how the personal goals of the participants influence the shape of these new fictive environments.

For example, I would explore why the Project is called Oz. Bates claims in an e-mail message that he chose the name because it was very short, and he knew he would have to type it thousands of times in computer directories and subdirectories. However, that serendipitous nomenclature has influenced the names of computer terminals (Tin Man, for example), the name of Kantrowitz's natural language program (Glinda), the ways Lisp directories are named, and even the decor in Bates' own office. This name chosen because of its brevity may even seep into the very material of story itself. As I compile my "thick description" I would also look at the publication, circulation, and reception of particular technical reports, conference papers, and electronically published articles about the Oz Project. Such study would illuminate the role of locations in the process of creating electronic texts.

Conclusions

One of the clearest implications of this dissertation is that there is a sheer weight of research that needs to be done before we have a clear sense of how the rhetoric--nonlinear, multiple, unstable--of electronic texts operates.
This dissertation's description of two interactive fiction projects and its attempts to link these projects with particular epistemologies and models is work that I hope will contribute to our growing understanding.

I am imagining at least two broad audiences reading this dissertation. First, I imagine the rhetorical critics that I have addressed thus far, those researchers who are interested in framing, understanding, and extending the rhetoric of electronic texts in general. I would like to address that audience specifically for a moment to talk about how the insights of this dissertation might be useful. Teachers of writing might be interested in interactive fiction because it illustrates a way to respond to a text or a piece of literature; its new visibility makes some parts of the reading process transparent. Interactive electronic texts in general show the inherent malleability of meaning because of this new malleability of text and form; interactive electronic texts thus provide a graphic illustration of the possibility of any text, pixel or paper. Electronic texts raise questions about audience and form in a heightened way that can reflect back on how students handle these concerns in more conventional forms. We rhetoricians need to undertake studies such as those I have proposed to expand our sense of how this particular technology affects literacy, and to help students in their likely lifelong engagements with computer texts.

The second audience I wish to address in this dissertation are the designers of computer fictions reading
in search of suggestions to them about how to improve the quality of their narratives. In addition to the call for deeper, subjective narratives I discussed in Chapter III, I suggest the following notions to this second audience. I recommend that, in general, programmers and writers be wary of the possibility of codifying their own visions of the world in their stories. I recommend they test their stories on a variety of kinds of users and that they engage in their construction of stories with the complementary discussion with people in other disciplines; I suggest widening the interactive fiction research community to include a variety of humanist perspectives, as the Oz Project and Interactive Fantasies already have done.

Further, I recommend experimenting with global architectures that see narration and story as more closely linked constructions than those currently coded and that recognize implicitly that discourse does more than report story; discourse shapes story. I recommend further that designers play with the capacities of cohesive ties (as do non-linear paper texts such as Coover's "The Babysitter"), multiple audience accommodation (as does Calvino's IFNT and that second person address in general permits) and that designers extend the possibility of strong readerly involvement. In their efforts to extend this particular possibility, in their exploitation of the heightened engagements afforded by the compound effect of nonlinearity, second person address, multiple point of view, and presentational device, I recommend they explore this medium's
bestimmt and unbestimmt, in Chatman's terms; I suggest looking for what the layered plasticity of this medium will support that other media will not. Finally, as designers such as Bates and Graves and Brengle continue their important work towards great depth in the world and subjective response, I recommend they allow for serendipity, the random combinations of detail and reader response.

For several months now I have sat in front of a computer screen, reading interactive fictions, generating text, thinking through and revising my notions of how computer technology fosters and constrains story. Sometimes I have felt the self-referentiality of my task acutely, and overwhelmingly. I sit in front of a screen writing about people reading from a screen, and soon I feel like a woman waving her hand at her selves in a hall of mirrors. Other times I have felt the frustration of living in this transitional period, felt frustrated about having to write about computer technology and rhetorical models when it is so clearly a new, indeterminate technology. However, I have come to view that frustration as an opportunity. I have come to write against the constraints of a conventional paper text and to consider where will these worlds and their invitational scripts will ultimately lead. Interactive fiction, especially those electronic texts that are being developed lately at Oz and Interactive Fantasies, will press us to consider new configurations of text, user, and maker that will be provocative, unstable, and multilinear. In these fictions the elements of text, presentation, progression,
narrative order, and meaning are literally destabilized in ways that represent great opportunity to composers and users.

In general, our computers are too closely tied to the metaphor of paper—in our square screens, typewriter keyboards, pagination, virtual trashcans, and light pens. As we continue to move beyond the paper page towards new textual forms, I think interactive fiction may ultimately be a step towards more satisfying engagements between people. I think the textual dynamism of electronic fictions leads to lack of closure, blurred distinctions between subject and object, and may ultimately, in the form of virtual realities, happily complicate our sense of location in the real world as we flit seamlessly in and out of the "graphic" fantasies of interactive texts and virtual reality. However, in order for interactive fiction to provide satisfying fictive environments to its users, researchers need to frame and solve the sets of rhetorical and literary questions that have preoccupied narrative theorists for decades. We need to define central questions about plot, characterization, and narration and pilot different models of our answers for a variety of users.

In the Yukon a hundred years ago, little girls used ivory story knives made by their fathers to carve long narratives into the mud. As the narrator told her story, sometimes she would decide the scene was too cluttered or that its participants had moved to another location. Using the blade of her knife she simply wiped the mud surface clean
and continued with her tale, drawing as she talked. The link between story and technology is an old one, and I leave this dissertation behind to start work on exploring that larger project. Interactive fiction and other electronic texts extend a new opportunity for rhetoricians, authors, and readers to reach beyond the stories and technologies of our past and towards new narrative experiences that may ultimately be more involving, accommodating, and intriguing than any yet made.

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APPENDIX A

Interviews with David Graves

Interview One
April 1991

Sloane: I’m conducting this interview to help me write a description of the Interactive Fantasies company for Chapter Three of my dissertation. In that chapter I want to accurately describe the different ways interactive fiction is composed.

Graves: You probably shouldn’t call Interactive Fantasies a company. It’s not a true company, even though we registered it with the County Clerk as a Fictitious Business Title. Really—there was a counter there with a sign over it that said Fictitious Business Titles registration. But Interactive Fantasies is more like a loose group of associates for computer game development. I’m the interactive fiction platform architect.

Sloane: Is that what Marc Blanc means when he calls himself “Chief Architect” on his Infocom games?

Graves: Probably. The platform architect is the person who develops the foundation upon which an interactive fiction is built.

Sloane: What’s the foundation?

Graves: All the software that supports the interactivity in the work of fiction.

Sloane: Why do you choose to program interactive fiction? What do you like about interactive fiction?

Graves: I do program a lot of other stuff for work, but I program interactive fiction to satisfy my need for
play. I was fascinated by the original Adventure game—it really captured my imagination, when was it, in 1978? It was kind of like a story but very participatory. It gave the opportunity for—or the illusion of—creativity on the part of the reader. This reader involvement is unique to interactive fiction.

Sloane: How would you describe your purpose [in writing IF]?

Graves: My purpose was to be involved in this fascinating, creative form. I feel frustrated that the commercially produced interactive fiction falls far short of the potential. I started working on interactive fiction as I thought it could or should be. The big difference is that commercially produced interactive fictions have a very fragile illusion of creativity for the reader. There is really very little variability, very little meaningful interaction for the reader.

Like in a Pick-a-Path book, it’s very clear what the variability would be; it’s very clear that you’d have a limited range of meaningful choices. These books are an extreme case of low meaningful choices. The reader would not surrender to the illusion that you’d have many meaningful choices in the plot. The Pick-a-Path book is static; that’s clear as soon as you pick it up. Part of the fun is the illusion that it’s not static at all.

A lot of commercially produced interactive fictions are equally static. But this is masked by the computer. Since you can’t readily see the mechanism by which the interactive fiction is interactive, the illusion holds—for a while. After you’ve made enough passes through the work it becomes apparent that there is a plot tree.

Sloane: Is plot tree your own term?

Graves: No. It’s an old hybrid term. In computer science there’s something called a data structure. A particular type of branching data structure is called a tree. You take plot from drama, as in “diagraming a plot.”

In interactive fiction you develop a set of plot potentials, and at each branch you have choices. The choices you make influences the choices you have in the future. In commercial interactive fiction most of the
choices you make lead to dead ends. There's not a truly interactive fiction.

**Sloane:** How is interactive fiction different from traditional fiction in your eyes?

**Graves:** The main thing is that the reader makes decisions affecting the story. There are two kinds of interactive fiction: subjective interactive fiction, and objective interactive fiction. In subjective interactive fiction the reader makes decisions that influence the plot of the story. In objective interactive fiction the reader makes decisions that affect point of view or availability of information. Let me give you an example of how objective interactive fiction might work. Grampa is telling a story. The listener gets to interrupt and ask for more information about a person or ask for flashback. However, the listener does not get to influence the story in a subjective manner.

Most commercially available interactive fiction is trying to be subjective interactive fiction. But commercially interactive fiction is static in that it gives only an illusion of subjective interaction. Their goal is subjectivity, but it's hard to achieve.

My goal has been to develop an environment in which truly subjective interactive fiction can be developed.

**Sloane:** Have you ever written anything yourself—plays, poems, or stories? Has programming affected the way you write?

**Graves:** I've done very little creative writing. A bit in the way of stories. I feel I do very well in the higher level creative stages, but I have trouble doing the wordsmithing.

**Sloane:** What do you mean by wordsmithing?

**Graves:** It's just a word that means the development of the text that flows, that truly expresses what you want to say.

I prefer collaboration because I can increase the productivity of people who can write by inspiring them with ideas regarding the variability of a plot or a set of plot potentials.
Sloane: Is plot potentials your own term?

Graves: No, I think I get that from Brenda Kay Laurel’s dissertation.

Sloane: Does programming affect the way you write?

Graves: The computer as word processor is indispensable for composing text because of my somewhat scattered approach to writing. Instead of writing from top to bottom, I write from all four corners and from the ground up. The role of the computer is just a tool to enable recording thoughts as they whisk by.

Sloane: Do you know of any other such cooperatives? How do they divide the work? Are there other models of collaboration in interactive fiction?

Graves: Well, there are lots of cooperatives in the form of game publishers that publish interactive fiction. There’s a single designer who dictates how it will be, and then there are slaves that produce music, text, and graphics and who implement the vision of the designer.

Sloane: Is there another name for the slaves?

Graves: Yes, let’s see. How about software development professionals.

Sloane: What’s the background of these designers? Are they computer people or are they writers?

Graves: The best ones are story tellers. Unfortunately, they are very constrained with respect to advancing the current model for interactive fiction. The problem is that game publishers have a single goal: to generate profit. Commercial interactive fiction is low-risk, similar to what’s already been released on the market, and it advances in small increments. Primarily, they’re advancing the graphics, the sound, and the music. Since they have a product focus, they focus on that instead of advancing the state of the art of interactive fiction.

If you think about Aristotle’s elements of drama—spectacle and vision and so on—the industry is focused on the low levels of this hierarchy. They’re focused on spectacle and music in the form of computer sound effects and computer music.
Sloane: You mean they don’t pay much attention to the text?

Graves: There’s a certain amount of attention paid to diction—the selection and arrangement of words—but very little attention paid to dynamic use of thought, character, and plot. However, there has been some improvement. In the last few years we’ve seen computer games, especially interactive fiction, that do contain characters which show some characterization (patterns of choice and actionable attributes) and thought leading to choices of action. We’re seeing characters in computer works that are showing their own personality in the form of attributes that give rise to action. In the past, the plot was fixed, character was fixed, and even action was fixed. But we’re beginning to see some works where there is a simulation of personality on the part of the characters. We’re starting to see character expressed even in flight simulators.

Sloane: How do you express character in an interactive fiction?

Graves: First you have to design a model of personality. Freud only spent a lifetime on that. Second you have to design a software model of that model of personality. Third, you have to develop individual characters that fit that model. For example, if you choose to model scruples, you’d probably want to model an unscrupulous character.

Sloane: Why are you using Aristotle as the basis for your analysis here?

Graves: I’m using Aristotle because his model of drama fit my work so perfectly. I read about him in Brenda Kay Laurel’s dissertation and it seemed to support what I’m trying to develop. I didn’t want to reinvent the wheel. For example, before I read her dissertation, I was going to make the leap from automating diction to automating plot, and I was underestimating the importance of a character’s personality. I had a vision of a software for plot without having a platform for character.

Sloane: Do you now have platforms for plot and character?

Graves: Yes. There is a plot platform and a character platform in my software now. My old software focuses on spectacle. In recent years, working with Tim Brengle,
I’ve modeled thought and character—simulating free will in the fictitious characters.

Sloane: Do you think much about the reader in all this, or are you primarily concerned with accurately modeling a world?

Graves: I’m constantly thinking of the reader—as an equal of the fictitious characters. The reader has patterns of choice and actionable attributes just like the fictitious character.

Sloane: Moving on now to that big question: What is your composing process? And what do you like best about it and what is most frustrating?

Graves: I much prefer collaboration . . .

Sloane: Why?

Graves: Because it’s fun, and because I find it increases the quality. I find a writer and we agree on a theme. The writer will start mapping out the highest level theme. We start talking about it. Because of the thousands of years of conditioning, I think we see plot as a single-threaded condition. We look for places in the writer’s plot where we can fracture the story. The writer says “I’ve written one scene where the reader will react with one character who may make the reader feel jealous—and causing the reader to want to perform a certain action.” I propose counter-examples [to the writer]. I say, What if, instead, they react this way? What if the female character does something else? For each assertion in the plot we look at reversals or subdivisions that allow for significantly different plot flow.

Sloane: What do you mean by reversals or subdivisions?

Graves: Reversals are simply negations of assumptions in the plot. For example, if the writer writes “Fred, the truck driver, will arrive at the dock.” I say, What if he didn’t? And the writer might be inspired to a new plot flow. Of course, there’s the problem then of plot explosion.

Subdivisions are places where—occasionally the writer has a rich idea that merits more exploration. Instead of a single event to reveal the personality of the character, we might want to have different events to show that attribute of character.
I should say that my process is not cut-and-dried. I’m inventing this as I go along.

**Sloane:** What are some of your frustrations with your composing process?

**Graves:** It’s difficult to leave the static paradigm. For example, it’s really easy to get stuck writing static plot trees. Since it’s impossible to write a story with thousands of different branches, we end up pruning the tree and develop a “discover-my-plot” interactive fiction work. Branch trees are not the end product, in my opinion. It’s a step in the process, just like outlining is a step towards creative writing.

**Sloane:** Sometimes. Do you have other frustrations with the composing process?

**Graves:** Yes. To be commercially viable you have to have graphics. The focus is to present a spectacle. This gives you a focus on a physical world and tends you towards a static plot . . . I’m interested in developing graphics which allow character exposition—revealing the graphic of face, for example, can show emotion. That revelation of emotion can suggest the thought processes in that character. We can’t see thought, but we can see the effect of a character’s thought expressed on his or her face.

**Sloane:** What about text [as a way to express thoughts]?

**Graves:** Yes, absolutely. But because of the industry’s demand on graphics and animation, I’ve been trying to include them in my work, too.

**Sloane:** How would you characterize the relationship between the larger industry and your own work?

**Graves:** I’ll use the academia and business metaphor. Businesses are profit-oriented and universities are based on advancing knowledge. Therefore, businesses do short-term research and development, and universities are more willing to do research that doesn’t necessarily lead to profit but that advances knowledge. I’m comparable to the academia role . . . But I do want to be published. I want to produce significant works of art and let them be seen.

**Sloane:** What else do you want to say about your
composing process?

**Graves**: I've been talking about the highest level of my composing process. The writer will argue with me about what some of the different directions might be. We might develop a plot tree and then cut it up so we can look at all the ways you could reassemble it. Literally cut it up until only the circles were left. So you get the equivalent of a child's set of building blocks instead of a jigsaw puzzle that can be assembled in only one way.

The author has control over theme, motivations of characters, even how they express themselves. But the author loses control of sequences of events and circumstances under which a character will reveal his or her character.

**Sloane**: Who gains this control?

**Graves**: The reader gains some of this control. But the author has indirect control through the software. The software is just a tool of the author. By releasing some control to the reader, the author allows creative exploration of his theme and message by the reader.

The writer doesn't have control over the exact words or text, but the writer's themes are expressed. The attempt is to express a message; the diction—the selection and arrangement of words—is of lesser importance.

**Sloane**: Thanks again, David.
Interview Two  
April 1991

Sloane: We were talking about the composing process last week. In your view, how do the programmer and writer interact?

Graves: I haven't used the same process twice yet.

Sloane: Well, tell me about what the ideal interaction between programmer and writer would be, and then tell me what's frustrating.

Graves: There are two cases: local and distant. It's more complicated when the programmer and writer are distant from each other. When it's a distant collaboration, over the telephone we're talking about what we're going to achieve—an interactive fiction work stressing character interaction or puzzle-solving in the physical world. Puzzle-solving is the traditional format. Games that stress character interaction are certainly tougher and would be very difficult to do in a distant working relationship.

In one traditional interactive fiction project I've been working on for several years, the writer would send me floppy disks with a specific story text describing scenes and circumstances. Sometimes it would be a fairly direct process to implement in software what the writer has in mind. Other times, what seemed to be a simple thing to the writer is in fact very complex to implement in software. So, at times, there would be negotiation.

Sloane: What kinds of negotiation?

Graves: The programmer would suggest alterations or deletions that would make the technology manageable. For example, in a puzzle-based game you need a strong software model of the physical world. Some things such as modeling rope can get very complicated. A rope, for example, can have two ends that are located in different places, such as different rooms. Things can be tied to one end or the other with all sorts of complicated physics implied to the reader. Allowing the reader to express his own creativity in terms of using the rope becomes very complicated. At this point, the programmer may ask the writer, Is the rope essential to this part of the drama?
Sloane: Okay, what else characterizes the distant collaboration? What's the next step in the process?

Graves: The programmer, having completed the next step of the negotiations, implements that part of the story and sends a disk back to the writer. At this point, the writer can see one chapter or one section of the work in an interactive format. The programmer and writer discuss again over the phone the strengths and weaknesses of this subset of the story; they look for parts that are not working well or are not working in terms of the interactive experience. I hope I'm making clear that we're not looking for bugs in the software but we're criticizing the impact of the interactive experience. This leads to more negotiation, a stepwise refinement, and, eventually, to a complete work. The iteration and incremental refinement are crucial to this process. It seems impossible to conceive an interactive work right at the start, so we end up creeping up after it in draft after draft. That's the programmer-writer distant process.

Sloane: What's the local process?

Graves: When the programmer and writer are close together, it's a lot easier to spend a lot of time talking. With one of my writers, Tim Brengle, I would typically spend two to four hours a week on long walks during which we plotted out the new vision of what the project was going to encompass. On this particular project, character interaction was the dominant theme. To support this, a strong model of the emotional and cognitive world was required. So, prior to developing the work itself, we needed to develop a model of personality and discuss how this model could be implemented in software.

That probably sounds like a big piece of work. Tim and I both have diverse academic degrees which contribute to this effort. I have degrees in computer science and biology with an emphasis on animal behavior, whereas Tim had degrees in mathematics and psychology, so we had a heyday of defining a model of how the mind works. At that point, we had raised the software platform to a level at which a work of interactive fiction based on character interaction was possible.

Let's see—long walks, lots of discussion. Another step in the process we've used is play-acting sections of the story.
Sloane: Now, what particular story were you and Tim Brengle working on?

Graves: Well, I have to keep it kind of abstract because of our contract of non-disclosure. We could define the theme as the struggle of a youth moving into adulthood and achieving his own dreams.

Sloane: How did the play-acting help?

Graves: Since the goal is interactivity and promoting a malleable environment for the story, we wanted to explore as many plot potentials as possible. It frequently took on the flavor of improvisational theater. Almost always, when we would play out a scene that Tim had written, ideas for opportunities within that same scene would pop up. Sometimes we would bring in other people to play other roles.

One particular night I recall being very distressed when I realized the complexity of the software required to implement the story as we had envisioned it. User-interface is a tough one, for example. The traditional interactive-fiction interface involves typing entire sentences. This type of interface cannot support complex character interaction.

Sloane: Why not?

Graves: A simple sentence parser works in a limited physical domain.

Sloane: What do you mean by 'limited physical domain'?

Graves: In a puzzle-based interactive fiction work, the emphasis is on the physical world. There are objects to be manipulated in the story. Modern parsers and artificial intelligence technology can support limited interactions in a physical domain. In a work that stresses character interaction, you also have a model for the emotional world and the information world. You have a software model of all the objects that exist in this world. The software also models what each character knows (the information world) and feels (the emotional world).

Artificial intelligence and parser technology can't currently support computer simulation of understanding of complex conversational topics, such as what people think they know and how they feel about it. So
development of a new type of user-interface was essential.

This particular project, [worked on by Tim Brengle and David] has been heavily planned all along. The high level structure of the story, with a beginning, middle, and end, was carefully plotted. Then, by stepwise refinement, we began implementing story ideas in software. It would involve exchanging disks, seeing how each piece worked, doing further refinement, and building up an interactive story piece by piece.

Sloane: How did you and Tim decide to work together on a story?

Graves: We met over the e-mail network. I wrote Tim a note about interactive fiction software. Then, examination of e-mail addresses revealed we were within 500 yards of each other. So we met for lunch about a thousand times.

Sloane: When did you decide to write a story together?

Graves: The second lunch.

Sloane: Is Tim a programmer too?

Graves: Yes. Tim had devised his own platform for IF.

Sloane: Why did you decide not to use Tim's platform?

Graves: Since my platform was more advanced, it was a clear choice for use. It was clear to me that Tim was a much stronger storyteller than I.

Sloane: How did you know that Tim was a good storyteller?

Graves: By the stories he would tell! So I convinced him to write with me using my software platform.

We started planning the story with Tim dominating the artistic aspects and the two of us brainstorming software techniques that would allow implementing this lofty new vision.

Sloane: When did you decide what the story would be about?

Graves: It's hard to remember—it's been about two and a half years. Tim always had a glimmer of an idea that
he wanted to tell an interactive fiction story. As the soil of our software platform became more fertile, the complexity of his story bloomed. Very little work had been done with character interaction in interactive fiction—which is still pretty much the case today. We've been on the leading edge—or bleeding edge—of interactive fiction technology.

**Sloane:** How did you and Tim actually work? Did Tim give you text as he wrote it?

**Graves:** Tim did a lot of writing in notebooks which we would review frequently.

**Sloane:** Review for what?

**Graves:** Review for character consistency, spotting scenes that could be made more interesting, breaking up the scripting. Remember the metaphor from last week of building blocks versus jigsaw puzzles? We're constantly looking for ways the reader can be involved in the plotting process. We're looking for decision points that allow meaningful interaction.

**Sloane:** When did you and Tim sign a contract?

**Graves:** We signed a non-disclosure agreement shortly after agreeing to produce a work together. It was meant to protect both parties. We had also developed some joint intellectual property which would remain secret up until X number of months after dissolution of our partnership.

**Sloane:** How did you know to get such a contract?

**Graves:** I'd seen contracts like this in software companies.

**Sloane:** And where are you in this project with Tim now?

**Graves:** Tim has formulated in his mind the overall structure of the beginning, middle, and end—he has decided what the emotional and intellectual messages are in his work. He has been writing scenes that do exposition of the themes.

**Sloane:** Has he read any Aristotle?

**Graves:** Like me, just a little. He's read Brenda Kay Laurel's dissertation.
Sloane: Where has Tim gotten his understanding of story?

Graves: He has an innate storytelling ability, which has been enhanced by our joint study. We assign books to each other to read. Since you asked about theory of stories, here's one I’ve read: Georges Polti wrote The Thirty-Six Dramatic Situations in 1860. It's an overzealous development of a taxonomy of drama. Still, his model provides plenty of food for brainstorming.

Sloane: How did you find it?

Graves: From bibliographies of interactive fiction dissertations.

Sloane: Is there anything else you’ve read that's relevant here?

Graves: Yes, The Morphology of the Folktale by Vladimir Propp, translated into English in 1958, but it says here that it was written in 1928.

Sloane: Why was that helpful?

Graves: I've underlined the word syntax in the introduction to Propp’s book. Propp very much stressed syntactic constructs. His model did seem simplistic, but any digestion of the theory of drama is a help.

Polti seems to stress semantics. He would define situations—36 of them, in fact—and name the roles to implement that situation, then break the situation into about four or eight subdivisions. For example, Situation 28 is Obstacles to Love. The roles are two lovers and an obstacle. A situation is easily combined with other situations making plot enrichment. You could combine the Obstacles to Love situation with the Erroneous Judgment situation in which the roles are: the mistaken one, the victim of the mistake, the cause or author of the mistake, and the guilty person. For example, the obstacle for the two lovers could be a questionable judgment.

Polti’s model of the semantics of drama helped me understand how I might develop a software system that would assemble plot units within a context influenced by the reader.
The text and context you mentioned in the prospectus to your dissertation I see as parallel with my terms of syntax and semantics, where text is what you say and context suggests all that which is implied in the meaning of the whole.

Sloane: How is that opposition between syntax and semantics played out in your software platform?

Graves: Traditional interactive fiction that focused on the physical model of the world got away with a syntactic model. To support thought, character, and plot, we needed to develop a software model which simulated understanding of the semantics of character interaction.

Sloane: Is there such a thing as voice in interactive fiction? What is it a product of?

Graves: First I have to ask you what you mean. Do you mean like first person, second person, third person?

Sloane: Well, we can talk about that if you like. I guess what I was after was something larger—something about the whole way the author uses language to tell the story, everything from using different registers of voice, like using professional jargon, to shifting between the different ways characters talk and the whole narration.

Graves: I'll focus on one part of that vast area. One of the major complications of voice in interactive fiction is resolving the split persona of the reader as protagonist. The reader is enjoying the story as audience but is also a participating character in the story. The reader has within his own mind concepts of what's happening in the story and how he feels about it, but also the software is maintaining a model of the reader/character's situation in the fictive world. Even a simple matter of stating what the reader sees or feels becomes complex because we don't have that much control of what the reader feels, right? Is it legitimate for the work of interactive fiction to state to the reader, You are filled with fear? Or should we simply present a fearful situation and assume the reader is filled with fear by it?

I also leapt to the use of the word "you" in that example. Using the second person still provides some distance between the reader and that experience. Early
interactive fiction used second person to draw the reader closer to the action, to move the focus from third to second person. But to have a truly first person experience, we have to let go of the second person in narrative voice.

In her dissertation, Mary Ann Buckles points out that Henry James and Percy Lubbock believed in removing the presence of the author from the text. I see this as one of the major problems of some interactive fiction works. The author/programmer is too "present" in the work. The narration of the story (via text on the screen) frequently becomes a dialog (via the parser) with the reader/participant. The dialogue too often becomes an argument, complete with quips, jibes, and insults. I find it difficult to maintain "suspension of disbelief" when I'm arguing with a parser/narrator; it becomes impossible to maintain disbelief when the dialog between the narrator and I reads like an Abbott and Costello script. The story falls by the wayside.

**Sloane:** How does copyright work in interactive fiction?

**Graves:** The same as all other software. You get a copyright for the exact content of a set of computer disks. The tricky part about interactive fiction is that multiple stories may emerge from a single work.

Copyright law clearly protects against exact duplicating, but it would be extremely difficult to claim ownership of all the plot-themes generated by an interactive fiction work.

The models are the same as for a hardcopy text. People lose copyright by failing to put the banner copyright, year, and name on it. In the case of interactive fiction, a copyright banner could appear just after the title.

**Sloane:** So what are the final stages of producing a work of interactive fiction?

**Graves:** Once you have a work that's well along the way, you can market it. You visit publishers and present your product.

**Sloane:** Have you done that? What's that like?
Graves: Yes. You try to get them excited about what you've produced so you can make them money. Then the publishers and developers negotiate on percent of royalties, terms of payment, schedules, etc.

Sloane: How long does all this take?

Graves: Projects that I've been involved in are typically taking three to four years. If we were working on it fulltime, it would probably be nine months to a year per work until completion.

Sloane: What is the completion of the work?

Graves: When all parties are happy with it. Then it could take another six months to go the full route with the publisher for contract negotiations, package design, manufacturing, and distribution.

Sloane: How many projects do you have going on now?

Graves: Two live projects, two in suspended animation, and a writer I've been wooing for two years. It's typical to have several projects going at once.

Sloane: Who makes up Interactive Fantasies?

Graves: Tim and I, and then whoever we're working with who would like to be associated with Interactive Fantasies can be.

Sloane: How long has Interactive Fantasies been a label?

Graves: Two years. It was a move to gain identity in the eyes of the publishers. The title was Tim's idea.

Sloane: Thanks again, David.