THE PLEASURE OF THE TEXT ADVENTURE

It was strange enough that a reading of "electronic literature" was going on at the Boston Public Library that evening of April 25, 2001. About a hundred people were gathered in the main auditorium, lured by the publicity from sponsoring organizations—the Boston Cyberarts Festival and the Electronic Literature Organization—and clearly interested to see what new sorts of literary works people were creating for computers. The focus was not only on the author on stage, but also on the image being projected from a computer beside the author. But was something wrong with the screen as the first reader looked up to introduce his work? Instead of a Web browser or some sort of e-book interface, as one would expect from contemporary computers, there was an obsolete-looking command line. Was this going to be some homage to antiquated entertainment software of the 1980s? A nod to the influence of *Pac-Man,* or something, before the more serious stuff kicked in?

It may have been hard to tell what it was, for Adam Cadre had only a few minutes to start in on a reading of *Photopia,* a work of interactive fiction in different segments, each of which is told in a different voice. The work, winner of the 1998 Interactive Fiction Competition, used an interface that would be familiar to players of the famous early interactive fiction *Zork,* but *Photopia* was in many ways unlike anything that had been done in the 1980s or at any time before. The seemingly disparate segments of the

work are revealed as coherent only after a person has gone through several of them. An interaction with *Photopia* reveals, among other things, the story of a young girl's death—hardly the material of typical computer entertainment, although this was also hardly the first time an interactive fiction work had treated such a serious subject. Many of the other pieces read that evening were Web-based or were hypertexts of some sort, striving to present configurations of words and experiences of interaction that were similarly affective and provoking. Readings of hypertext literature (although not wildly popular) weren't new. What was new was that interactive fiction, along with other interesting non-hypertextual forms, had finally been included in a reading of this sort. One effect may have been to connect interactive fiction authors and new sorts of people who might enjoy interactive fiction but wouldn't stumble upon it online. Perhaps it was also the beginning of a broader concept of what computer literature or electronic literature could be. Or perhaps there was still much to be done: afterward, many of the authors and some members of the audience went to a restaurant, but the scene was like a junior high dance, with interactive fiction on one side and hypertext on the other.

Interactive fiction, that type of computer program exemplified by the text adventure, was a significant part of the early computing experience and has been a major current in electronic literature. Works in this form became the first best-sellers on PCs during the early 1980s, and have clearly influenced software engineering, interface design, online communities such as MUDs and MOOs, and other forms of digital and nondigital media. Authors of interactive fiction include several important literary figures from the non-electronic realm. While the commercial heyday of interactive fiction is clearly over, the supposedly defunct form is still making advances. Today's authors, using free development systems, continue to innovate in the form, pleasing those nostalgic for the works of the 1980s and also attracting new devotees. The potential of interactive fiction is still being revealed—but clearly this potential is great, whether the form is considered only as a puzzling and challenging diversion or also as a new sort of literary art.

Not everyone will immediately agree with the assertion that a work with aspects of a game, and with a history so involved with the entertainment software market, should be thought of in literary terms. Isn't the pleasure of the text adventure purely a ludic pleasure, or a pleasure related to

mastery—one that comes from overcoming mental challenges formed as the verbal equivalent of jigsaw puzzles, with only one set solution? There are in fact other aspects of interactive fiction that prevent an easy affirmative answer to this question.

For one thing, the puzzles in a work of interactive fiction function to control the revelation of the narrative; they are part of an interactive process that generates narrative. Roland Barthes offered, in *The Pleasure of the Text,* an erotic concept of the reading experience. The text reveals itself in a sort of striptease, according to Barthes (1975), and the reader who skips boring passages resembles "a spectator in a nightclub who climbs onto the stage and speeds up the dancer's striptease, tearing off her clothing, but in the same order" as the author would have (11). As Jean Baudrillard (1983) wondered, "What could be more seductive than the secret?" (64). (Perhaps there was something, but Baudrillard seductively chose to keep that a secret.) In interactive fiction, the secret is locked away and a different sort of effort—a puzzle solving that manifests itself as actual writing—is needed to unlock it. In text adventures, in part, the "pleasure is in solving them, in learning the secret" (J. Murray 1995, 137). Not only does the "reader" of a work of interactive fiction metaphorically climb up onto the stage and start ripping off clothing—this time in an order that he or she chooses—this person also figures out *how* to do so in order to proceed. The pleasure involved in interaction is not simply that of reading. Nor is it entirely alien from that of reading; if the component reading and writing processes are arranged using puzzles in such a way that the challenges of an interactive fiction world are hard enough and easy enough, the other elements can enhance, and be integral to, the reading pleasure that is involved. The person who reads and writes to interact is the "operator" of an interactive fiction in cybertextual terminology (Aarseth 1997); in general computing terms, this person is the "user." So as to emphasize that the actions of reading, writing, playing, and figuring out are all involved in such operation or use, the term "interactor" is used in this book to refer to a person in this role, following Joe Bates's Oz Project and other critics (J. Murray 1995, 161) who discuss interactive fiction specifically.

Even aside from the fact that narrative disclosure can be controlled by puzzles, the combination of an explicit challenge and a verbal literary work has a clear precedent. The most direct counterpart to interactive fiction in

oral and written literature is seen in the riddle, in true literary riddles such as those of the Latin poet Symphosius and of the early English text *The Exeter Book*. By presenting a metaphorical system that the listener or reader must inhabit and figure out in order to fully experience, and in order to answer correctly, the riddle offers its way of thinking and engages its audience as no other work of literature does. Interactive fiction is related to the riddle because the interactor, in facing a puzzle-based interactive fiction, is in a situation similar to that of the riddlee. In an interactive fiction work, the interactor directs a character (the "player character") in the interactive fiction world to enact an understanding of that world. "Riddle" comes from the Anglo-Saxon "raedan"—to advise, guide, or explain; hence a riddle serves to teach by offering a new way of seeing. Here, for example, is a short riddle (the assiduous reader will find the answer in the next chapter) that offers a new way of thinking: "I am the greatest of all teachers, but unfortunately, I kill all my students."

There is also the sense of exploring a new world or space, independent of the events that transpire in that space and are narrated. The enjoyment related to this aspect is not tied to particular puzzles and their solutions, as one author describes: "In *Adventure,* much of the pleasure comes from the sense of going deeper and deeper into the cave and discovering unexpected passages. Monsters and treasures aside, it conveys the feeling of exploring a spectacular area" (McGath 1984, 21). Certainly this relates to the pleasures experienced in literary reading of other sorts.

The interactor, confronting the riddle of an interactive fiction work, is a reader—and also a writer. Perhaps the interactor's true writerly ability (an ability to literally write and contribute to the text, not to be confused with the form of reading that is *metaphorically* called "writerly" by Barthes in *S/Z*) is not great, in existing works, when the amount of text contributed is considered. The interactor's useful writing generally consists of contributions such as *go north*, *jump off the roof*, or *eat a peach*. But such texts are actually understood, within the specific domain of the interactive fiction world, by the work's parser. They are then translated, if possible, into actions. The interactor is not adding marginalia for later personal use or for some other reader's future reference, but is actually contributing writing that is part of the text and serves to operate the program, causing it to produce additional text that is interleaved with that of the interactor and meaningfully responds

to it. At best, if we take the perspective of a unilinear narrative, the interactor can use such commands only to control how small-scale episodes play out; determining whole new plots not imagined at all by the author or designer is seldom possible in interactive fiction as it now exists. Even when taking this limited view of interactive fiction, the ability to vary certain episodes in this way is important. Different Greek tragedies that tell the same mythological story demonstrate this. Although the underlying stories are well known and what happens is fixed by convention, the episodic variation and the nuances and excellence of narration provided Greek dramatists with the ability to innovate within boundaries, even without control over what the important incidents of the drama would be. Determining the arrangement of the incidents was enough.

In the future, interactive fiction may provide even more appealing possibilities for the interactor. It may allow for a more co-authorial role, or it may provide, by serving as a riddle in the richest literary sense, a more profound and responsive type of systematic world. Already, in the short history of the form—a form that has progressed in fits and starts—many interesting works have been executed, and many suggest new courses that could lead to works of greater power.

Interactive fiction has been through about thirty years of history so far, although closely related forms go back centuries or even, in the case of the riddle, millennia. Interactive fiction began in an academic and research context, with early development seldom being part of any official research project. The form saw a commercial heyday when works were created in the context of game companies. It has been explored recently in new ways by individual authors participating in an active online community. A discussion of the form that explores the literary, gaming, and computing context in which it arose, and the influences on it and currents in it through these different stages of development, is timely. This book seeks to describe some of the intellectual history of the form and its relationship to other literary and gaming forms, and to computing and other computer programs, while critically examining a representative selection of important works and describing their interrelationships. It would be impossible in a book of this size to provide even capsule reviews of all the works of interactive fiction that are of some importance or merit. Work in the form is already far too rich to offer anything but a catalog if an attempt were made to put together a truly

comprehensive list. Resources online such as *Adventureland* (Meier and Persson 2002) and *Baf's Guide to the Interactive Fiction Archive* (Muckenhoupt 2002) already provide sizable catalogs, anyway, with continuous updates as new works are released and as new details appear for old ones. This book instead considers trends and currents in interactive fiction and how particular innovations have expanded the conceptual range of the form.

The Terms "Text Adventure" and "Interactive Fiction"

Text adventure and *interactive fiction* do not mean exactly the same thing. Despite the use of the term in the title of this chapter to draw a connection between reading pleasure and the pleasures of interactive fiction, the text adventure, however widespread it may be, is not the only type of interactive fiction possible or realized so far. An adventure is some out-of-the-ordinary undertaking involving risk or danger. A text adventure can therefore be described as an interactive fiction work in which the interactor controls a player character who sets out on out-of-the-ordinary undertakings involving risk or danger. Whether the impulse is correct or not, the term text adventure suggests to some people a popular and less literary work, since adventures have been, in contemporary writing, the domain of popular fiction.

Not all interactive fiction works, and not even all classic works in the form, are text adventures. The third work from Infocom, Marc Blank's *Deadline,* is not a text adventure but a detective mystery, in contrast to the fantasy adventures of the *Zork* series and contemporary adventures such as *Infidel.* The setting is a house, and the entire plan of the house is provided in the documentation. Although interviewing murder suspects may be unusual for the interactor and may involve some danger to the protagonist, the situation is a very ordinary one for the main character, a detective. One could still argue that the intrigue involved qualifies *Deadline* for the "adventure" label, despite the ordinary setting. But it is difficult to make the case for other interactive fiction works, such as *Exhibition* by Ian Finley (a work without puzzles, based on observation through multiple perspectives and set in an art gallery) or *Galatea* by Emily Short (a conversation-based work set in a single room of a museum). It is true that most well-known interactive fiction works—including works of acknowledged literary quality, such as

Robert Pinsky's *Mindwheel* and Brian Moriarty's *Trinity*—are unambiguously text adventures, however. In referring to such a work, either "text adventure" or "interactive fiction" can be used. The term interactive fiction is usually abbreviated as "IF" by those who discuss it; this abbreviation is used at times in this book.

To those in the IF community today, it may seem exceedingly strange that others would object to the use of the term interactive fiction to refer to the type of work I've just defined. An aficionado of the form might react to such a challenge the way an author or bibliophile would if approached by someone and told, "I think the term 'book' doesn't seem very appropriate. We'd prefer that you refer to these things as 'bound sheaves.'" Yet, since some academics do look askance at the widely used and accepted term, the case for the term interactive fiction (which has been made before more briefly (Montfort 2000–2001)) is now presented.

In tracing the origins of the term interactive fiction, Aarseth (1997, 48) has correctly pointed out that "interactive" has been used as a commercial catchword, to promise vague technological enhancements and improvements. Hypertext author and critic Michael Joyce (1995, 132) also finds the term risible, stating that the only truly interactive system he can think of is a pacemaker. Historically, "interactive" has been used with precision to distinguish computer processes that respond to user input during execution (as interactive fiction does) from batch processes (such as print jobs or fully automatic programs to create stories) that are completely configured beforehand and run without any user intervention. In computing, "interactive" is as specific and meaningful a term as "kernel" or "compiler." Used in that sense, of course, the term interactive is very broad, but the phrase interactive fiction has its own history. It was apparently coined by Robert Lafore and popularized by Scott Adams of Adventure International more than twenty years ago (Liddil 1981; Lafore 2002), and was then used widely by Infocom to designate its canonical works and to refer to a work of exactly the sort discussed in this book. "Interactive fiction" is also used to designate the two Usenet newsgroups where these works are discussed: rec.games.int-fiction (where hint requests are fielded and announcements of new works are made) and rec.arts.int-fiction (for more theoretical discussion and requests for programming help). The annual Internet-wide competition for short works of this form is also called "The Interactive Fiction Competition."

Certainly, the term interactive fiction has been used in many contexts to mean many different things. For example, chapter 7 of Jay David Bolter's *Writing Space,* called "Interactive Fiction" in both editions of the book, deals mainly with works more often classified as hypertext fiction, as do several articles from the early 1990s that have "interactive fiction" in their titles (Howell and Douglas 1990; Moulthrop and Kaplan 1991). (An early article titled simply "Interactive Fiction," however, is about exactly the types of works discussed in this book, "works of fiction which *explicitly* call upon the reader to interact with them by means of queries or replies" (Niesz and Holland 1984, 111).) I have also used the term in a more expansive sense, employing it to designate certain print literature, hypertext fiction, and conversational characters along with the form that is the focus of this book, textual interactive fiction (Montfort 1995). The different meanings of the term in different contexts do not present a real problem, though. The words "program" and "poem" have also been used, after all, to mean many different things; used carefully they still serve well. Broader categories than interactive fiction (as it is discussed here) can be indicated by other good terms such as "computer literature," "electronic literature," "cybertext," and "digital art." When discussing works that have text adventure–like interfaces and simulated settings while allowing works without adventuring motifs to be included, as in this book, the best term still seems to be that used by those who create works in this form: interactive fiction.

F O R G O T T E N   H I S T O R Y   A N D   T H E   D I G I T A L   L I T E R A R Y   D I V I D E

"The history of interactive fiction in the twentieth century has yet to be written," Graham Nelson, IF author and creator of the Inform development system, states in introducing the most comprehensive historical survey of the form so far, a twenty-two-page chapter in his *Inform Designer's Manual* (2001b, 342). Important individual works have, fortunately, had historical articles written about them, and *Adventure* and *Zork* get frequent mention in popular histories of computing. Parts of two books have been devoted to a detailed study of *Deadline* (Aarseth 1997; Sloane 2000), a Ph.D. dissertation has been written on *Adventure* (Buckles 1985), and *Zork* has been treated in sections of one book and one Ph.D. dissertation (J. Murray 1997;

Laurel 1986). Dennis Jerz's recent annotated bibliography (2001a), an invaluable resource, joins a wealth of online information about the details of interactive fiction's past. Discussion on newsgroups has also helped to clarify many aspects of early IF works and their development, and reviews of works have made it easier for interactors to select those of most interest without weeks of interactive effort. There have also been numerous books about programming interactive fiction on home computers. Yet a book or book-sized resource on interactive fiction's history and implications—one that considers how the form came into being and how it developed through the decades, with basic theoretical discussion of the nature of the form and at least an introductory critical discussion of important works—has never been published.

The more recent form of hypertext fiction has been either a major topic in, or the sole subject of, more than a dozen books. This bodes well; all those interested in the future of the word on the computer should applaud that this branch of electronic literature is beginning to be taken seriously, is the focus of criticism and analysis, and is progressing toward much-deserved acceptance within academic and literary communities. Hypertext fiction is still relatively neglected, and additional, thoughtful study should certainly be undertaken to investigate it and to call attention to its promises and merits. More important, authors should continue to create challenging and thoughtful works of hypertext fiction and should try to bring them to readers inside and outside the university.

It is unfortunate, however, that while hypertext fiction has gained some acceptance in academic and literary circles, interactive fiction has usually been dismissed as a triviality. Even worse is the fact that hypertext fiction authors and critics have often quickly joined in its dismissal, sometimes without ever experiencing interactive fiction or after only slight exposure to the form. To see one reason why a solid treatment of this form needs to be written, one need only consider this selection from the single page that mentions interactive fiction in Ilana Snyder's *Hypertext: The Electronic Labyrinth* (1996):

> The precedent was Adventure, developed in the 1960s at Stanford
> University's Artificial Intelligence Laboratory (SAIL). The program
> was conceived of as an experimental game. A computerised version
> of role-playing games like Dungeons and Dragons, Adventure

comprises a series of descriptions of fictional locations inspired by
J. R. R. Tolkien's fantasy *The Lord of the Rings* (1954), and set in the
surrounding Californian mountains. (87)

These three sentences state six specific things about *Adventure*—when,
where, and why it was developed, that it is a computerized version of
Dungeons and Dragons, that its fictional locations are inspired by Tolkien, and
that it is set in California. At least four of these six statements are clearly
false, and the remaining two are misleading.

Adventure was not developed in the 1960s, but in 1975 and 1976; con-
fusion on this point is extremely widespread, as is discussed in chapter 3. It
was not developed at SAIL, but was originated by one programmer and
author, Will Crowther, who worked at Bolt, Beranek and Newman (BBN)
in Cambridge, Massachusetts. With Crowther's permission, it was then aug-
mented by another programmer and author, Don Woods, who used the
SAIL computer at Stanford. It is misleading to call the work "an experi-
mental game" developed by an artificial intelligence laboratory, since it was
a program created originally by an individual for the enjoyment, as
Crowther said, of "non-computer people"; while it was later expanded by
another individual, it never existed as any sort of official academic project
or experiment. (Confusion on this point is also frequent; a book on adven-
ture game programming makes the same mistake, e.g., characterizing
Adventure as "an exercise in problem solving, artificial intelligence, and sim-
ulation" as if it were created for research purposes (Vile 1984, viii).)
Adventure was influenced by *Dungeons and Dragons* and it is often referred to
as a "version" of that game (Crowther himself has called it that), but that
characterization is at best very limiting. Crowther was an accomplished
caver who said he created *Adventure* to be "a re-creation in fantasy of my
caving, and also . . . a game for the kids [his daughters], and perhaps [to have]
some aspects of the Dungeons and Dragons I had been playing" (Peterson
1983, 188). The locations bear the names and detailed descriptions of spe-
cific portions of the Flint Mammoth Cave System, near the Bedquilt
Entrance, in Kentucky, and were not fictional ones inspired by *The Lord of
the Rings;* the influence of Tolkien on *Adventure* is real but often overstated.
Needless to say, the Kentucky cave setting of *Adventure* is not situated
beneath simulated California mountains.

Unfortunately, the single inaccurate reference to *Adventure* in a book that purports to map the future of electronic literature is typical. Jane Douglas's more recent *The End of Books—Or Books Without End?: Reading Interactive Narratives* (2000) also mentions *Adventure* only in passing, defining the two types of "interactive narrative," hypertext and "image-based" works, so as to not even admit the existence of interactive fiction:

> To distinguish between different kinds of interactive narratives, we will call text-based narratives like "Twelve Blue" and Stuart Moulthrop's *Victory Garden* "hypertext fiction" and, following Janet Murray's lead, refer to image-based texts like *The Last Express* and Shannon Gilligan's Multimedia Murder series as "digital narratives." (6)

Douglas continues:

> Digital narratives primarily follow the trajectory of *Adventure,* a work considered venerable only by the techies who first played it in the 1970s, cybergaming geeks, and the writers, theorists, and practitioners who deal with interactivity. Hypertext fiction, on the other hand, follows and furthers the trajectory of hallowed touch-stones of print culture, especially the avant-garde novel. (6–7)

In this view, *Adventure* clearly has no literary ancestry. There is also a sug-gestion that it should not be considered venerable—although one would suspect that Douglas, who deals with interactivity, would actually be one of the people who venerate it.

But this is almost all that is said about *Adventure* and interactive fiction in the whole book, although Douglas (2000) later discusses at great length how a certain class of "cybergaming geeks," game-playing boys, are too obsessed with their "joysticks" (161–163). From the way *Adventure* is por-trayed in this book—a book that offers to cover the whole topic of "inter-active narratives"—one would be forced to falsely conclude that *Adventure* is "image-based." There is also the strong suggestion that it was written solely for male computer geeks, although Crowther has stated that his non-computer-using daughters were the intended audience. But the main issue is that a whole category of work that is text-based and yet clearly is not

hypertext in the accepted definition, a category that without doubt pertains to the study of "hypertext fiction" vis-à-vis "digital narratives" and to the overall issue of literature on the computer, was not only omitted but essentially defined out of existence. This oversight is hardly part of some conscious hypertextual plot to wipe out all consideration of interactive fiction. In fact, Douglas was one of the first professors to make the detailed study of interactive fiction part of a literature class.

Such inclusion of interactive fiction in the curriculum is, unfortunately, much less typical than is the omission of it from scholarship. Aarseth (1997) aptly describes the kind of reception interactive fiction often gets in the university: "Compared to all other literary formats, including hypertext novels, the adventure game's structure is too alien, too far removed from the genus of hegemonic literature to be recognized by any but a few xenophiles, who risk professional suspicion or ridicule" (109). Fortunately, some influential hypertext authors are now willing to recognize that interactive fiction is a valid and interesting form. Hopefully, others will also soon consider interactive fiction to be worthy of serious consideration, and that all the various forms of computer literature should be welcomed.

A hypertext fiction (as it is most commonly defined and discussed) is a system of fictional interconnected texts traversed using links. An interconnected text is referred to by George Landow (1992) and others as a *lexia,* a term borrowed from Barthes (1974), who applied it differently as a block of signification or unit of reading that was empirically determined, during a reading. Sometimes "hypertext" is defined more broadly than this. In some hypertext works, the reader may annotate the text or interact differently. There is, however, nothing in the nature of the lexia or the link, those fundamental elements of hypertext, that allows the reader to type and contribute text or provides the computer with the means to parse or understand natural language. Such understanding, used to react to typed text from the interactor, is essential to interactive fiction as discussed here. Hypertext fiction also does not maintain an intermediate, programmatic representation of the narrated world, as interactive fiction does. Although a hypertext novel may have a setting and may present a map that offers access to lexias, the space of texts is not the same as a programmatically simulated space, such as the IF world.

There is of course nothing to prevent a work from having both the defining characteristics of interactive fiction and also having those of a

hypertext fiction. *Reagan Library* by Stuart Moulthrop, with its linked lexia and a few elements of a programmatically simulated world, does in fact have certain qualities of each, although it does not accept natural language input. *The Space Under the Window* by Andrew Plotkin was built with an interactive fiction development system but is actually a hypertext work; it could have been extended to have IF aspects as well. The HTML TADS development system allows works that are interactive fiction and output HTML to be developed, although HTML is employed in such works currently only for its formatting abilities and to provide command shortcuts. Obviously, the particular elements of a combination hypertext fiction/interactive fiction work can be examined using the techniques and terminology used by critics of both forms, and will likely call for new critical approaches, or for the application of critical approaches that are general enough to treat both forms. What new things may happen when these elements combine in different ways promises to be very interesting indeed, but since interactive fiction itself has not yet been thoroughly discussed at all in any book a detailed investigation of such combinations will have to wait.

Perspectives on Interactive Fiction

A narrative film can be appreciated and critically examined both narratologically and in terms of the photographic and directorial techniques employed in it. Some of these directorial techniques may be used in ways that do not bear on the story—for instance, in non-narrative segments of the film. Thus, although they are all part of the experience of the film, the quality and impact of certain techniques may have little or nothing to do with the narrative per se. An IF work also has different elements, which are best illuminated by different sorts of analysis. Usually some of these are potential narrative elements: An interaction will result in a text that describes something about the IF world, and events will transpire to move a main character past obstacles along what could be seen as the arc of a plot. Often other characters will be depicted, too. IF works are often, among other things, games, with an optimal outcome that the interactor, acting as a player, tries to attain. The interactor can win such a game by solving puzzles. Although many IF works are games and do have puzzles, the game and puzzle elements involved can often be better understood in terms of a

different concept, that of the riddle. Finally, an IF work is a computer program, with input, output, and internal representations that must be considered for critics and authors to fully comprehend the form. No doubt, interactive fiction can fruitfully be considered from other perspectives—a dramatic one, for instance, of the sort that Brenda Laurel has used to examine *Zork* and *Star Raiders* (Laurel 1986) and then has expanded to comment on all computer interaction (Laurel 1993). The earlier three aspects seem the best starting points, however, for a thorough analysis of works in this form in the context of their history. Thus this book considers works from the standpoint of the narratives they can generate, the way they function as riddles, and their nature as computer programs.

The narratives generated during an interaction are often more trivial and repetitive than even the bluntest folktale, but they can be essential to the experience of the interactor. Only through consideration of narrative aspects such as plot, episode, character, setting, atmosphere, and focalization—as they can be extended or applied to interactive fiction—can the interactive generation of narratives in this form be understood and improved upon. In examining this aspect, I rely on the usual tools for the formal analysis of stories (the narratology of Gérard Gennette, Gerald Prince, and others), with consideration of the nature of IF as potential narrative rather than narrative. It is the effect of the narrative *in the process of being generated* that is important, after all, not the quality of the text that is output when the session is over, and not the effect of any post hoc reading of that output text.

While it is assumed by most critics that IF works are games, few have gone on to consider the nature of "games" closely, or describe what sort of game IF works actually are. There has been little discussion of whether "game" and "puzzle" are truly essential to the form. Tension between game and narrative aspects of a work may explain certain problems inherent in the form, or these two aspects may be discernible elements of a unified work, as seen in some of the best examples of interactive fiction. Because it is misleading to categorize interactive fiction as only a game, the term *IF works* is used in this book to refer to specific computer programs that are interactive fiction. (Calling such a work an "interactive story" or "interactive narrative" has also been avoided here, because although those terms do have a meaningful interpretation, it is best to use a term that does not elide an IF work's

nature as a *potential* narrative.) The qualities that pertain to the game and the puzzle, and particularly the most relevant associated form—the riddle—will be explored in depth. The riddle serves as the central figure for understanding the workings and poesis of interactive fiction within a tradition that is literary and also demands explicit engagement.

Finally, since an IF work is a computer program with a world model and parser, it is important to consider its nature as software. A particular work may have been developed using an object-oriented methodology or using a functional programming language. Works of interactive fiction are marked by choices made early in development. Code reuse can explain why different IF works may produce similar replies that are inappropriate in some works and appropriate in others, for instance. It is also the reason many works could be developed quickly by companies in the 1980s, when such a number of works would otherwise have been far too difficult and costly for a small business to create. Additionally, a relationship between interaction with an IF work and computer programming (and the pleasures thereof) has been noted by both IF authors and theorists (Levy 1984, 141; Crowther 1994, 2–3), but the implications of this relationship for IF aesthetics and poetics have not yet been explored.

The Basics of Interaction

The best way to explain how one interacts with interactive fiction is by example. Contrived example transcripts appear in the documentation accompanying most IF works that were commercially published. Here, instead, is a transcript from an actual IF session with an enjoyable and illustrative work, Dan Schmidt's 1999 *For a Change.* As is the case with almost any discussion of the specifics of an IF work, reading this transcript (specifically, the last bit of it) will spoil some of the pleasure of interacting with *For a Change* later; this transcript describes how to solve one of several puzzles. Only those "spoilers" that are essential to the discussion have been included, however, as is the case elsewhere in the book.

Spoilers: To allow readers to skip sections of the book that contain such spoilers, passages that give away important information about a work are surrounded by boxes, like this.

The sun has gone. It must be brought. You have a rock.

For A Change

For A Change, v1.02
Dan Schmidt <dfan@alum.mit.edu>
Release 1 / Serial number 990930 / Inform v6.21 Library 6/9

Under the High Wall (on the resting)

Sweetness fills the shade of the High Wall to your east. Under this sweetness lies a small expanse of fod. A mobile releases mildly to the west; far in that direction a tower proudly plants itself, while the ground rises more slowly to the south and relaxes to the north.

Spread on the resting is a guidebook.

Sleep gradually departs from your eyes. A small stone has been insinuated into your hand.

This text contains the *prologue,* the description of the IF world given before there is any opportunity for the interactor to give a command. When actually running *For a Change,* a ">" prompt is printed after this text and the program waits for input. Text that was typed by the interactor during this session is printed in italics after this prompt.

>*look at the stone*
It is a small smooth stone, the size of a small gland, a size to roll between your fingertips, nothing more than a pebble.

>*pick up the guidebook*
Taken.

The interactor can command the player character to sense things in the IF world or to take some action that will affect that world. Commands to pick up objects are typical, as are commands to look at things. Notice that very little has been mentioned about the player character up to this point. All that has been stated is that this character has recently awakened and is supposed

to bring the sun back to this world, presumably using the pebble that has been provided. The player character could be the "nameless adventurer" of *Adventure, Zork,* and many other text adventures, with gender, age, race, and personal history all left unspecified. But some later narration that is pro–duced might reveal more information about who this character is.

> >*go west*
> The resting must first be departed.

> >*consult the guidebook about the resting*
> 'The RESTING is a device made for that selfsame purpose.'

> >*stand up*
> The resting sighs at your departure.

> >*examine the resting*
> The resting sits on five wooden legs and slopes gradually.

The nature of the IF world is not always ordinary. Here, a piece of furniture is called a "resting" and a "mobile" (as one can guess from the description Under the High Wall, or one can learn by consulting the guidebook) is the term for a road. The resting also seems to be unusually expressive. The precedent, as Schmidt has explained, is the unusual book *The Age of Wire and String* by Ben Marcus.

> >*w*

> ### In the Shade
> The land increases towards your head to the south, and decreases away from your feet to the north. Mobiles lead accordingly in both directions. The High Wall may also be approached to the east. A long walk to the west is a tower, dwarfing your form, and dwarfed in turn by the wall.

> It is clear, after a time, that all things are shaded, everywhere. Thus the Wall.

Inscribed on the brown grass is a toolman.

The toolman jingles in the breeze.

The letter *w* is an abbreviation for *go west*, one of several abbreviations commonly used by interactors and recognized by works. Commands to move in one of the compass directions can be abbreviated to the first letters of that direction, which is convenient, because moving around to different locations is done very frequently. The player character here has moved into a different area, also called a *room*. Even outdoor locations can be called "rooms" in interactive fiction; the term just refers to a discrete location of any sort where a different set of actions are possible than was before. The names of rooms, printed in bold in the original session, are set in a different typeface here.

> *>examine the toolman*
> The toolman is bright and misty. Thoughts and uses hang from his
> shoulders like birds.

> *>look up toolman in the guidebook*
> 'The TOOLMAN is the grower and keeper of tools. He takes with
> a hand and likewise provides.'

Although the toolman's purpose may not yet be clear, seeing him "inscribed upon the grass," and yet like a living creature in some ways, can help the interactor understand more about the unusual nature of this IF world.

> *>s*

> OUTSIDE CAVE
> The mobile from the north ends as the land's slope increases too
> greatly. Dirt glistens blue. To the south, amid the land, a way opens
> into darkness, while more ground lies to the east.

> *>s*

Inside the Cave

A dark volume, curried from the surrounding stone, fills your eyes and ears. To the north a passing opens into dimness; from further inside, to the east, a slight glow weakly straggles into the room.

>*e*

Lantern Room

This subsection of the inset brightens and flickers. The shadows belong to the air more than you do, it seems. They walk the cord-stone walls; they move and excite. The shadows look to a wall, to bars in the wall, and the songlantern behind them. Further in is east, further out is west, and a slope obtains up to the south.

>*examine the songlantern*
The songlantern hums and burbles, circled by brightening words, evading the bars and piercing the silence and darkness.

>*take it*
The bars divide any possible touch between you and the lantern.

>*move the bars*
One bar is loose, and looser, and then free.

>*inventory*
In hand:
 an iron bar (forthright and content)
 a guidebook (loquacious and proud)
 a small stone (humble and true)

>*take the songlantern*
The songlantern is wider than the gap.

The songlantern murmurs and sings.

The player character has acquired an iron bar, but is still unable to get the caged songlantern, which is almost certain to be of use where there are caves to explore. The command *inventory* (which can be abbreviated *i*) instructs the player character to take stock of what he or she currently holds.

>*consult the guidebook about the songlantern*
'The SONGLANTERN brightens without intervention; its tones enlighten its words, as all tones do.'

>*s*

S L O P I N G   P A S S A G E
The walls and light contract as this space leads up and westward. The light and song from the north weaken with distance.

>*w*

W I T H O U T   L I G H T
You are surrounded by the lack of thought and light.

The song of the lantern dances in and out of your hearing, faint with distance.

The stereotypical adventure-game puzzle would involve acquiring the lantern, which doesn't seem possible, as things stand. If the interactor couldn't figure out what to do here, it could also be useful to explore the parts of the IF world that are, as yet, unseen, to see if they holds objects that can be directly used to solve this dilemma—or if they hold clues that help reveal the nature of the IF world in a way that leads to a solution to this puzzle.

In fact, what has been learned about the world so far provides enough information to allow the player character to light the way, even without the songlantern.

>*sing*
Words tumble and float from you, and brighten your eyes.

D E A D   E n d

The passage ends without foreshadowing, as if the end came with-
out warning.

A worn anchisel rests on the roughened floor.

>*take the anchisel*
Taken.

The song of the lantern dances in and out of your hearing, faint
with distance.

>*save*
Enter a file name.
Default is "change.sav": anchisel.sav
Ok.

>*quit*
Are you sure you want to quit? yes
[Hit any key to exit.]

For a Change is not typical in all ways, but it functions the same way most
interactive fiction does: it simulates a world that the interactor is supposed
to figure out (see figure 1.1). In this case, understanding an aspect of the IF
world (that it is singing, not a particular object, that produces light) allows
an additional room to be explored and a new object to be discovered.

At the end of this session, the interactor typed *save* so that this particular
situation could be restored in a later session, and then typed *quit,* terminat-
ing the program. The commands given here do a good job of suggesting
what actions are usually possible for a player character in an IF work,
although they certainly do not exhaust the possibilities. This transcript also
explains how some of these commands can be communicated effectively
to a typical parser. With this introduction out of the way, it is helpful to
describe the nature of these commands and other sorts of inputs, and how
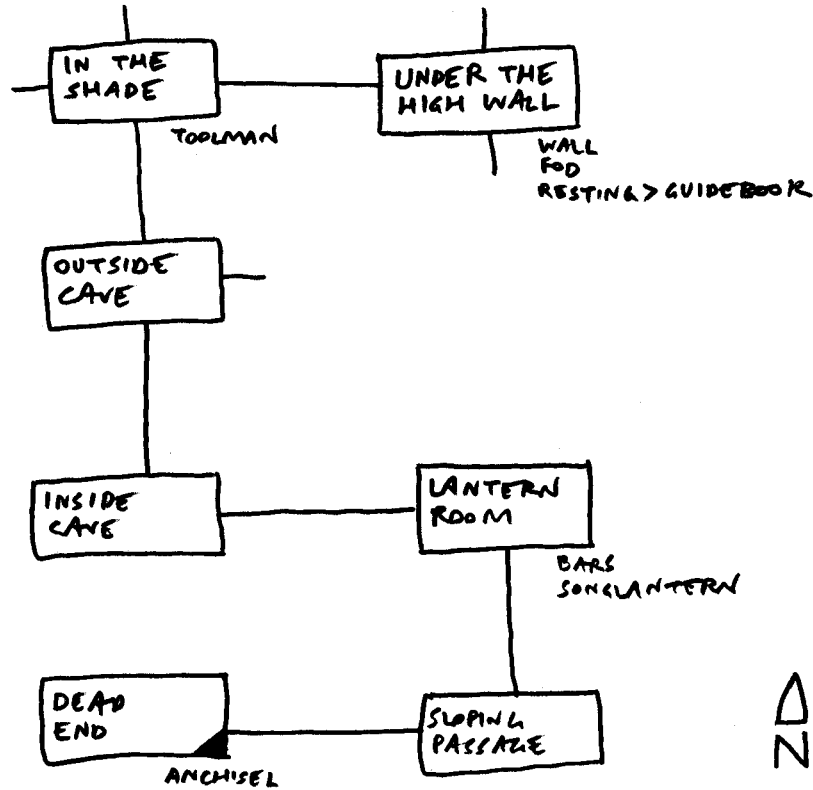exactly the IF world relates to a transcript like this.

FIGURE 1.1

A hand-drawn, partial map of *For a Change*. This map, drawn by an interactor, represents the part of the world that is discovered during this session.

THE ELEMENTS OF INTERACTIVE FICTION

Later in this book, I examine many IF works; some, such as *Zork,* are discussed extensively. It would have been a hopeless task to try, at this point, to treat any work of interactive fiction as thoroughly as is conventionally done in a book about a single literary work, for example, as thoroughly as the *Odyssey* was treated in Erwin Cook's *The Odyssey in Athens.* Cook was able to assume that his readers had at least read the *Odyssey* in translation, whereas many who are interested in computer literature have not spent much time with interactive fiction. Furthermore, literary theory

existed before that work of scholarship was written, and a new approach to the *Odyssey* could build upon or overturn what had been written before.

Simply put, there is no theory to help us understand works in the interactive fiction form directly. Several applicable theories and concepts exist, such as Espen Aarseth's formulation of ergodic literature and the Oulipo's concept of potential literature, both of which help to explain how narratology can be used to understand these objects that are not, in fact, narratives, but that produce narratives when a person interacts with them. But there is still much to do to develop a strong theory that is specific to the form of interactive fiction.

In this section a possible starting point for such a theory is sketched. This discussion is adapted from a more detailed article on the topic that is intended for a readership conversant with many different IF works (Montfort 2002b). The theory envisioned is sensitive to the nature of an interactive fiction work as

· a text-accepting, text-generating computer program;
· a potential narrative, that is, a system that produces narrative during interaction;
· a simulation of an environment or world; and
· a structure of rules within which an outcome is sought, also known as a game.

It is useful to begin with form in trying to understand interactive fiction. In this unfamiliar territory, matters of interpretation and questions of how an interactor learns to interact will be much harder to address without a basic understanding of form. Since an IF work can be implemented in different ways and function identically, definitions of the formal elements of an IF work from a theoretical perspective should be done without making reference to a program's specific data structures, functions, objects, and so forth, considering the program instead (for the purposes of this analysis) as a black box that accepts input and generates output. The clearest justification for this is seen in cases where two programs that are the identical IF work, from the standpoint of the interactor, are implemented in radically different ways—for instance, first using a functional programming language and then

using a procedural one. Different objects can of course also be used in two different object-oriented implementations. It may happen that sensible programmers developing IF works have found it convenient to encapsulate certain fundamental elements as discrete entities in code. Those studying interactive fiction formally should not need to rely on or refer to the internals of a program in order to describe the important elements of interactive fiction as experienced in interaction, however.

In any consideration of the elements of interactive fiction, the nature of works in this form as *programs, potential narratives, worlds,* and *games* are important to attend to. This discussion also describes how the perspective of the person interacting can be distinguished from what is computed and displayed by the program.

How does the transcript presented earlier relate to the actual work of interactive fiction *For a Change*? It is a transcript of a *session,* which is what happens during the execution of an IF program. The session begins when an IF program starts running. It ends when the program terminates. The text that results (both text typed by the interactor and text produced by the program) can be called a transcript or (to emphasize that it corresponds to a single session) a *session text*.

An *interaction* describes a series of continuous exchanges of texts between the program and the interactor. "Continuous" does not have a formal meaning, nor is it a property of the text or program. The interactor's sense of continuity and unity is what makes a certain experience a single interaction, and different interactors may have different opinions of what an interaction is. The text (from both interactor and program) that corresponds to an interaction is an *interaction text*.

The experience of interaction belongs to the interactor (or interactors), while the session is a property of the program and its execution. Still, interactions and sessions often correspond, as we can easily imagine they did in this case. If the interactor had left on vacation halfway through the session, then returned after a week away to interact further, it would probably be more appropriate to consider that this single session spanned two interactions.

The astute reader will notice that the last two things typed by the interactor at the prompt are different from the others. They control how the program works but do not influence the IF world. The different types of

input that can be provided, and the different outputs that the program generates, are discussed next.

Cycles, Exchanges, and the IF World

Anything the interactor contributed, from a press of the space bar to a long typed text, is an *input*. Whatever texts are produced by the program are *output,* even if these include things previously typed by the interactor. A *cycle* is one input and all the output that follows it until the next input. The *initial output* is whatever output is produced before the first opportunity for input; this is before the first cycle. All of this is defined formally with regard to an IF work's nature as a computer program, without regard to how important or unimportant such inputs and outputs are. Pressing the space bar in response to "[MORE]" is an input, for instance, even though it normally provides the interactor no opportunity to influence the course of the narrative that is being produced.

A work of IF is not itself a narrative; it is an interactive computer program. A *narrative* is "the representation of real or fictive events and situations in a time sequence" (Prince 1980, 180); this can result from an interactive session but does not describe any IF work itself. Similarly, interactive fiction is not a *story* in the sense of the things that happen in a narrative, or more precisely, "the content plane of narrative as opposed to its expression or discourse; the 'what' of a narrative as opposed to its 'how'" (Prince 1987, 91). In everyday speech, of course, "story" also refers to a particular genre, the type of thing people expect to hear when they say in conversation "so, tell me the story" or that which a child expects to hear after asking to be read a story. Interactive fiction is not precisely this sort of story, either, although there may be a "frame story" provided in the documentation or there may be a certain type of story that is always generated in successfully traversing the work. An IF work is always related to story and narrative since these terms are used together in narratology, even if a particular work does not have a "story" in this ordinary sense.

A distinction between story and narrative has been noted in various ways since Aristotle, who distinguished the argument, or *logos,* and how it was arranged into plot, or *mythos;* the Russian formalists also distinguished the material of the story or *fabula* from how it was told in the *sjuzet* (Chatman 1975, 295). Interactive fiction has the potential to produce narratives, usually

as a result of the interactor typing things to effect action in the IF world. In fact IF works are *potential literature* in the sense of the Ouvroir de Littérature Potentielle (Workshop for Potential Literature, abbreviated Oulipo) (Mathews and Brotchie 1998; Motte 1986), and specifically they are potential narratives.

Works of interactive fiction also present simulated worlds: These are not merely the setting of the literature that is realized; they also, among other things, serve to constrain and define the operation of the narrative-generating program. IF worlds are reflected in, but not equivalent to, maps, object trees, and descriptive texts. The IF world is no less than the content plane of interactive fiction, just as story is the content plane of a narrative.

An input that refers to an action in the IF world is a *command;* this input is *diegetic* (Genette 1980, 227-234; Cadre 2002b). This command is usually in the form of an imperative to the player character and does not have to refer to a physical action. Commands include *think,* any input directing the player character to speak, and any input directing the player character to examine something or otherwise sense something about the IF world. Commands that do not succeed but that are understood by the parser are still considered commands. The input given to clarify a command (e.g., *kill the troll* What do you want to kill the troll with? *the sword*) is considered part of the command being clarified. An input that refers to several actions (e.g., *take all*) consists of the several commands into which it is decomposed by the parser.

All other inputs, such as those that save, restore, quit, restart, change the level of detail in the room descriptions, or address some entity that is not part of the IF world—for instance, to ask for hints—are *directives.* A directive is *extradiegetic* (Genette 1980, 227-231). Commands and directives are two distinct sets; all inputs are one or the other. Directives include what Graham Nelson (2001b) refers to as "meta" actions in Inform (90). Based on this, the term *meta-command* has been previously suggested to refer to such inputs that are outside the IF world (Olsson 1997), but it confuses the matter somewhat that "meta" has already been used by Genette in the opposite direction—to refer to narratives within narratives rather than to refer to the level of narration itself. To avoid confusion "meta-command" is left for its specific meaning within Inform programming; "directive" is used, instead, for all inputs that do not refer to the IF world. (Also, the level that is within

the diegetic is called "hypodiegetic" in this book.) There are actually certain directives that are not meta-commands; any input that is unrecognized—a typo, or the use of a word not in the work's vocabulary—provides an example. It may seem surprising, at first, that a typo is considered a directive, but this follows directly from the definition of a directive as any input that is not a command. In fact, all inputs, not just text that is entered at the prompt, can be easily classified into directives and commands. Pressing the space bar when "[MORE]" is displayed is a directive, for instance, while typing a number to select one of several conversation options is a command. Some borderline cases from a famous IF work, *Zork,* illustrate this distinction. *What is a grue?* appears to be a directive*,* since there is no one within the IF world to whom this question is addressed; the information is apparently related to the interactor outside the IF world. On the other hand, *plugh* is a command, because it refers to the player character speaking the word "plugh"; it results in a hollow voice within the IF world saying "Cretin" in reply.

Outputs that follow input from the interactor and describe anything about the IF world and events in it (including the inability of the player character to enact a particular action as commanded) are *replies.* Whether the text is a direct result of what the interactor typed or whether the event it describes occurred because of a timed or random event, it is considered a reply, as long as it describes the IF world. All other outputs—that is, all outputs that do not describe the IF world—are *reports.* "[MORE]" and "[Press space to continue]" as they usually appear are reports, as are "Are you sure you want to quit?" "Your score is 0 out of a possible 100, in 2 moves," and "Brief descriptions." The two types of inputs and outputs, and the relationship between them and the roles of interactor and player character, are described in table 1.1.

An *exchange* is one command and the reply that follows it; the reply in this case includes all references to the IF world in all the output, up until the next command is entered. As command and reply correspond to input and output, so exchange corresponds to cycle. The session text from *For a Change* consists of an initial output (which contains the prologue as well as some text, like the author's name and email address, which is not descriptive of the IF world) followed by twenty-two exchanges; at the very end the interactor provided five inputs that were directives: *save,* the filename

Table 1.1

The two simplest levels of diegesis and their relationship to input and output in interactive fiction

	Extradiegetic	**Diegetic**
	Interactor	Player character
Input	**Directive**	**Command**
e.g.	*quit*	*pick up the phone booth*
Output	**Report**	**Reply**
e.g.	*Are you sure you want to quit?*	*You find nothing of interest there*

anchisel.sav, quit, the word *yes* to confirm quitting the program, and a press of the space bar (not shown) to end the program after "[Hit any key to exit.]" was output.

The following excerpt from a session text of *Zork* presents two exchanges, in bold:

> **>***open the mailbox*
> **Opening the small mailbox reveals:**
>   **A leaflet.**

> >ear the leaflet
> I don't know the word "ear".

> **>***eat the leaflet*
> **Taken.**
> **I don't think that the leaflet would agree with you.**

In the first exchange, the player character is ordered to open a mailbox. This is accomplished and the result, that a leaflet is now visible, is narrated. Next is an input that is not a command, since it is not understood to refer to the IF world. This is a directive that produces a report, "I don't know the word 'ear'"—revealing the limited vocabulary and brittle nature of interaction in early interactive fiction, problems that have only been mitigated in part. That cycle does not constitute an exchange. Finally there is a command for the player character to eat the leaflet. This results in the player character taking

possession of it but not actually eating it. The reply seems bizarre in context; an understanding of the distinction between the diegetic and the extradiegetic, and between the command and directive, helps to explain why. "I don't think that the leaflet would agree with you," coming at this point in this session text, makes it seem as if the extradiegetic "I" in the previous report (the "I" who cannot understand certain words and translate them into actions) is now somehow within the IF world, counseling the player character not to eat a piece of direct mail.

Diegesis, Hypodiegesis, and Extradiegesis

Up to now "IF world" has been used as if there were a single world for each IF work. Actually, there may be many worlds in a given IF work, just as there may be several stories told in a single text. (E.g., the "frame story" of the *1001 Nights* is diegetic, while the stories Scheherazade tells are hypodiegetic.) IF worlds, like the stories in a text, may be linked in certain ways. In Steven Meretzky's 1985 *A Mind Forever Voyaging,* discussed in more detail in chapter 5, there are six simulated future worlds in which Perry Simm is the player character; these occur in a framework in which PRISM, a sentient computer, is the player character. The world with PRISM is *diegetic,* while the worlds with Perry Simm are *hypodiegetic.* Commands that refer to action in such a world can be called *hypodiegetic commands.* In *A Mind Forever Voyaging,* a hypodiegetic world can be reached by putting the player character into Simulation Mode, one of several modes that are available. As Perry Simm, the player character then walks around a simulated version of the city Rockvil. Typing *north* in this mode provides a hypodiegetic command (it is an instruction for the simulated human being Perry Simm to go north), while *record on* is a command of the usual sort (it is an instruction for the computer PRISM, in the frame world, to begin recording what Perry Simm is seeing).

Michael Berlyn's 1983 *Suspended,* also discussed further in chapter 5, presents an interesting case in which the player character is in partial suspended animation in a cylinder, and only a few commands (e.g., *wait*) refer directly to actions of the PC. Most commands are hypodiegetic commands issued to robots, who, although they are described by the generated narratives as being in the same physical space, an underground complex, are really in a different IF world. The robots, unlike the immobile human player character, can be told to go to different parts of the complex, can sense things, and can

manipulate the environment to effect repairs. They exist and act in the IF world of this underground complex. The human "controller," fixed in the canister in the middle of a large room in the complex and unable to take any physical action at all, is most clearly seen as being part of a different (but linked) IF world. Rather than seeing the robots (who are under the complete command of the interactor) as non-player characters, it makes sense to see them as player characters in a hypodiegetic world, similar to Perry Simm in one of the simulated futures of Rockvil. That the top-level world can be breached by a robot in the second-level world, who can be commanded to open the cylinder, ripping wires from and killing the player character in the frame world, can be seen as an instance of fatal *metalepsis* (Genette 1980, 234–237), a transgression between different levels of story or between story and narration.

One clear and memorable instance of metalepsis, early on in the history of the form, is in Steven Meretzky's 1983 *Planetfall*. The robot Floyd (within the IF world) comments amusingly on the use of the *save* directive, which is extradiegetic and which Floyd should not know about. In *Planetfall,* the awareness of metalepsis allowed humorous use of it; the unintentional metalepsis shown in the *Zork* session text is, instead, awkward.

Understanding the basics of diegesis, hypodiegesis, and extradiegesis allows one to make more sense of the seeming polyphony of voices in which statements are made in the computer-generated text of interactive fiction. According to Nelson (2001b), "There are at least three identities involved in play: the person typing and reading ('player'), the main character within the story ('protagonist'), and the voice speaking about what this character sees and feels ('narrator')" (368). Nelson states that this narrator speaks the prologue, but notes that "in some games it might be said that the parser, who asks questions like 'Which do you mean . . . ?' and in some games speaks only in square brackets, is a fourth character, quite different from the narrator" (373). These different speakers in the computer-generated text are what have led others to identify the narrative voice not "as a singular speaker but, rather, as a composite, mechanical chorus coming from both inside and outside the intrigue envelope" (Aarseth 1997, 120).

Just as a work of interactive fiction can have many worlds, it can have many different narrators—which need not all correspond neatly to each of

the worlds. For instance, at different times, different narrators might report the events that transpire in a single world. The voice of the parser (and of other parts of the program, such as those responsible for the ability to *save* and *restore* a particular situation) is extranarrative, and need not correspond to any of these narrators. Similarly, the voice that reports on hypodiegetic events (those that happen in a world within the main IF world) is hyponarrative. The numerous voices evident in even a simple work of interactive fiction are not an undifferentiated confusion or chorus, but typically correspond to different functions in interactive fiction that can be separated. Even in those cases where different voices are confused (as with the earlier example from *Zork*) the particular voices which are being confused, intentionally or unintentionally, can be identified.

Courses and Traversals

The state of the IF world after the prologue and the other initial output, when the first opportunity to enter a command is presented, is the *initial situation*. The initial situation refers to the state of the IF world, not to how that state is described. A work of interactive fiction may begin immediately with a prompt, describing nothing about the IF world. Jon Ingold's 2001 *All Roads* begins with a quotation and a menu but does not state anything about the IF world or the player character's situation. Thus, it has a *null prologue,* as does the 1998 *Bad Machine* by Dan Shiovitz. Nevertheless, like all IF works, these have an initial situation—this situation is simply not described before the first prompt for input. As commands are provided by the interactor, the replies reveal what this initial situation was.

The *final reply* is that reply after which the narration of events in the IF world cannot be continued. The state of the world at this point is a *final situation,* which might be a state of victory or a state in which the player character is dead, for instance. After the final reply either the program terminates or the only option is to input a directive, such as *quit, restore,* and *restart*—none of which allow the current narration to continue. A final reply is not required for a work to be interactive fiction, and some works, by design, do not produce a final reply. An unfinished or bug-ridden work might also not produce a final reply at all; it might instead, unintentionally, only manage to produce a final report that is an extradiegetic error message, explaining what caused the program to crash.

A series of exchanges that are part of the same narration, and that are presented along with all the embedded directives and reports, constitutes a *course*. The earlier excerpt from a *Zork* session text describes a course, for instance, as does the transcript from *For a Change*. Typing *restore* and restoring an earlier situation brings one to the end of an earlier course, where the *save* directive had been issued. This allows a single course to extend across several sessions. A course can also extend across several interactions.

Can the same situation recur within a course? This depends on the nature of the IF world. In a world in which time always progresses, one cannot return to the same situation within a course; it will be later, so at least one aspect of the situation will have changed. But if time does not exist or if its laws are different, it may be possible. In fact, it is only impossible for a situation to occur twice in a course if an irreversible event occurs after every command. The progression of time is a special case of this. Note that keeping count of how many "moves" have been made may or may not pertain to the IF world. If events always occur in the IF world after a certain number of moves have been made, this is relevant to that IF world, but the number of moves made may just be provided (in a report) for the interactor's information. The interactor, of course, may not be stepping in the same stream twice when a situation recurs, since she may have a different level of knowledge the second time. But "situation" refers only to the state of the IF world, not to that of the interactor.

A *traversal* of an IF work is a course extending from a prologue to a final reply, and from an initial situation to a final situation. The term traversal, which essentially means "crossing," has conveniently already been used in graph theory and would also be familiar to cavers, since it is used in rock climbing. A *successful traversal* ends with a final situation that corresponds to winning.

Player Characters and Non-Player Characters

A *character* in interactive fiction is a person in the IF world who is simulated within the IF world. A good indication of this is that a character's actions as narrated can differ, depending upon the input provided. The term as it pertains to interactive fiction derives not only from dramatic use and from discussion of the novel, but also from the specific use of the terms *player character* and *non-player character* in the prototypical fantasy role-playing game,

Dungeons and Dragons, discussed in chapter 3. These terms have a similar special meaning in interactive fiction.

A *player character,* or PC, is a character directly commanded by the interactor. Any other character is a *non-player character,* or NPC. The interactor may request that an NPC do something, or even command an NPC to do something, but such a request or command will always be done via the PC, who is directly commanded. NPCs certainly include entities that can take actions within the IF world like the PC can—called *actors* (Lebling, Blank, and Anderson 1979)—but they may appear in other forms, as long as they are simulated within the world and not under direct command of the interactor.

There are also *other persons* who are mentioned but who are neither PCs nor NPCs. (Since the terms player character and non-player character seem to complete the set of characters, these other persons are better not called characters; besides, in the study of narratives the term "characters" only refers to those people who actually exist within the story, not those who are simply mentioned.) Marshall Robner, the man whose death sets up the initial situation in Marc Blank's 1982 *Deadline,* is not a character in that work of interactive fiction. In Brian Moriarty's 1985 *Wishbringer,* the dragon Thermofax appears alive (albeit in a daydream) in the prologue, but it is not possible at any other point during an interaction for Thermofax to be mentioned again in a reply, and thus no input causes his actions to vary and he is not simulated. Thermofax is a person, but not a character.

The idea of a *character* (including player characters and non-player characters) in interactive fiction is analogous to the idea of a character in a narrative, defined as "an EXISTENT endowed with anthropomorphic traits and engaged in anthropomorphic actions; an ACTOR with anthropomorphic attributes" (Prince 1987, 12). The difference is that a character in interactive fiction must be an existent who acts within the IF world. Being a part of the simulation, rather than being a part of the story that the generated narrative tells, is what is essential for a character in interactive fiction. Since people may disagree about what traits are sufficiently anthropomorphic to allow an entity to be a character in a story, there are sure to be some similar disagreements about whether something is a character (or indeed, whether it is even in the broader anthropomorphic category "person") in interactive fiction. But the category "character" in interactive fiction is

similar to that category in narrative, and should be as useful. The presence of entities that cannot easily be seen as anthropomorphic or not, as seen in the *For a Change* session text, has an interesting effect, in part, because it tends to defy the easy categorization that readers and interactors would like to make when thinking about characters.

Interactive Fiction as Game

Although IF works are always called games, and almost all of them are games, their nature as games is seldom discussed very explicitly. For instance, many people assume in casual discussion that the computer program is one player and the interactor is another, or that the author of an interactive fiction work is playing against the interactor. But neither the computer nor the author is literally the opponent in interactive fiction, any more than is the case in a computer version of solitare. Instead, the program usually serves as a referee; if the program provides hints it may be also acting in a different role, that of a second (Solomon 1984, 20).

As discussed in chapter 3 in the specific case of *Adventure*, interactive fiction is a cooperative game. If several people play, they work together to solve puzzles. From the standpoint of game theory, the typical interactive fiction game differs from a game like chess not only because the players in chess oppose one another but because in that game total information about the situation is always available to players. Not only is the state of the game (i.e., the situation of the IF world) known only in part in interactive fiction, but the workings of this world (and of the interface to it) are at first also only partly known, so even card games without total information may not be good points of comparison. Learning to operate the text, and discovering what language is accepted and understood, is part of the pleasure of interactive fiction. According to Menick (1984), "The first step for the player is figuring out what language the game speaks. . . . One of the joys of adventuring is that discovery of the extents and limitations of the game's vocabulary" (56). It is "the discovery of the rules, through trial and error, [that] is one of the principal attractions of the game. The mark of a well-designed game of this type is that the rules reveal a consistent style, and are not merely arbitrary" (Solomon 1984, 20).

The nature of interactive fiction as game is too complex a topic to explore further in this discussion, but clearly it is necessary here as well to

recognize what type of game it is and what aspects of that sort of game help to make it interesting. It is worth noting that the perspective of game theory does support the figure of the riddle as a way of understanding interactive fiction, although the riddle may not formally be the same type of game. The text of a riddle itself is completely known to a riddlee (the person to whom a riddle is posed), but solving a riddle requires that the workings of the riddle's world be explored and understood and that its rules be discovered.

This discussion has not even broached the more difficult topic of the puzzle. As an element of interactive fiction, the puzzle should certainly be considered in formal terms and in terms of the interactor's interpretive activity. Some in-depth discussion of the puzzle is beginning as well (Carbol 2001; Short 2001; Montfort 2002b). The formal nature of the puzzle is but one piece of the overall question of how interactive fiction operates, one of many pieces that can only be mentioned in the current discussion. This narratological perspective on the form is offered as one starting point for further investigation that concerns the relationship between simulation and narrative. Another starting point of a different sort is offered in chapter 2, which considers a different form that is both an early ancestor of interactive fiction and a powerful figure for understanding how it works. This form is the literary riddle.