ABSTRACT

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"Game Fiction" provides a framework for understanding the relationship between narrative and computer games and is defined as a genre of game that draws upon and uses narrative strategies to create, maintain, and lead a user through a fictional environment. Competitive, ergodic, progressive (and often episodic), game fictions' primary goal must include the actualization of predetermined events. Building on existing game and new media scholarship and drawing from theories of narrative, cinema, and literature, my project details the formal materiality that undergirds game fiction and shapes its themes. In doing so, I challenge the critiques of narrativism levied at those scholars who see a relationship between computer games and narrative forms, while also detailing the ways that computational media alter and reform narratological preconceptions. My study proposes a methodology for discussing game fiction through a series of 'close playings,' and while not intended to be chronological or comprehensive, provides a model for understanding narrative and genre in this growing field.

Chapter one, "Defining Game Fiction," locates video games within the larger context of computer-mediated narrative design, and interrogates the power structure of reader to author, consumer to producer, and media object to its user. I articulate a framework for approaching computer games that acknowledges a debt to previous print, cinematic, and ludological forms, while taking into account computer games' unique ergodic and computational status. Chapter two, "Paper Prototypes," examines the principles of game fiction in three analogue forms: the choice book, the board game, and the tabletop role-playing game. My third chapter, "Playing the Interface," theorizes the act of narrative communication within the ludic, multimodal context of *Prince of Persia: The Sands of Time*. Chapter four, "Data, Set," posits the game quest as analogous to the database query in *Adventure* and *StarCraft*. Much like data exists in a database, requiring only the proper query for access, narrative exists in game fiction, shaped by quests through fictional settings. Chapter five, "The Game Loop," argues that the grammar of user input within the game loop shapes the player's relationship to the character and, in *MediEvil*, the subsequent themes of redemption.

GAME FICTION

By

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Dedication

For Lisa.

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Chapter 1: Defining Game Fiction

> **`You are standing at the end of a road before a small brick building.`**
>
> Stark words flashed across the network's broadcast channel, like that annual decree going out from Caesar Augustus. Like the first four measures of "Auld Lang Syne." Like the face of a friend bobbing out from a crowd just clearing International Customs, lit in familiarity's halo. (Powers 102)

Jackdaw Acquerelli, a recruit fresh out of "California's largest computer science factory" (26), watches the line flash across his screen, anonymously sent out from any one of the "eighty-six users … at all six facilities, from the Sound down along the coast, as far south as the Valley" (102). The game he immediately recognizes, "like the face of a friend," as *Adventure*, the first text adventure game. Jackdaw and his eighty-five accomplices across the network type out their collective memories of each room in the game, and the commands they used to navigate them. In this rich scene from Richard Power's *Plowing the Dark*, Jackdaw recalls himself as an eleven year old, taken by his father to the office and parked "in front of a gleaming Televideo 910, hooked up to a remote mainframe through the magic of a Typeshare 300-baud modem." Jackdaw, in 1977, was networked, and his first experience was the game: "All a trick, Jackdaw saw in retrospect, an elaborate diversionary tactic to fool a boy into—of all things—reading" (103). At his father's prompting, Jackdaw entered his first command:

Enter building.

Powers' novel is divided between two converging storylines. The first follows, in third-person omniscient narration, a group of virtual reality researchers (including Jackdaw) building the Cavern, a room of screens and motion detectors in order to simulate anything they might want—from the interior of a painting to a vast Byzantine

cathedral. Their combinatory creation of art and code sits against the backdrop of late nineteen-eighty's politics: Hands Across America, Tiananmen Square, the fall of the Berlin Wall. The second central storyline, told through second-person narration, follows "you," who readers eventually learn is Taimur Martin, a younger male teacher who leaves his failed romantic relationship to teach in Beirut. Snatched from the street, Taimur is held hostage by Islamic fundamentalists in a stark white room, a stunning complement to the Cavern's blank cube of screens.

At the novel's end, Taimur, tortured and alone, falls into darkness, while Adie, the resident artist, horrified when she learns that the Cavern could be used for the purposes of war, races to destroy the work she has created. Each in their own form of real and symbolic darkness, Adie enters the virtual reality Cavern in an attempt to decode the vast Byzantine cathedral she had created and—through an infusion of magical surrealism—while within comes across Taimur, "a man, staring up at her fall, his face an awed bitmap no artist could have animated" (399). This unreal connection between Adie and Taimur across time and space contains echoes of the earlier sixteenth chapter in which Jackdaw and his networked companions recreate *Adventure*; each are nodes on a responsive network, one text-based, one virtual reality. In both of these visions, Powers underscores the participatory function of all representation, while earmarking the limitations brought on by medium.

Powers uses the phrase "shared experience" only twice in the entire novel, with each instance serving to bookend the 44th chapter in which Adie completes her Byzantine temple with feverish intensity and encounters the ghostly visage of Taimur within. And yet clearly shared experience is a significant emphasis here, thematically but also

formally. Powers juxtaposes three narrative voices—omniscient third-person and two forms of second-person address[1]—throughout his novel. His third-person omniscient narration, used when the focus centers on the characters working on the Cavern, employs subtle techniques like dialogue written in italics. This typographical effect, with some echoes of the first chapter of Faulkner's *The Sound and the Fury*, provides the sense that one is reading characters' thoughts rather than simply overhearing casually or being explicitly and formally told, though less stream-of-consciousness, and more as if to create the greatest intimacy for readers within the constraints of traditional narration.

The second-person narration presumes to involve the reader through the most intimate of addresses, and Powers uses it in two different ways—first, to tell the story of Taimur Martin, and second, as a series of descriptive passages of one of the "rooms" created for the Cavern.[2] In Brian Richardson's useful typology of second-person narration, two of the three forms Richardson catalogues for second person narration are most obviously evident in *Plowing the Dark*. The story of Taimur is "standard" second person fiction as defined by Richardson, in which "the protagonist/narrator is quite distinct from the actual or implied reader" (312). "Its usage," Richardson notes, "can engender a heightened engagement between reader and protagonist: we may oppose identification with a 'you' we resist, or we may sympathize more fully with a central character" (319). The "you" of these passages is marked: white, male, of Persian descent, a citizen of the United States, a teacher, and escapee from a broken relationship. And while the use of first or third person narration could have been perfectly appropriate in

[1] First-person narrative voice is eschewed presumably because it is an *exclusive* voice, rather than inclusive.
[2] While all of these episodes (Chapters 3, 10, 13, 19, 22, 27, 30, 37, 41, 43, and 45) can be reasonably argued as separate from the Taimur plot, there are moments of cross-over in the latter portion of the novel that calls this distinction into question, just as the Cavern bridges the Adie and Taimur characters, so to does it bridge the two uses of "you" that have in most cases remain distinct.

these passages, the use of the second person allows for powerful and deliberately jarring effect.

Consider the following passage, in which Taimur, recently abducted, calls out for his captors after having removed his blindfold and explored the sparse "white room" that is his cell:

> "Hey," you call. Your voice is dry, broken. "Hello?" Louder.
>
> The door rumbles and jerks outward. A young man, no more than twenty-five, stands in the frame. His is tawny, thin, medium height, black-eyed, black-haired, sleek-bearded, hang-nosed, white-shirted, blue-jeaned, and glaring. You've seen whole armies of him, waving small arms, hanging out of car windows patrolling both sides of the Green Line. He's young enough to be one of your English students. He looks, in the second that you are given to scan him, lamentably like your internal clip-art stereotype of an Arab terrorist.
>
> "What are you doing?" he screams. "Cover your eyes! Don't look!"
>
> You scramble on the floor near the mattress, searching for the blindfold that has chosen the wrong moment to go AWOL. Screaming, the guard rushes you and yanks down the rag that has been riding, this whole while, on your numbed head.
>
> You fix it so that you are blind.
>
> The boy does not retreat. He hovers by your head. His breath condenses on your neck. He presses something hard and cold and metal up into your ear.
>
> "You hear me, you cover your eyes. You understand?"
>
> You nod your head. Again. Harder.
>
> "You look, you die." (73-74)

The scene begins in a manner easily imagined by the reader—calling out in confusion after exploring the stark confines of what appears to be a holding room. We, with the protagonist, see the flash snapshot of the young man. We catalogue his features, note the stereotypical nature of them just as the narrator echoes this observation: "internal clip-art stereotype of an Arab terrorist." The response to "Don't look" is equally shared, on the part of the protagonist because he ostensibly cannot find his blindfold, and on the part of the reader because to read we must look. Agency is shattered on both counts, until the

guard pulls the blindfold down and the narration shifts to visceral descriptions—condensing breath on the neck, the push of the gun again the ear—and concludes with the tension for both prisoner and reader, the latter who has no choice *but* to look.

Powers combines second person narration and description in a series of chapters more akin to the subjunctive in Richardson's taxonomy, in which the narrator is distinct from the narratee, the imperative case is often used[3] and, in this case, reads like a travel guide mixed with a cookbook, describing what you can see, and how you can create and interact. These brief chapters are more descriptive than narrative, and recall in a way the short courier-fonted descriptions we encounter of the rooms in *Adventure*, flashing across Jackdaw's screen. The first of these chapters describes the Crayon Room, a virtual-reality room Adie encounters in the chapter that precedes this descriptive one: "In the Crayon Room, all strokes are broad. Wax goes on nubby. It clumps and gaps. Your main repertoire here is the happy smear. Leaving an edge is hard…" (18); "Spread your newsprint on the sidewalk and make a fish …Rub a stick of brown lengthwise against a nude page; the plank behind the paper clones its own knots and whorls, returning the pulp to its woody matrix" (18); and "Try to climb a hill, and you pass right through it … A wheelbarrow in scarlet wax sits tilted on a path somewhere down a projected dell" (19). The majority of these passages are clear descriptions of the rooms created in the Cavern as they become more interactive and ambitious, experiments of user interaction and experience. The final descriptive chapter (the 45th chapter) concludes with the demo of the Cavern for potential investors. "The room that holds you falls away," (407) and the investors, we find at the conclusion, remove their glasses, wincing "in the flush of light"

[3] Richardson notes three features of subjunctive second person narration: "the consistent use of the imperative, the frequent employment of the future tense, and the strong distinction between the narrator and the narratee" ("The Poetics" 319).

(410). With this concluding scene the reader and the "demo buyers, the Joint Chiefs of Staff" are all conflated—all audience to this series of virtual reality depictions. This conflation of "shared experience" between reader and character, a final trick here in which the subjunctive dances a subtle jig toward the "autotelic," where the story of the actual reader can merge with that of the characters of the fiction (Richardson 320), just as Adie's story merges with that of Taimur/"you."

While all of these descriptive vignettes[4] can be reasonably argued as separate from the Taimur plot, there are moments of cross-over in the latter portion of the novel that calls this partition into question. The starkness of chapter 41 (390), comprised of these brief lines, immediately follows Taimur's mental break in chapter 40:

> This room is dark, and without dimension.
> It has no door. Or any window where you might have entered.

The passage adheres to the same descriptive tones of the previous chapters, and can reasonably assumed to be part of their grouping, and yet with its proximity to and apt description of Taimur's mental break, it prepares the way for the connection between the Cavern and Taimur's stark room that connects the Adie and Taimur characters, and further joins the two uses of "you" that have in most cases remain distinct.

Powers highlights the power and the limitations of the novel, as a form, to create shared experiences, to break boundaries between reader and subject, to move beyond medium, which serves a central theme of the novel. Spider Lim, the "hardware guy," is so sensitive that a virtual branch in the Cavern painted by Adie leaves him bruised. Karl Ebesen, one of the researchers, grieves a lost lover who eerily dies in a manner painted by him ten months earlier, and exclaims, "I shouldn't have been tempting fate. A person

[4] Chapters 3, 10, 13, 19, 22, 27, 30, 37, 41, 43, and 45

should never represent anything that they aren't willing to have come true" (287). And, of course, there is the final connection between Adie and Taimur, who has, after all, been "you" all along—and yet not, limited by the constraints of prose fiction. In between the novel, arguably our chosen medium for storytelling since the 18th century, and his fictionalized Cavern, which resembles in the end less the virtual-reality Caves[5] of today and more the Holodeck of the future, Powers leaves us with *Adventure*, a game fiction.

Adventure, and many other games with narrative inclinations, adhere to many principles of Richardson's third form of second-person narration—autotelic—which he details as "the direct address to a 'you' that is at times the actual reader of the text and whose story is juxtaposed to, and can merge with, the characters of the fiction" (320). Richardson describes this form of address as "a kind of game", in which "throughout the text [Calvino's *If on a winter's night a traveler*"] the 'you' continues to move, shift, double back, and change again, addressing alternately the real reader, the implied reader, and the narratee" (321). Richardson concludes that second person narrative "is arguably the most important technical advance in fictional narration since the introduction of the stream of consciousness" (326). With Power's novel serving as a technical and thematic representation of the potential for inclusive, reader-involved narrative, we might note that the introduction of feedback mechanisms, new interfaces (from text-laden screens to virtual reality caverns), and programmed configurability and customization, coupled with innovative narrative techniques that situate the reader—now the player, as with Jackdaw in front of Adventure—often as "you," positions game fiction as a new narrative genre, rising in part from a shift, via computational power, in which the relationship between

[5] A Cave Automatic Virtual Environment (CAVE) is a room in which all walls are surfaces that function as screens, creating an immersive environment.

audience and creator (reader and author, player and game developer) has a new set of criteria and constraints.

Game Fiction

If the rise of the novel as a form of prose fiction in the 18th century reflected a growing "tendency for individual experience to replace collective tradition," as Ian Watt argues (14), then comparatively the rise of game fiction could be seen to reflect a tendency towards collective tradition under the guise of individual experience. Game fiction is a genre of game that can be described as narrative, though not without the consideration of significant differences due to the procedural nature of its ludic—and, by association, computational—framework. Most notably, the player of the game fiction is a participant, shifting away from the traditional model of narrative communication that offers little mechanism for a physical, rather than just hermeneutic, feedback loop. The interactive and competitive nature of the game fiction requires an interface for interaction and a shift in point of view; a framework guiding the player toward goals, which is most often framed as a quest; and a mechanism providing the parameters for the player character's abilities within the game and fictional space. Just as the shift from reader to player necessitates these control systems and feedback loops, so too does the shift bring with it thematic focus: encountering new worlds, managing conflict and goals, and bringing a character under player control and managing models of understanding his or her abilities, history, and story.

As Janet Murray asserts, "the largest commercial success and the greatest creative effort in digital narrative have so far been in the area of computer games" (*Hamlet* 51), a sentiment reflected in the recent rapid output of academic books, articles, and journals

dedicated to the topic. Humanities scholars' general interest in what Murray labels the "computer as expressive medium" accelerated during the late 1980s and 1990s. "Like the medium of film 100 years earlier," she argues, "the computer medium is drawing on many antecedents and spawning a variety of formats," advancing at a breathtaking pace into "a single new medium of representation, the digital medium, formed by the braided interplay of technical invention and cultural expression" (*New Media Theory Reader* 3). If the computer represents a single medium, the game is its most prominent genre, simulating sport, adventure, exploration, war, economies, and even life itself.[6] In fewer than fifty years, computer games have grown from allowing text-based adventurers to crawl through fictionalized caves to generating miles upon miles of virtual landscape inhabited by its digital citizens and maintained by economies rivaling that of several real-world countries.[7] Where a single white dot once floated across a dark screen in an abstraction of table tennis, players can now top-spin their way through the rankings at a virtual Grand Slam tournament. Given the computer's expansive ability to remediate, the fact that games do so with narrative forms should be of no surprise. But to what degree does the narrative simply serve as a superimposed attachment, floating on the surface but offering little value to either the development of play or the creation of meaning, and to what extent can we see these forms as a new mode of narrative discourse? The answer to

[6] Mathematician John Horton Conway presented his *Game of Life* in a 1970 issue of *Scientific American*. A cellular automaton simulates emergent life based on algorithms that allow cells to multiply, divide, or die.

[7] In November 2008, the online massively-multiplayer online game *World of Warcraft*, boasted more than 11.5 million paying subscribers (http://us.blizzard.com/en-us/company/press/pressreleases.html?081121), making it more populous than Sweden or Israel, and on par with Greece. Additionally, through the selling of virtual goods for "real" money, the economies of online worlds frequently rival those of small countries. For more on this phenomenon, see Edward Castronova, *Synthetic Worlds: The Business and Culture of Online Games*, University of Chicago Press, 2005.

that question first requires an overview of game fiction as a genre and the characteristics that undergird its potential for a new mode of narrative.

Defining Game Fiction

I use the phrase "game fiction" to describe a category of game that draws upon and uses narrative strategies to create, maintain, and lead the user through a fictional environment in order to actualize a narrative and ludic goal. Perhaps the best examples of game fiction in the latter 20th and early 21st centuries are presented through the medium of the computer game, although there are other non-digital examples such as tabletop role-playing games and even certain kinds of game books.[8] Claiming simply that games *use* fiction is not uncommon, and has in fact been embraced as one way to talk about the narrative qualities of games while avoiding calling the game itself a narrative.

My own use of the phrase is perhaps most akin to Barry Atkins' in *More Than a Game*, a work "concerned with those computer games that I see as having a central narrative impetus, that develop story over time, rather than repeat with minimal difference in a move from level to level of increasing excess" (20),[9] although the criteria I employ would exclude some of Atkins examples.[10] Noah Wardrip-Fruin employs the term fiction "generically" to "refer to fictions within games" (80), and further remarks

[8] Game books are print texts that provide choices for the reader that result in different conclusions. The best known version is the *Choose Your Own Adventure* series, which is hypertextual but lacks a clear system for competition (a feature discussed below). There are several books that follow this style, however, that include mechanisms such as dice rolling and character creation.

[9] Importantly, Atkins further notes that "the compound term game-fiction I deploy throughout this volume incorporates rather than rejects the *game* element within *game*-fiction" (14), recognizing that "as telling a story on the written page has different demands, constraints, and freedoms… so the telling of stories within computer games work with different conventions… it is as important to pay close attention to the ways in which game designers and players have exploited the strengths and weaknesses of the modern computer as a vehicle for the delivery of fictional texts" (7).

[10] As we will see below, my emphasis on progression and actualization would prove incompatible with the more emergent style of *SimCity*, which Atkins uses to study the "creation and management of fictional social constructions" (23).

that "given the sometimes contentious nature of critical discussion around the relationship between games and fiction, I should perhaps also make it clear that I do not believe any games 'are' stories or narratives in a classic narratological sense" (77). Juul offers a very brief overview of potential ways that games "cue a player into imagining a fictional world," (133) although he asserts that players are generally disinterested in the fictional world over time[11] and maintains that the fiction is generally supplementary to the rules of the game. Though both Wardrip-Fruin and Juul have done much to advance my own thinking about computer games, my assertions that game fictions have much in common with textual and cinematic narrative and that fiction often is integral to the operation of some games mark a departure from their perspectives.

Many games, though not all, rely on fictional frameworks to varying degrees of sophistication. For example, chess players situate their characters—the queen, the king, pawns, and so forth—within a spatial framework (a board of 8 squares by 8 squares) and associate movement keyed to hierarchical structures. Card games complete their numeric logic with a recognizable hierarchy of rank (king, queen, jack). *Space Invaders* or *Missile Command* suppose invasions, with the drumming pace of aliens characterizing the former and lines of nuclear attack characterizing the latter. Few, if any, are recognizable as narratives as a whole, though one might create a narrative based on a played sequence (with significant enhancements). To be useful as a distinctive category, game fictions must not use fiction simply as a superimposed enhancement to the act of play.

[11] Juul cites a survey, by Retaux and Rouchier (2002), of *Quake III Arena* players (139). It should be noted that *Quake III Arena*, a first-person shooter game that focuses primarily on battles between players or computer-run bots, lacks any significant attempt at story plot; the game is the first in the *Quake* series to eliminate any single-player plot-specific campaign.

To be sure, the short history of computer games provide plenty of border cases, but it is notable that the much longer history of games in human culture holds far fewer examples that include all of the characteristics of game fiction than we might find in the recent canon of computer games. This suggests a new genre of game, enabled by the remediating affordances of the computer as meta-medium.[12] Technological advancements in graphical computer games offer clear advantages toward designing a narrative experience for a player. The scrolling screen of *Super Mario Brothers* holds an obvious advantage over the static single-screen experience of *Donkey Kong* for creating the illusion of a seemingly fluid, explorable world. This trend toward fluid, open spaces advanced considerably with the advent of 3D modeling and high-performance graphics cards which result in ever-increasing verisimilitude. Even the performance benchmark for graphic cards—the frame per second—recalls the scrolling terminology of motion pictures and television rather than the grid space of game boards.

To understand the theoretical value of the phrase "game fiction," we should turn first to its intentional referent: prose fiction, which is itself a composite describing a general discursive style. Prose itself is plain, rather than lyrical, and usually written or spoken; as such it suggests not only style but also hints towards medium and genre. Furthermore, to dub a piece of writing or oratory “prose” rather than poetry or hymn claims that it adheres to a certain set of rules or guidelines: it might be of the vernacular rather than stylistically elaborate; prose might be written and said, rather than sung. Conjoined, the term prose fiction describes any number of genres, such as novels, short

[12] Alan Kay famously noted that the computer “is the first metamedium, and as such it has degrees of freedom for representation and expression never before encountered and as yet barely investigated” (59).

stories, but not all written discourse; the term fiction discourages association with journalism, memoir, and struggles against the imperatives of historical fiction.

Fiction itself is an imaginative invention, a fabrication.[13] For Marie-Laure Ryan, "fiction is a mode of travel into textual space, [and] narrative is a travel within the confines of this space" (*Possible Worlds* 5). Noah Wardrip-Fruin elaborates:

> Ryan considers the constituent move of fiction, not simply the creation of an alternative possible world but the *recentering* of discourse to that world -- so that indexical terms such as "here" and "now" are understood to refer to the alternative possible world, and terms such as "actual" themselves become indexical. Further, for Ryan fiction not only creates an alternative possible world, but also a system of reality, a universe. This is necessary because the alternative world of a fiction may also have many alternative possible worlds emanating from it, and each of them may have further alternative possible worlds... (139-140).

Implicit in the logic of fiction is a willingness to accept the invention in the creation of a shared experience, echoed in Coleridge's "willing suspension of disbelief," (2) and reflecting the ontological shift that Ryan suggests is necessary from the real world to the world of the narrative (or TAW—"Text Actual World").[14] This experience would be subverted in the less complimentary denotation of fiction as "a lie," as suggested by Espen Aarseth when critiquing the value of the term "interactive fiction" in favor of his own "cybertext" (Cybertext 50). This complicity on the user's part in the construction of fiction, however, complicates Aarseth's criticism that "a fiction that must be tested to be consumed is no longer a pure fiction" (50). It is precisely this testing, a constant and attentive reading—or playing—that continues the cycle of willing suspension of disbelief.

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[13] Jill Walker reminds us that fiction is "something feigned, invented, or imagined" (18).

[14] Aspects of possible-worlds theory, including Ryan's conception of the stack, will be revisited in subsequent chapters. For an extensive overview of possible-worlds theory, see Ryan's *Possible Worlds, Artificial Intelligence, and Narrative Theory*, Indiana University Press, 1992. For a abbreviated overview, see Ryan's entry on the topic in the *Routledge Encyclopedia of Narrative Theory*.

Rather than a deception, then, a willing engagement with the fiction appropriately syncs with the players' acceptance of rules, a necessary component in Brian Sutton-Smith's definition of a game: "an exercise of voluntary control systems in which there is an opposition between forces, confined by a procedure and rules in order to produce a disequilibrial outcome" (7).[15] A game requires voluntary participation, an acknowledgement by the player or players' that they will accept a system of rules and the use of available resources in a contest. Just as fiction requires a willing suspension of disbelief to accept what might otherwise seem supernatural or unlikely, so too does the game require a willing engagement with the parameters of play. The governing poles of Roger Caillois' continuum, from the freeform "uncontrolled fantasy" of paidia to the rigid conventions of ludus (12), create a spectrum that requires—in fact enforces at both extremes—the acceptance of the act of play, which is in itself a game's primary rule. This acceptance by the player or players of the state of game play is often described as entering the "magic circle," borrowing from Johan Huizinga's emphasis on a game's quality of being a "play-ground, marked off beforehand either materially or ideally, deliberately or as a matter of course" (10). While the phrase "magic circle" is often used as shorthand to describe this experience,[16] reviewing Huizinga's lengthier explanation reveals that this is as much an act—a choice and performance—as it is a space:

> Just as there is no formal difference between play and ritual, so the 'consecrated spot' cannot be formally distinguished from the play-ground. The arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc., are all in form and function play-grounds, i.e., forbidden spots, isolated, hedged round,

[15] Which is not unlike Huizinga's definition: "A voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy, and the consciousness that it is different from ordinary life." (Huizinga, 1968). For a review of early definitions of games, see: Frasca, Juul, Newman.
[16] See Salen and Zimmerman, *Rules of Play*, 94-95.

> hallowed, within which special rules obtain. All are temporary worlds within the ordinary world, dedicated to the performance of an *act apart* (10, emphasis mine)

His link of ritual and play, of tradition and experience, is notable in that it articulates an acceptance of an act within collective, shared boundaries. This collaboration of play and order is for Huizinga a primary reason that he considers play to "lie to such a large extent in the field of aesthetics" (10). Defining the parameters of the "act apart" and the "consecrated spot" within a "temporary world," especially in the specific genre of game fiction, requires an examination of the characteristics that create the possibility for, in Katie Salen and Eric Zimmerman's words, a "crossing [of a] boundary—or frame—that defines the game in time and space" (95).

Properties of Game Fiction

A compound of mechanics and intention, imaginary space and goals, the phrase game fiction carries with it the intentional weight of its linguistic relationship with literary prose, as it aims to serve as a descriptor for that category of games whose primary purpose is to create a guided experience for the player or players in the imagined world. The value of such a descriptor, however, hinges on appropriate guidelines to distinguish the genre from all games, all fictions, or other digital literary artifacts. To be more specific and succinct, then, game fictions are competitive, ergodic, progressive (and often episodic), and their primary goal is one of actualization. Game fictions are not limited to a single medium, although a game's particular materiality—should it include dice mixed with a game board, paper, or even the imagination— often reveals much about the game fiction in question.

Of the parameters for game fiction described above, the first two—ergodic and competitive—are unsurprising, perhaps, as they create the interactive experience implicit in game play, establishing an individualized experience within the magic circle of play. Both terms refine the parameters of interactivity, which has lost most of its power as a critical term in the popularization of computation and digital media.[17] Espen Aarseth coined "ergodic," literally translated as "work path" (from the Greek *ergon* and *hodos*, respectively), to describe a work that requires "nontrivial effort ... to traverse the text" (*Cybertext* 1). An ergodic text requires the enactment of a "selective movement [that] is a work of physical construction that the various concepts of 'reading' do not account for" (1). Solving puzzles, answering riddles, or performing a role in an adventure game all take advantage of configurable media, and the primacy of the player's role is also what creates the sense of an individual experience.

The idea of "work-path" seemingly would suffice in describing an interaction with game fiction, and yet it fails to account for the competitive nature implicit in a game, as required by Sutton-Smith's definition. In the strictest sense any game, rather than play-in-general, will include a competition if not an explicit win-lose determination. When no live opponent exists, as is often the case in single-player video games for example, the computer functions as the active opponent; in multiplayer games this remains the case, since the game engine functions as the arbiter of rules in any action attempted by the player or players. Hyper- or cybertexts, chatterbots like Eliza (Weizenbaum 1966),[18] or other electronic works may be considered ergodic work, but not necessarily game fiction, since they may involve calculation (Aarseth 75) but not

[17] See Aarseth, *Cybertext* (48-51) and Manovich, *The Language of New Media* (55-61) for criticism of the indiscriminate use of the term "interactivity."
[18] To interact with an example of Eliza, see: http://jerz.setonhill.edu/if/canon/eliza.htm

necessarily competition as part of the feedback loop. This suggests, of course, that while all game fictions are cybertexts (if we ignore the logocentric assumptions implicit in the term), not all cybertexts are game fictions. These two characteristics—ergodic and competitive—create the possibility for individualized experience by both providing interactivity and making it *matter* competitively. The remaining two—that game fictions must be progressive and actualized—are what separate them from other game types and also completes the balance that produces collective tradition under the guise of individual experience.

Game fictions have a discourse, an arrangement of story and game elements that after the act of play produce a recognizable, repeatable experience. They are progressive rather than emergent. Emergence is familiar in many traditional games, which often begin with a simple set of assumptions, like the placement of chess pieces or the group of players on a football field, with a vast array of potential events and outcomes springing from the arrangement. These outcomes are neither predictive nor controlled beyond the simple limits of the rules; a player or team might win through a number of means, and the outcome is generative, predicated on strategy, skill, or luck rather the controls established by the designer of the game. The popular *Sim City* franchise, and its related cousin, *The Sims*, are both examples of emergent play. There are goals, both long and short term, but the experience of play is expansive rather than restrictive. As such, emergent games can generate narrative, as can any other kind of experience, but the narrative experience is not designed into the process.

Progressive games, however, generally adhere to a visible structure with varying degrees of sophistication, and usually providing for choice and configurability. Aarseth

offers the "pearl chain structure" ("Quest Games" 369) as one example, and Ryan suggests several others (246-255). Progressive games offer delineated paths, often a quest (either explicit or not) toward the completion of a goal: rescue a princess, defeat the invaders, escape from certain doom, or find the missing pages of a book. The race board game like *Pachisi* is a classic progressive structure. Computer games that involve platform jumping, adventure games, single-player first-person shooter (or sneaking) games, and several styles of role-playing game involve predominantly progressive play, with emergent behavior generally constrained to the nuclei events rather the catalysts.[19] Game fictions, in short, are narrated, though not necessarily by conventional means such as a speech act. The plot (or plots), however, are pre-established and by using conventional (e.g., use of camera shots, voice-over narration, diegetic text, cut-scenes) and unique (interface design, database structure and delivery, algorithms) methods, the player unfolds the designed plot as they work their way through the game. The specifics of these narrative techniques are described in detail in the following chapters, and also introduced in the examples in the chapter immediately following.

Finally, and importantly, games may contain both emergent and progressive qualities, but just as texts, as Chatman asserts, adhere to a predominant type—"narrative, argument, or description"—so too do games, and either type can function "in service to" the other (*CTT* 6), which is to say that they complement and aid the predominant type. A narrative aside might bolster an argument during a key speech, or the pure description of

[19] I adopt Barthes' terms to describe events deliberately, instead of Chatman's proposed terminology of kernel and satellite and Abbott's of constituent and supplementary events. With regards to the term satellite, Chatman writes "This term translates the French structuralist *catalyse*. The English equivalent "catalyst" would suggest that the cause-and-effect enchainment could not occur *without* its supervention, but the satellite is always logically expendable" (54). I suggest in the third chapter that it is precisely the properties of catalysers, described by Barthes "still functional, insofar as they enter into correlation with a nucleus, but their functionality is attenuated," (94) that make them particularly useful in discussing player input in game fictions.

a scene may serve the predominant narrative, as with the descriptions of the ocean in *Moby Dick*. The key distinction between these two game types, then, is that while emergent games provide the framework for progression, progressive games include the path (or paths) of discovery within the design itself. Game fiction, then, includes not only the *logic* of game play, but also includes a presupposed end-game (or end-games), engendering a process by which the player interacts with the ludic design in order to actualize an ideal completion of the game's narrative sequence.

Play again? Y / N — Narratology and Ludology

As computer games slowly made their way from the mainframe to the cabinet sitting in a bar,[20] from the arcade into the living room, and from the living room to the network, critical focus on writing and technology—of interest to rhetoricians, theorists, and archivists alike—centered, unsurprisingly perhaps, not on *Space Invaders* or *Mario Brothers*, but on the Internet and, later, the World Wide Web's strands of hypertext. Through much of the 1980s and early 1990s, studies of "computer writing" remained focused predominantly on hypertext fiction and non-fiction alike.[21] Only within the past ten years since the publication of two foundational computer game studies monographs—Espen Aarseth's *Cybertext* and Janet Murray's *Hamlet on the Holodeck*, both in 1997—a brisk conversation on computer game studies evolved into a growing field of interdisciplinary, and international, study. And just as with the study of hypertext that preceded it, the relationship of author to reader, and designer to player, remains a

[20] *Computer Space* (1971) was the first arcade game cabinet, although pinball machines and the like had been popular for years prior (Kent 31-34).

[21] When the virtual landscapes and texts of computer games were engaged by this scholarly discussion, usually in reference to MUDs and MOOs, their kinship to the games that made them possible were all but eclipsed. MUDs were described as "Multi-User Domains," as though the original "Dungeon" would remind those interested in this technology's use in pedagogy of its slightly embarrassing, and presumably frivolous, heritage.

cornerstone of controversy and debate and a key element for games studies of the narratology-ludology debate.

The inviting cursor blinking in anticipation of a response in a game like *Adventure* symbolizes the gateway to an exchange—a process—in which the user enters a text-based command, leading to a check against a series of rules and a collection of data, which then, in turn, produces a reply. Input/output serves as a foundational quality in computation, and, perhaps unsurprisingly, also in games, and it is also one of the core causes of consternation when discussing computer games within the context of narrative. Clearly many games, such as traditional boardgames, card games, games of (or simulating) sport, can provide source material for great narratives, but are not, in and of themselves, narratives. *Tetris*, created by Russian Alexey Pajitnov in 1985, remains the ur-text of strict ludological non-narrative assertions, and such assertions are quite correct. *Tetris*' game space consists of a ten blocks horizontal and twenty blocks vertical, with five differently shaped blocks "falling" from the top section of the screen to the bottom at an increasing speed. The goal of the game is to align blocks to create a complete horizontal line, at which point that line disappears. While we can talk about this goal metaphorically as a quest—the quest of the erased line—or as a metaphor of modern multitasking, as Janet Murray suggests (*Hamlet* 144), they remain, quite simply, a metaphor. The logic of the game is mathematical, not fictional. While genres of games are frequently categorized by perspective (e.g., first person shooter or God game) or style (e.g., strategy or role-playing), we might also consider organizing games according to the primary logic required for their solution or performance (since some games cannot be solved). Some examples might include mathematical (*Tetris*), sport (NBA basketball or

Double Dribble), chance (gambling), chase and/or race (*Parcheesi* or *Gran Turismo*), resource management (*Risk* or *StarCraft*), and exploration and deduction (*Clue* or *Neverwinter Nights*)[22].

Several scholars articulate a distinct and even antagonistic relationship between narrative and new media cultural forms, in response to narrative and dramatic interpretations of games and other new media from scholars such as Janet Murray, Brenda Laurel, Henry Jenkins and others. Aarseth disclaims "the notion that everything is a story" as "a certain ideology, much practiced by humanists... that we might call 'narrativism' ... or what Alan Rauch once fittingly called -story fetishism-" ("Genre Trouble" 49). Manovich declares "database and narrative ... natural enemies" (225) and Jesper Juul questions the relationship in a skeptically-entitled essay, "Games Telling Stories?", for the inaugural issue of *Game Studies*. Gonzalo Frasca correctly emphasizes that many scholars typically associated with the "narrativist" camp prefer to "situate themselves in 'a middle ground position' (Jenkins, [11]), 'a fruitful theoretical compromise between [narrativism and ludology]' (Ryan, [19]) or a 'hybrid space' (Mateas, [14])" (3).

While what has come to be known as the "ludology-narratology debate"—that is, a debate over the value of viewing computer games as stories within the framework of traditional narratology or to create a "new" methodology termed ludology—has been

[22] This list is meant coincide with, rather than replace, other genre delineations. As with all genres, the case of a "pure" subject that belongs to only one genre might be the exception, rather than the rule. Many primarily fictive games require resource management, chance, and so on. Categories such as these are useful in as much as they generate discussion, rather than limit it according to arbitrary rules. For an early example of game categorization, see Roger Caillois'. *Man, Play, and Games*, 1961. For later work reference Mark Wolf, *The Medium of the Video Game*, 2001, and Jose Zagal's *Game Ontology Project*, available online at http://www.gameontology.org.

reviewed in great detail,[23] many scholars have come to understand that the discussion might be understood in practical terms, in that an interdisciplinary approach can confound institutional disciplinary lines, both theoretical and practical.[24] The question is also historical, however, drawing on a long precedent of inter-arts competition, as found in Da Vinci's conception of paragone competition, Gotthold's Lessing's musings on *Laocoon* (1772), John Keats' "foster-child of Silence and slow Time," and explored in depth by W.J.T. Mitchell's *Picture Theory*. This competition of the arts is no less complicated by the fact that computer games, in Bolter and Grusin's terms, remediate previous media forms, drawing extensively on the structure and content of expressive media that preceded them.[25] The question is not if computer games can tell stories, since there are several examples of games with clearly defined stories told over time, just as there are those games with no story at all. Juul, who for quite some time was a firm advocate that the relationship between story and game was "arbitrary," has in his more recent work reconsidered the relationship with considerably less skepticism (*Half-Real* 14). So if the question is not if games can tell stories, then perhaps the proper question is: which games do so, and how? And, subsequently, in what way are they different from the games that do *not* tell stories as part of their play (even though often stories could be related about them after the outcome)?

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[23] For a discussion of the narratology-ludology debate, see Ryan's useful summary in Chapter 8 (181-203) of *Avatars of Story*. See also Juul, *Half-Real* (15-17); Markku Eskelinen's "Towards Computer Game Studies" and Espen Aarseth's "Genre Trouble: Narrativism and the Art of Simulation," both available in *First Person: New Media as Story, Performance, and Game*, adopt an anti-narrativist stance. Ian Bogost offers a more useful question to ponder: "[whether] games *need* to produce stories, while acknowledging that they might be able to do so" (*Unit Operations* 70), and Gonzalo Frasca positions "Simulation versus Narrative: Introduction to Ludology" in *The Video Game Theory Reader*.

[24] The quest to found the discipline of "game studies" as its own distinct academic project is a clear impetus behind the debate.

[25] For Bolter and Grusin's coverage of video games' remediated state, see *Remediation* (90-103).

The complexity in the relationship of narrative to game stems from three core issues that are foundational to Murray's essential properties of digital environments, which she describes as procedural ("ability to execute a series of rules"), participatory ("responsive to our input"), spatial (have a "power to represent navigable space"), and encyclopedic (can recall vast quantities of data) (*Hamlet* 71-90). First, the procedural nature of computer games is a different mode of reception than those that have traditionally characterized our understanding of narrative, particularly in the past century: that of the novel and, as Manovich asserts, cinema. Second, digital environments are broadly capable of presenting and organizing information in more complex fashions—in Murray's terms, spatial and encyclopedic properties. Finally, the combination of these circumstances enable a participatory—often called interactive—experience that disrupts traditional models of narrative communication. Interfaces allow for complex, negotiable visualization of space and data. The use of databases encourages the breaking up of data into discrete entities (e.g., textual lexia, images, and records) that can be queried in various ways. These material characteristics of digital media transform both the production and consumption of data, from spreadsheets to computer games, and thus transform the relationship of user/reader/player to the produced narrative beyond what we might consider normative in traditional modes covered by Seymour Chatman's model of the narrative communication situation.[26]

[26]For an overview of the origins and development of the narrative communication model, including Wayne Booth's early contribution, see David Herman's *Basic Elements of Narrative* (63-74). Brian Richardson suggests revisions to this model in "Toward a New Model of the Narrative Transaction," in *Unnatural Voices* (114-133).

Feedback in Narrative Communication

Speculating on a changed state between reader and author in new media works is not new. Early proponents of hypertext and its theory heralded the form as the embodiment of reader's freedom to engage in collaborative authorship, a true Barthesian readerly text. Theorists and practitioners such as George Landow, Jay David Bolter, Stuart Moulthrop, and others debated the implications of threaded lexias of textual data bound together via hypertextual links in software programs such as Eastgate's *Storyspace* or later with HTML pages on the World Wide Web, often seeing the form as the realization of postmodern theory. In *Narrative as Virtual Reality*, Marie-Laure Ryan samples the arguments:

> The purpose of the new forms of writing - such as what Barthes called "the scriptable" - is "to make the reader no longer a consumer but a producer of text" (S/Z, 4) ... "There is no longer one author but two, as reader joins author in the making of the text," writes [Jay David] Bolter ("Literature in the Electronic Space," 37). For Michael Joyce, hypertexts are "read when they are written and written when they are read" (*Of Two Minds*, 192). Or to quote again Landow: "Electronic linking reconfigures our experience of both author and authorial property, and this reconception of these ideas promises to affect our conceptions of both authors (and authority) of texts we study and of ourselves as authors." (8-9)

Ryan wonders what the above authors would have written had they instead "focused on the idea of following links," rather than the freedoms of textual pleasure. She concludes, "perhaps they would have been more inclined to admit that aesthetic pleasure, like political harmony, is a matter not of unbridled license but of controlled freedom" (8-9).

Building on this important—though enthusiastic—early work, Aarseth sought to distinguish between types of hypertext based not on their material construction (paper or electronic), but based on their configurative nature. He documents several configurable

texts, coining the term "cybertext" to describe an “ergodic” work, which requires "nontrivial effort ... to traverse the text" (*Cybertext* 1). In order to distinguish between the potential text (which we might describe as the database of lexia) and the ideal text a reader might encounter (the output string of that database), Aarseth suggests the following:

> It is useful to distinguish between strings as they appear to readers and strings as they exist in the text, since these may not always be the same. For want of better terms, I call the former scriptons and the latter textons... In a book such as Raymond Queneau’s sonnet machine *Cent mille milliards de poèmes* (Queneau 1961), where the user folds lines in the book to "compose" sonnets, there are only 140 textons, but these combine into 100,000,000,000,000 possible scriptons. In addition to textons and scriptons, a text consists of what I call a traversal function - the mechanism by which scriptons are revealed or generated from textons and presented to the user of the text. (*Cybertext* 62)

Here, Aarseth provides us with a “mechanism”—the traversal function—to account for the methods by which a user generates a scripton (in simple terms, a final product). Aarseth does not elaborate further on textons and scriptons beyond glossing seven variables of traversal by which the *a priori* nature of the former become the idealized text of the latter. As Matt Kirschenbaum asserts, “labeling one a texton and the other a scripton seems to unnaturally stabilize what is in fact an ongoing symbolic cascade—the same level ... of textuality can (and is) simultaneously *both* scripton and texton throughout the most mundane operations of the computer.”[27] Aarseth’s ambitious model also emphasizes textual output as opposed to other possible data types (image, sound, etc.), further complicating our adoption of these terms for hypermedia works such as video games (outside of text adventure games).

[27] I am grateful to Matthew Kirschenbaum for generating a dynamic online discussion of Aarseth's terms. See http://www.otal.umd.edu/~mgk/blog/archives/000758.html and http://misc.wordherders.net/archives/003755.html.

Reviewing the traversal function, however, underscores our need for means to articulate the methods by which the narrative discourse (in Chatman's terms) structures story, according to stylistic conventions of specific genres (e.g., novels, cinema) and their attending materiality. Furthermore, two of Aarseth's seven traversal variables—"perspective" (whether or not the user has a "strategic role") and "user functions" (degrees of agency the user has when engaging with the text)—bolsters the need to reconsider the narrative communication model as well as attending issues of point of view in light of the configurative, procedural nature of computing.

Configurable media, when approached in the context of the traditional model of the narrative-communication situation as elaborated by Chatman, quickly complicates the progression from author and reader (or from designer to player). The author, in these computational examples, does not fully predetermine the discourse of the story, but rather establishes mechanisms through which the story unfolds via user interaction. That is to say, though the story (the plot over time) may be fully pre-established in a hypertext or computer game, and though the author—by providing the linking and configuration mechanisms (the game engine, as it were)—enforces a certain level of discourse (how the story is told), there remains the difficult middle-ground of choice and configuration in the eventual reception of the overall narrative (Aarseth's scripton). The question becomes, then, how does one account for the fact that a functional output can vary reading to reading, beyond the normal expectations of reader response and interpretation? Aarseth's "traversal function" attempts to describe this interaction between the reader and the discourse-engine that eventually leads to the final output text—the scripton. The traversal function is not just a material consideration to describe a "before" and "after" state of a

cybertext, but also a relationship consideration: the engine of possible configurations that aid the reader in the creation of a scripton. In many ways, the traversal function serves as the narrative expression.

While accounting for the multiple layers of textual construction process, Aarseth's model also recalls the rather thorny issue from earlier hypertext theories: the question of who has more control, author or reader. Hypertexts, as systems of "controlled freedom" (Ryan 9), and computer games, as systems of "voluntary control systems" (Sutton-Smith 7) find themselves as perhaps distant cousins. How, then, do they relate to more traditional models of narrative?

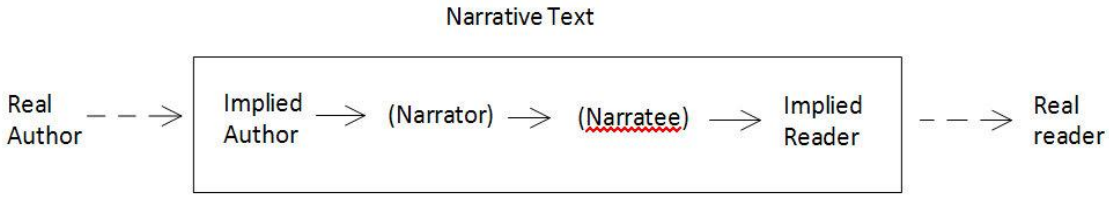

Figure 1: Chatman's model of the narrative-communication situation.

Applying Chatman's model of the narrative-communication situation (Figure 1), displayed in the image above, to the novel *The Great Gatsby*, a singular communication flow exists: F. Scott Fitzgerald -> Fitzgerald "the author" -> Nick (who tells the story of Jay Gatsby) -> Implied Reader (the idealized reader) -> Real Reader. The "story" begins with Jay Gatsby's early life, continues through this rise to success, his quest for Daisy, his death, and finishes with Nick's observations. The discourse of the narrative is arranged so that Nick frames the tale as narrator; Gatsby's "secret" and Daisy's selfishness are not revealed to the reader until the end. This order (the novel's discourse) shapes our sympathy for the characters and our understanding of character motives. By providing a

complete narrative text, with no room for configuration (as we would understand it in a computation sense), the flow of narrative follows Chatman's model, from Author to Reader.

By virtue of the algorithmic and configurable nature of computer games, the reader/player has some limited flexibility in choosing how the discourse unfolds depending on the medium.[28] Games, just as with other media forms from novels to cinema to hypertext, are systems of control. As Jill Walker reminds us, "In the last years the thematics of control has cropped up again and again in digital works that tread the borderline between art and game. The reader or user is set in a situation of seeming control and is then shown that this control is illusory, and in fact, the reader is *being controlled* rather than controlling" (*Fiction* 9). By analyzing these mechanisms of computer games—the screens, interfaces, databases, and engines—we can begin to uncover the shifting terrain of the communicative model and detail the ways different games tell stories and, specifically, how game fictions articulate their narrative expression, guiding the player towards appropriate inputs to further a narrative goal.

The Rise of Game Fiction

> Across the wires, his remote, ghostly fellowship continued to recite its litany of lost landmarks:
> **You are in the Hall of Mists. . .**
> **You are in a complex junction . . .**
> **You are on the edge of a breath-taking view. . .**
> (Powers 114)

The above are descriptions of rooms in *Adventure*, familiar locations Jackdaw and his late-night collaborators revisit in their networked recreation of the virtual and textual caverns based on the real Mammoth Cave system in Kentucky. Originally programmed

[28] Noting that some hypertext is mostly exploratory, and not configurable per se.

by William Crowther, a hobbyist caver, in 1976[29] and further refined by Don Woods in 1977, *Adventure* stands as one of the earliest computer games, the first text-based adventure game,[30] and the primary model for years of what later comes to be known as "interactive fiction." *Adventure*'s development history marks not only a significant step in the rise of digital computer games but also heralded many other features now taken for granted in a computerized, networked society: collaborative authorship, new modes of networked distribution, and even tracking the shift from page to screen.[31] Interactive fiction, as a genre, serves both as an ancestor and a sibling to game fiction—an ancestor as many early game fictions easily fall under the classification of interactive fiction, but also a sibling because not all interactive fictions can (or should) be considered games, particularly as the form has been developed by practitioners in recent years.

In the more than forty years since the first digital computer game was developed, games have become one of the dominant media forms of the late 20th and early 21st centuries. Generating revenue that rivals the Hollywood box office,[32] an audience expanding beyond the stereotypical carbuncular, male teenager, and garnering increased scrutiny as a critical field of study, the computer game itself is growing out of adolescence. According to the Entertainment Software Association (http://www.theesa.com/), in 2009 68% percent of American households play video

[29] Dennis Jerz notes that sources have dated the development of Adventure anywhere from 1968 to 1977. Jerz's correspondence with Crowther leads the game developer to date his code in 1975, "give or take a year" (http://jerz.setonhill.edu/if/canon/Adventure.htm), and Jerz postulates that Crowther likely wrote it during the 1975-76 academic year, abandoning it in 1976 (Jerz "Somewhere Nearby is Colossal Cave").
[30] Several computer games preceded *Adventure*. The earliest computer game is likely *OXO* (or *Noughts and Crosses*), programmed by A.S. Douglas in 1952 for the EDSAC computer at the University of Cambridge. In 1968, Willie Higenbotham programmed *Tennis for Two* to operate on an oscilloscope at the Brookhaven National Laboratory in New York. The earliest digital computer game is *Space War*, by Steve Russell, produced in 1962 for the DEC PDP-1.
[31] Montfort suggests in *Twisty Little Passages* and "Continuous Paper" that Crowther likely programmed Adventure from home using a an ASR-33 Teletype.
[32] Though not the entire Hollywood industry, which sees additional revenue through DVD sales and franchising (including computer games).

games, with 49% of game players between 18 and 49 years of age, and with an average age of 35. The average gamer has been playing computer games for 12 years. The ESA report further claims that 40% of gamers are women, and "women age 18 or older represent a significantly greater portion of the game-playing population (34%) than boys 17 or younger (18%)" (2).[33]

Computer games did not arise in isolation, and the qualities we find in game fictions are not limited solely to computerized forms; we can see early germinations in a variety of game and even prose forms. Furthermore, certain thematic sub-genres lend themselves particularly well to the game fiction, and future chapters will discuss three of these in turn—adventure and exploration, the quest narrative, and narratives of redemption. Each of these three themes is matched to a kind formal materiality (discussed further below), on the one hand, and narrative concepts, on the other, as shown in Table 1.

Title	**Type**	**Formal Materiality**	**Narrative concept**	**Further discussed in...**
Who Killed Harlowe Thrombey?	Choose Your Own Adventure game book	Interface	Narrative Communication	Chapter 3
Cluedo / *Clue*	Board game	Database and Query	Setting and Quest	Chapter 4
Dungeon Module L2: The Assassin's Knot	Dungeons and Dragons role-playing game	The game loop	Character and action	Chapter 5

Table 1: Formal Materiality and Narrative Concept

[33] Further, the number of game players over fifty years of age is approximately the same as those under eighteen years of age.

To introduce the concepts that will be explored more fully in the last three chapters, in the second chapter I will focus on three mysteries in three different media: the choice-book, as with *Choose Your Own Adventure* series; the board (and card) game, as with *Cluedo* (or, to American audiences, *Clue*); and the "pen-and-paper" role-playing game, as with *Dungeons and Dragons*. Each type employs to one degree or another the four characteristics of game fiction, and all serve as useful examples of non-computerized participatory, competitive fictional spaces. The examples from the second chapter will function as an introduction to some of the complexities of game fiction as a demarcation of genre—the mystery of game fiction—and will aid by introducing ideas that will be explored in full in subsequent chapters.

Each of the last three chapters is also a kind of burrowing down into levels of software as an investigation into the formal materiality of game fiction. Formal materiality is a concept suggested by Matthew Kirschenbaum as a way to think about "the imposition of multiple relational computational states on a data set or digital object," a term "that tries to capture something of the procedural friction or perceived difference—the torque—as a user shifts from one set of software logics to another" (12-13). The third chapter explores this principle in greater detail, but its nuances are felt throughout the project, in the kinds of negotiations that inform and constrain any user's movement through the software environments—in point of fact, a cascade of software environments—that provision game fictions. Starting at the surface level of the interface in the third chapter, I turn to databases, queries, and scripts in the fourth chapter, and conclude at the basic level of the game loop in the fifth chapter. The game loop is discussed in detail later, but it serves as the basis of computational ludic operation, and

enables three core operations: gathering input, simulating the state of the world, and rendering output. As will be shown, these core operations inform all levels of my discussion.

With each mode of software analysis, I pair a narratological concept. Thus, alongside interface in the third chapter, I discuss the changing shape of narrative communication with the introduction of a feedback look, and a formal mechanism in the game loop for receiving and processing user input, using the platform-adventure game *Prince of Persia: The Sands of Time* as my primary example. In the fourth chapter, I pair database with setting, and the query with the quest, locating the relationships within the progressive and actualizable qualities of game fictions, and specifically *Adventure*, the early text adventure, and *StarCraft*, a real-time strategy (RTS) game. I conclude in the fifth chapter with an exploration of character, action, and event within the context of the satirical non-game *Progress Quest* and the humorous PlayStation game *MediEvil*.

Chapter 2: Paper Prototypes: The Mystery of Game Fiction

The mystery, as a literary genre, is highly proscribed in its requirements and can be quite participatory for its readers (though not ergodic in Aarseth's sense). A good mystery needs suspense, ample foreshadowing, and careful arrangement of details, all of which must be done without easily disclosing what readers only should discover in the final pages of the book or in the last frames of the film. The pleasure of the mystery comes from the very suspense of this arrangement, and the hope that one might uncover the clues in order to find the solution. Quite simply, the traditional mystery is close reading at its finest, and it is unsurprising that computer games make use of the mystery genre, from *Deadline*, to *Mystery House*, to *Max Payne*. A localized series of events that require little prior knowledge outside of the clues available, the implicit narrative drive of discovering the truth, and the sense of competition between the interrogator and the unknown situation (and implicit culprit) all make useful scenarios for players to identify with. It is notable, however, that while the mystery genre encourages almost implicitly for us to play along by looking for textual clues, it ranks as a carefully controlled narrative. A mislaid clue, an obvious solution, or too many miscues simply for the purpose of misdirection all would provide a less satisfactory experience. The balance between revelation, on the one hand, and suspense, on the other, is crucial in such a genre. Mysteries are, in short, competitive, progressive, carefully framed, but in text and film they are not ergodic, as the end is revealed rather than actualized by the reader (even if the reader happens to guess the conclusion).

Just as a good mystery—and a good murder—must be carefully planned and expertly executed, so too is a game fiction planned prior to player execution. For a game fiction to be actualized by a player, the key elements of the story are presupposed by the designer. Though certainly the outcomes may vary, the potential for fully completing the game fiction is possible and programmed, representing the idealized version or versions of an entire play session. Players may fail to fully actualize the story by falling short of all goals, as with the failure of some of Jackdaw's online companions to complete *Adventure* in *Plowing the Dark*. Branching paths or multiple outcomes may require multiple play-throughs before an individual player might explore all potential outcomes.[34]

Who Killed Harlowe Thrombey?: Paperback as Game Fiction

A simple hypertext or branching path story is one of the most basic examples of this structure. Take, for example, the mystery *Who Killed Harlowe Thrombey?*, written by Edward Packer and published as the ninth installment of the well-known *Choose Your Own Adventure* series popular in the early 1980s. Following the traditions of the series, the story is told via second-person narration and offers the reader a series of choices that lead to various paths and, eventually, multiple outcomes.

Ryan suggests that the *Choose Your Own Adventure* books commonly follow the "tree" pattern [Figure 2]: "By keeping each of its branches strictly isolated from the others, tree-shaped diagrams… control the reader's itinerary from root node to leaf nodes and make it easy to guarantee that choices will always result in a well-formed story" (248).

[34] For a detailed exploration of structures of interactive narrativity, see Marie-Laure Ryan's "The Poetics of Interactivity," *Narrative as Virtual Reality*. Baltimore: The Johns Hopkins University Press, 2001.

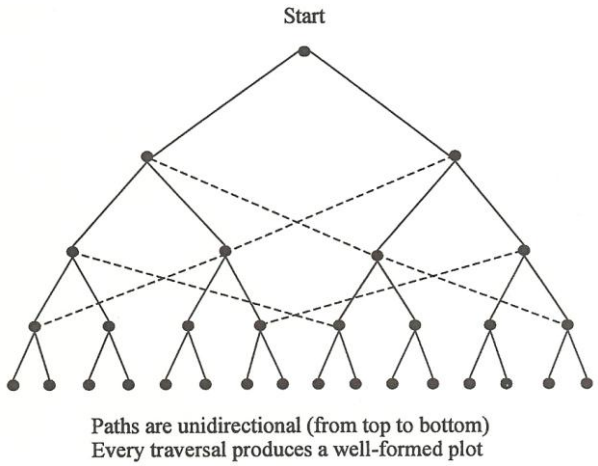

Figure 2: Ryan's tree diagram (249).

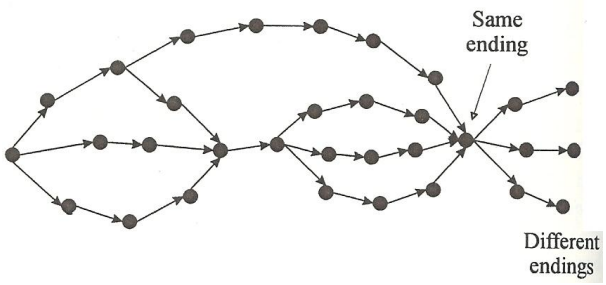

Figure 3: Ryan's directed network, or flow chart (252).

Mapping the structure of *Who Killed Harlowe Thrombey?*, however, reveals that this game book offers a more complex system, as seen in Figure 4, below.[35] Here, we note that rather than the tree structure, *Thrombey* shares many elements Ryan finds in the directed network, or flow chart (Figure 3, above), a kind of narrative structure that she suggests offers "the best way to reconcile a reasonably dramatic narrative with some degree of interactivity" (252). Ryan further explains that such a "system prescribes an

[35] This figure was created by noting each connective node throughout *Thrombey,* and then plotting the relationships using the open-source graph visualization software program Graphviz (http://www.graphviz.org). The data file I created is included in the appendix. For a history of Choose Your Own Adventure maps, see Mark Sample's blog post on the subject: http://www.samplereality.com/2009/11/11/a-history-of-choose-your-own-adventure-visualizations/ and Christian Swinehart's "One Book, Many Readings" project offers beautiful visualizations of other CYOA books: http://samizdat.cc/cyoa/.

itinerary through the textual world, but the user is granted some freedom in connecting the various stages of the journey" (252). Clearly, this sense of freedom is intimated by the author of *Harlowe Thrombey*, who prefaces the book with this "Warning!!!!":

> Do not read this book straight through from beginning to end! These pages contain many different experiences you can have while working as a detective. From time to time as you read along, you will be asked to make a choice. After you make your choice, follow the instructions to see what happens to you next.
>
> Your success in solving the Harlowe Thrombey murder mystery will depend a lot on *your* decisions. Some leads will bring you closer to the answer; others will throw you off the track.
>
> Think carefully before you make each move! There could be danger waiting for you at every turn. Try to catch the murderer before the murderer catches you. (1)

These read as instructions as much as a warning, and serve to introduce the uninitiated to the goals of the reading experience. But is this book a game fiction, meeting the required elements of ergodic, competitive, progressive, and with a goal of actualization?

In *Harlowe Thrombey*, there are at least two roles required of the reader involvement. The first follows the more traditional trajectory one might assume a reader to take within a mystery structure—trying to solve the mystery by piecing together the clues presented throughout the progression of the text. This is clearly the objective, as suggested by the interrogative title, and is itself a kind of game in a metaphorical sense. The second role involves finding the ideal path to the murderer from among the various possibly narrative tracks, so not only is there the drive to actualize a narrative, but also to find the best path. As the "Warning" suggests, "some leads will bring you closer to the answer; others will throw you off track."

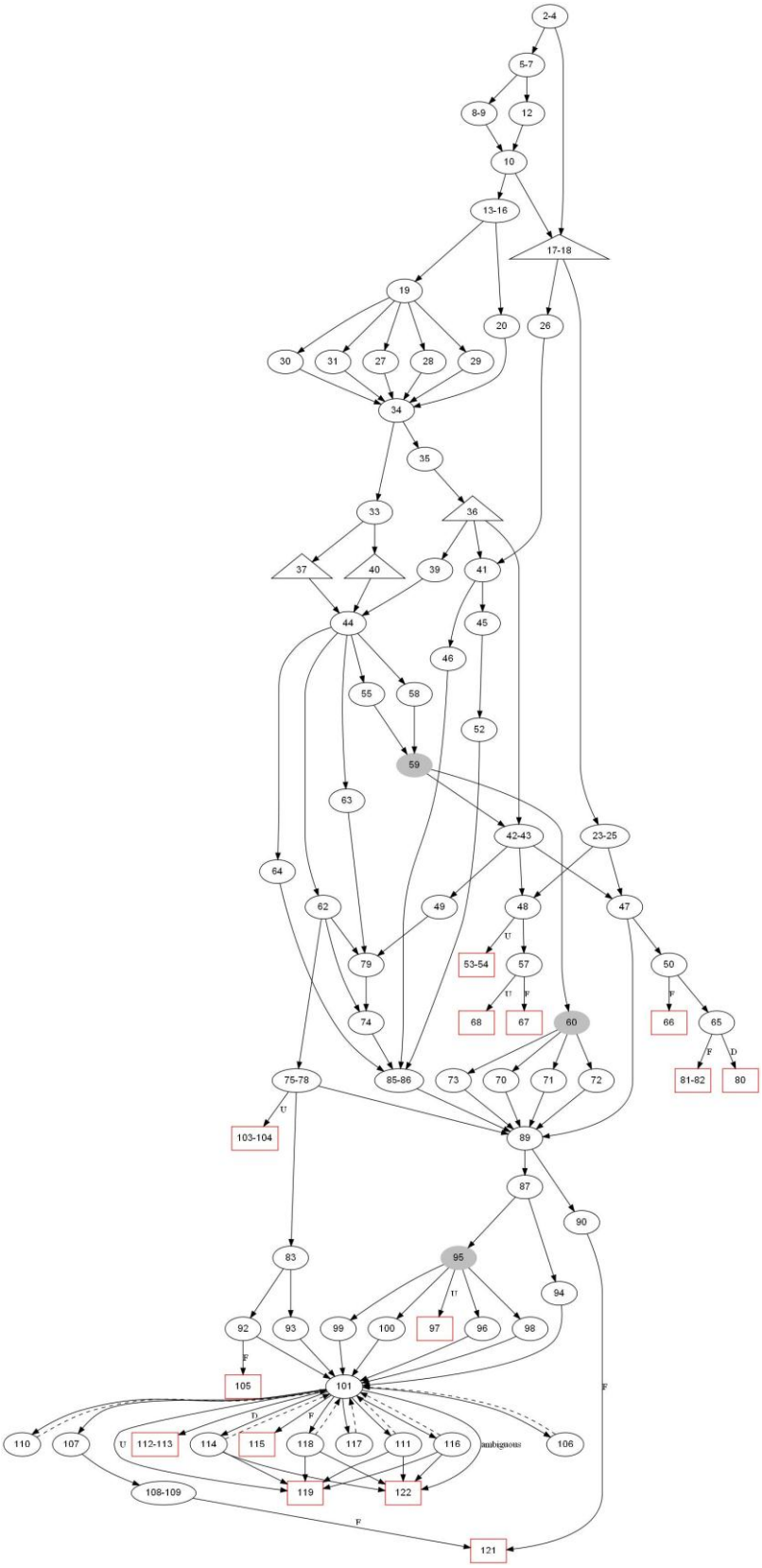

Figure 4: Visualization of *Who Killed Harlowe Thrombey?*

Furthermore, the warning is not simply a call to pay attention to the instructions, but that "there could be danger waiting for you at every turn." Upsetting the expected outcome of any good mystery—in which aporia would turn to epiphany, with a dose of justice soon to follow—the murderer here may not only go free, but the potential remains for the murder to "catch you." In addition to the competition between detective and murderer, there are two other characters that, depending on your choices, have the potential to solve the murder first: Jenny Mudge, who is "definitely smart… sometimes you think she might be smarter than you are" (2); and Prufrock, cast as the somewhat blustery, incompetent Police Inspector who nonetheless has access to resources and authority beyond your own.

Just as the "Warning" challenges the reader to find the best possible solution, so to does it admonish the reader to "Think carefully before you make each move," as each has a consequence. In theory, a game book would be unidirectional, as indicated by the single arrows in the above figures; a reader would follow their choices through the various nodes until reaching one of the 14 possible conclusions, and then return to the beginning to start again. In practice, game book readers certainly may read through one section and return to the previous node, though such behavior would easily be considered "cheating," as the instructions clearly state "After you make your choice, follow the instructions to see what happens to you next." A unidirectional model would be expected, especially if game books were expected to follow simple tree structures. However, *Harlowe Thrombey* encourages such exploration in specific nodes so that more clues for the mystery can be gathered; a series of looped nodes (106, 107, 110, 111, 114,

116, 117, and 118) all return back to node 101 (as signified by the dotted return line in Figure 4, above) so that the player can gather more information about the case.

The sense of progression within *Harlowe Thrombey* is further reinforced by its surprisingly rigorous timeline and its episodic structure, which allows only a certain number of choices—mostly in terms of which leads to follow and who to interview—before the timeline is forced forward or a solution is rendered. After the murder, for example, you can try to interview one of the suspects at a time, or all at once, but after this one opportunity the police arrive and further opportunities are lost until a later "move" is allowed in the book (unless, of course, one "cheats" by the method described above). A sense of pacing is further established in *Thrombey* in the clear transition from the action in day one to the action in day two (the triangle nodes in Figure 4 signify the day transition nodes). Since the book requires jumping across pages, the sense of heightened anticipation that comes with timing in a mystery is necessarily signified in very clear ways in the text.

While many of the paths eventually lead to shared scenarios—such as the arrival of Prufrock at the crime scene (34), or an encounter with a murderer in the library where you are surprised from behind and blindfolded while a gun is held to your back (89)—at least one occasion exists in which a decision made earlier in the text may influence a decision made later in the text, adding an if/then causation to our structure (which increasingly suggests a kind of paper computation). Should you choose to collaborate with Jenny Mudge (a path in Figure 4 marked by gray ovals, from 59 -> 60 -> 95), you can direct her to follow one of four suspects (Chartwell, Robert, Jane, or Angela). After

being surprised in the library and escaping (89), you can choose to contact Jenny once again (95). The instructive text reads:

> If you asked Jenny to watch:
> Robert, turn to page 97.
> Chartwell, turn to page 98.
> Jane, turn to page 99.
> Angela, turn to page 100.
> If you didn't ask her to watch anyone, turn to page 96.

This if/then statement further leads towards the conclusion that, rather than a tree structure, *Thrombey* is more akin to the directed network, with the player's memory (and honesty) serving both as temporary storage and rule broker. Under Ryan's model of the "directed network, or flow chart" qualifies as a "context-sensitive system capable of narrative memory," in which "the decisions made by the user in the past affect his choices in the future" (253). Ryan further suggest that:

> computer games implement this idea by having players pick up and carry objects that will enable them to solve later problems. This use of memory makes it possible to include nontrivial choices at every stage of the story and to make the end dependent on the middle. (253)

In this case, the reader's choice to have Jenny follow one of the four suspects earlier in the book results in one of the following later events:

- If Jenny follows Robert, she overhears Robert and Angela discussing the murder. Jenny solves the case, with your help.
- If Jenny follows Chartwell, she discovers that he is searching for clues as well, suggesting to the reader that he is likely innocent.
- If Jenny follows Jane, she reports that Jane's lawyer has visited on several occasions, an ambiguous result overall.

- If Jenny follows Angela, she reports that Angela is trying to learn Beethoven's *Moonlight Sonata* but is just a beginner. This undermines Angela's alibi and suggests (accurately) that she should be a prime suspect. Should one rely on Jenny's information, but accuse Angela alone without sharing credit with Jenny, the player concludes with one of the least satisfying endings: death by Angela's hand.

An earlier action affecting later actions certainly enhances this particular game book's promise of ergodicism, where one's "work" (here, choices as to how best to solve the mystery) may influence choices available later in the book.

Overall, the scenario highlights the particulars of a game book's mechanics and ergodic potential; the memory is external (the reader's); here the actions are limited to choices, although other types of game books include measurable character traits and dice rolls; and strategies can be limited (one cannot, for example, decide to pursue a line of inquiry outside of those allowed by the page you are on). There is no clear strategy to uncover the best solutions. Aligning with Jenny rather than competing with her has an equal number of positive and negative (or neutral) outcomes. In fact, by declining Thrombey's invitation to dinner—where you would meet all suspects, be present for the murder, and have first crack at clues—the player gains the chance at one of fastest and more satisfying conclusions to the book.[36] While a sense of progression and actualization are strongest in a game book like *Who Killed Harlowe Thrombey?*, the staging of competition and inclusion of ergodic behavior is weakest.

Ergodicism—the non-trivial effort put forward by the reader or player—is seemingly most at odds with at least two other aspects of game fiction: progression and

[36] The path, in page numbers from the dinner invitation on page 10: 17,18 -> 23,24,25 -> 47 -> 50 -> 66.

actualization. The simple illusion of previous actions influencing later opportunities, however primitive or sophisticated the illusion (from the above example in *Thrombey* to complex computer games), is a common design strategy to provide a sense of agency to a player while maintaining strict control of the various potential outcomes. It is exactly in the combination of the progressive nature of game fictions and the ergodic behavior of the player that enables narrative to operate. When the attribute of progression is weak, even when actualization is strong, the overall narrative structure and outcome is also, in turn, quite weak, as is also the case with the board game *Cluedo*, known to North American audiences as the who-done-it *Clue*.

Clue: A Close Playing

Where the *Choose Your Own Adventure* books lack sophisticated ergodic behaviors such as calculation,[37] investigation, and choice in movement, the detective board game *Clue* has them in spades. The pun is not accidental; David Parlett asserts that *Clue* is "more a card game than a board game," and the "only real function [of the board] is to slow the game up by insisting that you must be in the room in which you assert the crime to have been committed" (262). Clue would seemingly be a ripe candidate to use in a discussion of story in board games,[38] with its easy compilation of characters, setting, and a significant event—the murder of John Boddy.[39] *Clue* is also interesting because it has been remediated into more than a dozen computer games (as well as VCR games, books, and other media) since at least the mid-1980s.

[37] Which Aarseth sees as a requirement to be considered a cybertext (pg. 75).
[38] Other deduction games of note include Alfred Hitchcock's "Why" (http://www.boardgamegeek.com/game/2487); Murder at the Abbey (http://www.boardgamegeek.com/game/915)
[39] Or Dr. Black in the British edition.

In December 1944,[40] Anthony E. Pratt presented a patent application for a "novel or improved apparatus for playing an indoor or table game" which was accepted in full on April 1, 1947.[41] Parlett dates the invention of *Cluedo* "in 1944," which was subsequently "demonstrated to Norman Watson, Waddington's Chief Executive Officer, in 1946, and sold outright, though post-war shortage of materials delayed its publication until about 1950" (262).[42] 1949 appears to be the officially recognized publication date for Cluedo, as the 50th anniversary edition was released in 1999 and Hasbro (parent company for Parker Brothers) indicates that Parker Brothers obtained the U.S. rights to *Clue* in 1949.[43]

Clue's rules require an understanding of the various components:

- 6 suspects, each with a representative token and corresponding card.
- 6 weapons, each with a representative token and corresponding card.
- 9 rooms, each represented on the game board and each with a corresponding card.

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[40] Pratt dated his application November 28, 1944. The application date is listed as December 1, 1944, with the "Complete Specification Left: November 23, 1945", and "Complete Specification Accepted: April 1, 1947." Presumably the slight lag time between Pratt's date and the application date involves processing time.

[41] The original patent is available for viewing online at the European Patent Office: http://v3.espacenet.com/textdoc?DB=EPODOC&IDX=GB586817&F=0

[42] Unsurprisingly, *Cluedo* has generated a number of fan websites that seek to track the history and versions of Clue/Cluedo, such theartofmurder.com and cluedofan.com. This second website includes a record of personal correspondence from Mr. J. Kollar, "International Cluedo Champion," who offers this history:

> Cluedo was invented in 1943 by Anthony Pratt then called "Murder". His wife designed the board. Friends played the game before it was shown to Waddingtons and went into commercial production under its new name "Cluedo" in 1949. November, to be more precise. I know for sure because I have met Mr. Pratt's daughter and seen the original patents and contract between Mr. Pratt and Waddingtons and the all important letter from Waddingtons dated November 1949 saying "...we have decided to put your game into production." So Cluedo was "born in 1943 (when it was invented), in 1946 (when it was first played) or 1949 (when it went into commercial production) … (http://www.cluedofan.com/cmerch/collectors.html#50th)

Though the veracity of this correspondence is difficult to prove, the account corresponds fairly well to other existing documentation, and introduces some interesting hints for future research, not least of which would be original correspondence between Waddingtons and the Pratt family.

[43] See http://www.hasbro.com/default.cfm?page=ci_history_clue, which also includes the company's official history.

To play, each respective deck is shuffled and one card is removed from each deck and placed in an envelope, so that one suspect, one weapon, and one room are sealed away. These three cards represent the scenario that the individual players must deduce, thus giving rise to such sayings as “Colonel Mustard, in the Library, with the Candlestick.”

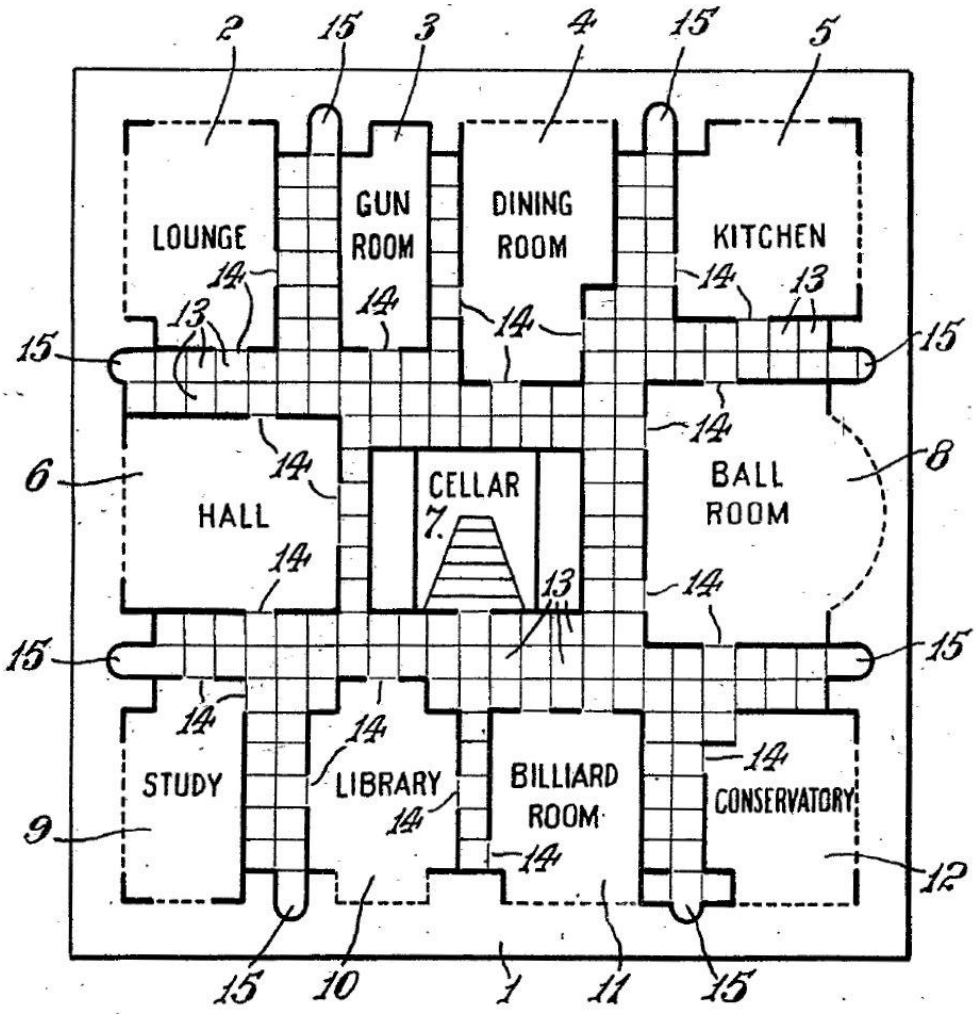


Figure 5: Drawing of the Cluedo game board from the 1944 patent specification.

The remaining cards are subsequently shuffled together into one pile and distributed to the three to six players required for the game. Each player selects one suspect as their own character, with the knowledge that their suspect pawn may also be the murderer (a

convenient amnesia on the player's part). Each suspect has a starting "home" space on the edge of the board, and players roll two six-sided dice (2d6) to move their suspect token through the hallways between rooms, with each number on the dice representing the number of square spaces the player token can travel (never occupying one space more than once in a turn). Players can enter one of the nine rooms and move freely about those rooms (Figure 5).

The goal of the game is to discover which three cards are in the envelope, selecting one out of the 324 possible combinations (6*6*9). Each card held in a player's own hand can immediately be discounted, and through a series of moves players can subsequently make "Suggestions" in order to discern the cards held (or not held) in other players' hands. The current *Clue* rules describe "Making a Suggestion" as follows:

> As soon as you enter a Room, make a Suggestion. By making Suggestions throughout the game, you try to determine—by process of elimination—which three cards are in the Confidential Case File envelope. To make a Suggestion, move a Suspect and a Weapon into the Room that you just entered. Then suggest that the crime was committed in that Room, by that Suspect, with that Weapon. Example: Let's say that you're Miss Scarlet and you enter the Lounge. First move another Suspect—Mr. Green, for instance—into the Lounge. Then move a Weapon—the Wrench, perhaps—into the Lounge. Then say "I suggest the crime was committed in the Lounge by Mr. Green with the Wrench." (5)

Once a Suggestion is made, the other players (starting with the player to your left) check to see if one of their cards in-hand prove your suggestion false. The first player to hold a card proving your claim false shows you the card disproving your Suggestion, allowing you to eliminate one more (at least) possibility from your list and bringing you closer to the solution. If a player makes a Suggestion and feels they have the answer, they may follow up with the formal Accusation, which a player can do only *once* in a game session because checking it requires that the player examine the three cards in the confidential

envelope. Players who make a correct Accusation win; players who make a false accusation cannot make any further Suggestions or Accusations, but must be present to answer to other player's Suggestions.

To paraphrase E.M. Forster, "Mr. Green killed Mr. Boddy in the Lounge with a Lead Pipe" is a story; "Mr. Green killed Mr. Boddy in the Lounge with a Lead Pipe because of a money laundering scheme" is a plot.[44] In most editions until very recently, *Clue* offered no true sense of motivation for the murder, and what little is now offered is paratextual material in internal box materials—brief descriptions of the suspects and John Boddy's relationship to each, and hints as to why each suspect may hold a grudge against the victim. And it is precisely in this notion of being "plotted," which is to say points along a line or lines and a rationale for their connection, that game fiction and its aspect of progression proves useful to our understanding of narrative in games. In Ryan's "Structures of Interactive Narrativity," we see several exemplary figures showing precise use of "plotted points" (247-254). *Clue* is best represented by Ryan's classification of the "hidden story," which:

> consists of two narrative levels: at the bottom, the fixed, unilinear, temporally directed story of the events to be reconstituted; on the top, the temporal network of choices that determines the reader-detective's investigation of the case; between the two, dotted lines that link episodes of discovery in the top story to the discovered facts of the bottom story. (253-54)

A predetermined, fixed story to be reconstituted highlights the "actualization" aspect of game fiction; *Clue* includes in its rules a sort of authoring method—selecting the initial

[44] Forster wrote: "We have defined a story as a narrative of events arranged in their time-sequence. A plot is also a narrative of events, the emphasis falling on causality. 'The king died and then the queen died' is a story. 'The king died and then the queen died of grief' is a plot" (86). Forster highlights this in terms of sophistication, and it is a suitable reminder why many early computer games fail to gain attention for their stories; quite simply they are stories, at best, with little plot in Forster's sense, lacking substantive imagination regarding causality.

three cards and hiding them—that is then actualized by at the conclusion of the game by a successful Accusation. The story, both in Ryan's terms and Forster's, exists.

The complicating factor is whether or not the series of events that actualizes that story (Ryan's "temporal network of choices that determines the reader-detective's investigation of the case") can be considered emergent or progressive (or, at the very least, more one or the other). If the former, then innumerable possibilities exist for the combination of events that leads to the actualization; if the latter, then there is some established design that limits movements, requires set episodic progression, and provides some sense of designed narrative. This complication is perhaps best described by H. Porter Abbott in the *Cambridge Introduction to Narrative*, in which he argues that games like the massively-multiplayer online (MMO) game *Asheron's Call* cannot be narrative because the events occur in real-time, and thus are not told or narrated (31-32). Ryan and Abbott's respective arguments are two sides of the same coin, one from the reader/player and the other from the author/designer. In describing the structure of the "hidden story," Ryan asserts that "a narrative *is written by the actions and movements performed by the player* in the attempt to reconstitute the underlying story" (*Narrative as VR*, 254, emphasis mine). Her view is that the actions of player generate a narrative and therefore should be considered narrative.

Elsewhere, Ryan describes this potential for narrative as "having narrativity" (Narrative Across Media 10), rather than explicitly making its claim as "being a narrative":

> … I propose to make a distinction between 'being a narrative' and 'possessing narrativity.' The property of 'being' a narrative can be predicated on any semiotic object produced with the intent of evoking a narrative script in the mind of the audience. 'Having narrativity,' on the

> other hand, means being able to evoke such a script. In addition to life itself, pictures, music, or dance can have narrativity without being narratives in a literal sense. (*Narrative Across Media* 9)

And in recent work that substantively critiques the many complaints regarding games as narrative (including Abbott's), Ryan dubs this specific counter-argument as "The 'Games and narratives are different things because they have different features' Argument" (185), with Abbott's representing the fourth iteration: "Narrative must represent events as past, but games cannot do so." (186). She writes:

> For Abbott, narrative always concerns events (or imagined events) that are already "in the book" of history; it is this "past-ness" that enables the narrator to select materials from memory and to configure them according to narrative patterns. Yet if the retrospective status is the prototypical narrative situation, there are many types of narrative that do *not* look back at past events: for instance, the counterfactual scenarios of virtual history; the promises of political candidates: "If you elect me, this and that will happen"; the Grand Narratives of religion, whose last events, the Second Coming and Last Judgment, are yet to happen; and in their best moments, when they rise above chronicle and create a sense of plot, the narrative in real time of sports broadcasts. (186)

In each of the above, actions occur prior to the narration (even if those actions are imagined from the future, and then narrated; one cannot narrate events prior to thinking of them), and Ryan's qualms stem from whether or not the events must be historical—"in the book." Yet she surprisingly offers no examples of narrative events that are staged in games that are played through in very specific ways by the player yet still considered a game. Such examples would provide a substantively charged response to Juul's claim that "it is impossible to influence something that has already happened… [thus] *you cannot have interactivity and narration at the same time*" (Juul, quoted in Ryan, 186).

For narrative as a concept to remain useful in any way for game study, we must assume that there is predetermined arrangement that in some way structures the

progression of the narrative and results in one or many predetermined conclusions. In other words, the acting out of a completely improvised, emergent series of events is not sufficient for narrative, but only for "possessing narrativity." Even for Ryan, the football game itself isn't narrative; only the "narrative in real time of sports broadcasts." Instead, the events must in some way be arranged; a discourse must be evident. Even in hypertext, the authorial placement of links among nodes exhibits clear suggestions as to how the story must unfold. In Michael Joyce's *Afternoon: A Story*, for example, only by uncovering certain paths (all pre-determined by the author) can a reader uncover a hidden truth and really begin to piece together the overall narrative. This is not to say that games-as-narratives must rely on the specifics of print narratives to achieve this predetermined arrangement, a point made quite clearly by Ryan when she cites film theorist David Bordwell: "for Bordwell, narration occurs when signs are arranged in such a way as to inspire the mental construction of a story, and it does not necessarily imply a narratorial speech act" (185). Ryan, however, does not suggest how games provide this arrangement of signs, nor does she acknowledge that there are many games that *do not* arrange signs in order to produce narrative; a lack of predetermined arrangement means that while a game may have narrativity, it is not, in fact, a narrative. The slipperiness in Ryan's response to Abbott—failing to substantively distinguish between the claim that "games are narratives" and that games might "suggest stories" or have "narrative possibilities" (187)—reveals the difficulty in defining in any broad sense how games and narrative interact.

While I will discuss in later chapters precise methods used by game designers to provide the arrangements of signs, let us briefly return to *Clue* in order to clarify the need

not only for actualization (a final, uncovered story) but progressive actualizations in order to be considered narrative rather than simply "suggest stories." *Clue* seemingly has all the necessary components of game fiction. Clearly, the game is both competitive and ergodic. Players compete against one another to solve the case; the role of the dice introduces one form of calculation, and the process of deduction yet another. Furthermore, *Clue* has a goal of actualization—uncovering the story, as unsatisfying as it may be (who murdered Boddy in which room and with what weapon?). So, is *Clue* progressive?

In the most basic sense, emergent and progressive games both result in a series of events over time, as players generally take "turns" and, even in real-time games, make a series of "moves." The game rules provide limitations to both, and thus provides the challenge—absolute freedom would be antithetical to any concept of game outside of Calvinball.[45] Even in carefully rule-defined systems, emergent games provide the opportunity for every game to be unique, an offer unavailable in games of progression.[46] This is true in *Chess*, *Pong*, and, in many ways, in *Clue*.

And yet, the test of emergence versus progression is not an absolute; all properties of game fiction should be considered along an analogue, rather than binary, scale. Otherwise we are left with the supposition that interactivity and narrative cannot exist at the same time, as Juul suggested. *Chess*, for example, has quite a different level of emergent play than some sort of race game, like *Pachisi*, *Ludo*, or (more recognizable to

[45] The rather famous past-time of Calvin and Hobbes, of the comic strip of the same name, in which rules randomly changed with the whims of the players.
[46] See Salen and Zimmerman (13) for the uniqueness factor in Pong; see Juul (*Half-Real* 69) for his discussion of Salen and Zimmerman.

American audiences), *The Game of Life*.[47] These race games have "home" starting points, a clear line to follow, sometimes include hazards to prevent progress (or the reverse, rewards that propel the player along), and a clear finishing point. Some form of chance counter is used to measure the spaces allotted to the player per turn (ranging from shells to dice to spinning-wheels with numbers), and it this introduction of chance that emergent play is most evident. Depending on how the dice roll (or the wheel spins, etc.), there exists an opportunity for each race to be unique. David Parlett, in the *Oxford History of Board Games*, defines the characteristics of race games as follows:

Class	**field**	**equal**	**movement**	**interaction**	**objective**
Race games	linear	yes	dice-bound	oust	attain position

Table 2: Characteristics of Race Games (Parlett 16)

The above is fairly self-explanatory, though some characteristics need clarification: the playing field is linear; each player has an equal number of tokens (Chase games, for example, are characterized by uneven tokens); movement is controlled by dice; the interaction between players allows them to "oust" each other's tokens (send one back to a home base, e.g.); and the final objective is to attain a position on the game board (win the race).

Only in some cases do race games have explicit stories, usually primitive at best, and many have none at all.[48] The boards themselves are useful reminders of such games'

[47] Not to be confused with John Conway's *Game of Life*, which is certainly an emergent system, if not really a game. Rather, *The Game of Life* referenced here is the Milton Bradley game in which you "Spin the wheel of fate to become a millionaire or just a poor country philosopher!"

[48] It should be noted that many of the earliest films with any sense of narrative featured elaborate chases or races, an intriguing commonality among early kinds of visual narrative.

material culture, a point not lost on Parlett, who reminds us that race games likely arose from pure dice games, leading from abstraction to representation:

> Thus the sight of pieces moving around a track inevitably invites a representational comparison with, for example, athletes, or horses, or mounted warriors. This in turn produces a positive feedback effect. As an effect on pieces, landing on an occupied square may result in 'capturing' or 'killing' the occupant. As an effect on spaces, certain of them may be regarded as gateways, bridges, or natural obstacles and their real life effects then translated into gaming terms. In real life a river is an obstacle, so if you reach one in the game you miss a turn. Conversely, a river with a bridge is no longer an obstacle, so if you reach a bridge you get another turn. (30)

Instead of rapidly accumulating numbers, the potential for capturing opponents, encountering hazards, and so forth, offers, as Parlett puts it, "a positive feedback effect," or, perhaps in Ryan's terms, the potential for narrative. Placing hazards certainly encourages narrativity, since a clear design hand is at work, and "staged events" are available, though this is not all exclusively under the purview of narrative. A game like *Snakes and Ladders* often is contextualized not so much with narrative but by moral rhetoric. The metaphysical "race" towards moral improvement is not exclusively religious, as exhibited by the British schoolboy version, in which various sporting equipment—cricket bats, rifles, and so on—function as the ladders, while the snakes are replaced by whipping canes (Figure 6, MacKenzie and Finkel 63).

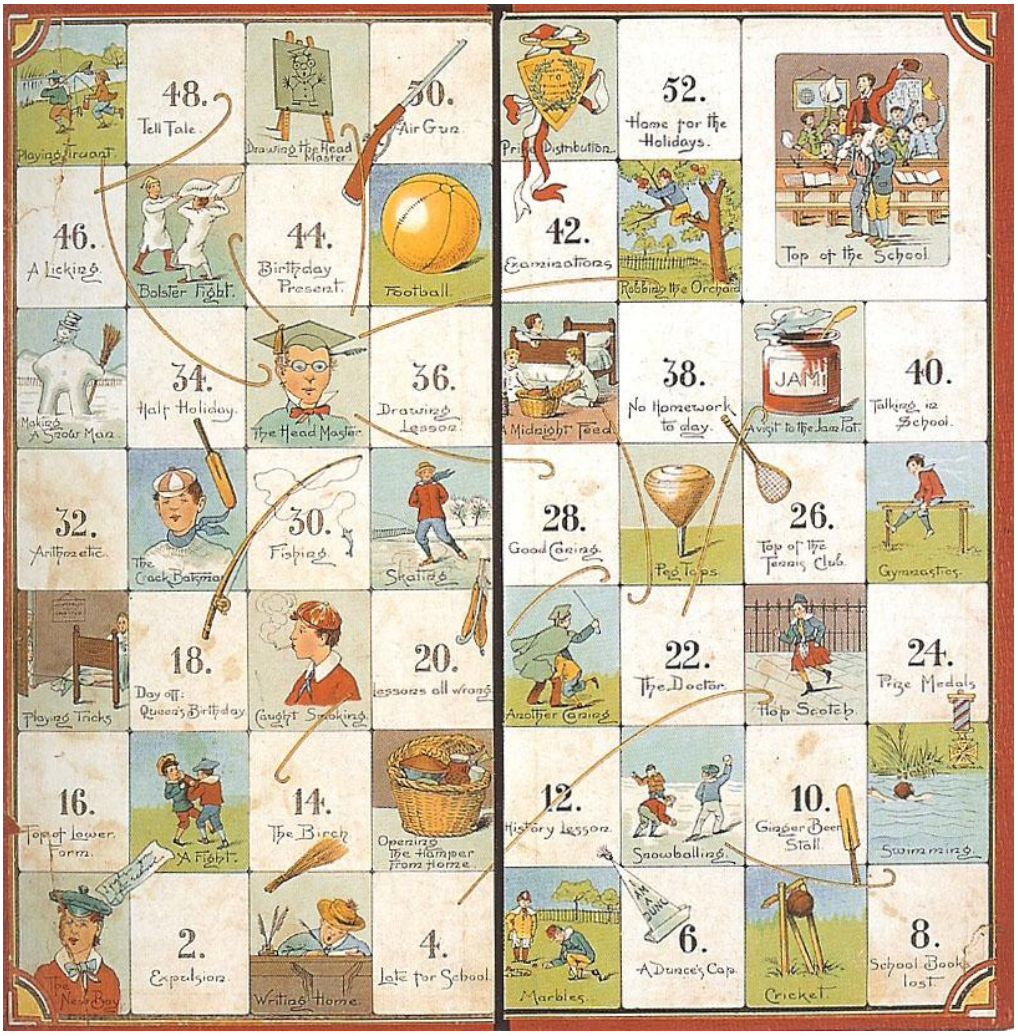


Figure 6: A British school-boy version of Snakes and Ladders

Though many race games are somewhat representational, few are truly inclined towards narrative actualization like we see in *Clue*—the outcomes are predominantly ludological (one either wins or loses). Whatever resulting narrative might be embedded in the game is typically quite primitive.

Clue is not immediately recognizable as a race game, and in fact I am not aware of any previous suggestion that it may be related to one outside of brief remarks that *Cluedo* borrowed its suffix from the British game *Ludo*, a child-like relative to *Pachisi*, both of which are race games. That some of the *Clue* characters share colors often

present as game pieces in Ludo may indicate a shortage of materials due to the war as much as any other explanation.[49] And yet why have a board at all, if as Parlett asserts, *Clue* "more a card game than a board game"; is the function of the board merely to "slow the game up"? (262).

Clue has "home" starting points for each suspect character, but the end-game has no fixed point that we might expect in race games, as the Accusation can occur in any room (unlike the Suggestions, which must be made in the room the player is in). Though there are small squares for the player tokens to follow, in most areas there are at least two rows of squares, and players are not required to progress along a singularly defined path, providing more freedom overall. Thus, the field is areal rather than linear.[50]

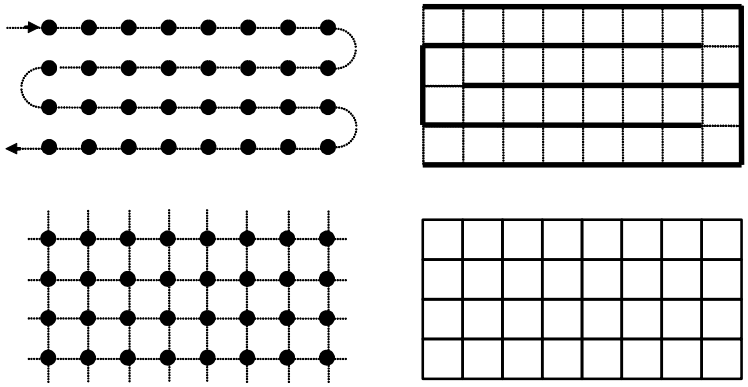


Figure 7: Example of linear field at the top, and areal field at bottom (Parlett 17).

Once a player enters a "room," by making a Suggestion they can call any other player/suspect into the room, which we might view as a type of "oust," since it can prevent a player from reaching another room from which they might make their own Suggestion. Depending on the characters selected and the number of players, players

[49] Such a shortage was provided as one of the explanations for the delay in the game's publication (see Parlett).

[50] "An areal game can obviously be derived from a linear one by first enfolding the line of points or spaces upon itself to produce a two-dimensional figure, and then agreeing that a piece can move in any rectilinear direction instead of necessarily following the originally intended linear path" (Parlett 17).

may or may not be "equal" in advantages. As Parlett means: "the players start in equal positions and with equal resources, enjoy equal powers of movement and interaction, and have identical objectives" (15). Normally only "Chase" games (e.g. Fox & Geese) in Parlett's definition are asymmetrical, with all others being equal, yet Clue does offer some potential advantages to a player. Depending on the number of players, some may begin play with more cards than others. Likewise, some starting positions are more advantageous, as Ms. Scarlett always begins play in the first round, for example. Finally, the race for Clue is not always towards a clearly defined goal on the board itself (though it can be, if every is racing to make a defining Suggestion in a particular room, e.g.), but a more metaphorical goal of solving the crime first.

The version of *Clue* that Pratt proposed in his "Patent Specification," however, reveals a few more potential connections to race games. After the three cards were selected and hidden, Pratt's original vision involved dispersing the remaining cards among the various rooms, so that players' first objective was to reach the rooms first and thus gain the cards inside.[51] Furthermore, instead of calling a suspect to a room, as the rules now stipulate, Pratt's original vision followed much more closely the kind of "oust" move in race games: "by moving his piece into contact with any other movable piece he may suspect, and transferring the suspected piece together with the (suspected) weapon token into the (suspected) room, and naming the combination he has so selected and assembled" (3). Like the race game, players would move about the Clue board and, by landing on the same square, transfer the other player token to a different location (in the race game, usually the player's "home" location).

[51] "Preliminary play has for its purpose the removal of the distributed cards from the board to the 'hands' of the players; each player, by moving his piece to a room containing cards, being entitled to take up the cards contained therein" (Pratt 3).

Class	field	equal	movement	interaction	objective
Race games	linear	yes	dice-bound	oust	attain position
Clue	areal	maybe	dice-bound, or jump	oust block	successful deduction

Table 3: Comparison of Clue to traditional race games.

Despite these hints of influence in both the prototype and official versions, *Clue* does not strictly enforce any staged event throughout the bulk of game play, nor does it require players to follow strict paths, although the game board's characteristics begin to hint at the possibilities inherent in representational game fictions (which will be explored to greater depth in Chapter 4). The prototype version, to be sure, does involve staged play somewhat more so than the final version, with at least two stages of play (gaining cards, and the subsequent series of race and accusations). To be strongly progressive, a series of required events in order to pass through to the next series of events is necessary. The distinction rests on whether the arrangement is predetermined and fulfilled by the player, in essence mini-actualizations, or if the arrangement of events is openly fluid within the constraints set by the rules. With the introduction of a series of required events that must be actualized, a sense of plotting (in both graphical and narratological terms) underscores that the game designs the narrative experience, though not necessarily in ways followed by traditional fiction or film.

In our analogue spectrum tracking "progression," *Clue*'s offerings are fairly weak (though the prototype is somewhat stronger), just as the ergodicism in *Who Killed Harlowe Thrombey?* limited its qualification as a strong game fiction (formally speaking, rather than aesthetically). Interestingly, what *Thrombey* lacked materially—memory—*Clue* has in its cards and deduction sheets; the former is a paper database, and the latter

is, in essence, an aid in writing a successful query. The board and its tokens do more than simply slow down the game; they serve as interface and arguably hold a hereditary relationship to earlier race games that preceded *Clue*. In the prototype of *Cluedo*, as described by Pratt's patent specification, the race to a series of clue discoveries precedes the subsequent series of suggestions and accusations, providing some sense of staged plotting that gives the prototype, if not the game we now know, a stronger sense of progression. *Clue's* sense of progression is somewhat limited due to the lack of a guiding hand—whether we call that influence author, director, designer… or dungeon master.

Dungeons and Dragons and the Game Loop

"If you plan to participate in this module as a player, please stop reading here. Knowing the details of this module will make it less fun to play for all concerned." This is the admonition headlining "Dungeon Module L2: The Assassin's Knot," designed by Len Lakofka and published by TSR Hobbies, Inc. in 1983. *Dungeons and Dragons* (D&D) had been introduced in 1974, rising out of a collaboration between Gary Gygax and Dave Arneson in a venture originally called "A Fantasy Game" before its more familiar appellation took hold.[52] Gygax was already well-known for his hand in writing *Chainmail: Rules for Medieval Miniatures*, a wargame using miniatures published by Gideon Games in 1971 that also included fantasy rules that would later be seen in D&D. Arneson, influenced in part by Tolkien's *Lord of the Rings* epic, began incorporating fantasy elements into his war games as early as 1971 (Mackay 15). By 1978, the newest set of rules was released under the moniker *Advanced Dungeons & Dragons* (AD&D),

[52] For a discussion of the publication history of Dungeons and Dragons, see Mackay, Daniel, *The Fantasy Role-Playing Game*, (13-17). Wizards of the Coast, which acquired TSR, Inc., provides a useful chronology of the game's development: http://www.wizards.com/dnd/DnDArchives_History.asp

with the *Player's Handbook* published that year, and the *Dungeon Master's Guide* published the following year, 1979.

D&D is the archetypal role-playing game, in which the player or players adopt the persona and abilities of a character in order to overcome a series of obstacles to achieve a goal. Although the performative aspect of role-playing is not my focus here,[53] understanding the difference in the roles of players and "dungeon masters" (or "game-masters") is essential to comprehending how designed games, such as D&D "modules," create structures of play. Is a game session, and the resulting narrative, emergent or progressive? As with many games, there are elements of both, but a close reading of the game materials will reveal the numerous staged events that are the hallmark of progressive, episodic game fictions.

A D&D module is a scenario aimed at player characters of a specific level range,[54] during which they encounter numerous challenges with hopes of achieving a major goal usually set out for them: rescuing a kidnapped victim, escaping from a prison, beating back an aggressor, or, in the case of "The Assassin's Knot," solving a murder mystery. The D&D module offers us a useful analogue prototype through which we can understand the basic components of a game loop. The game loop is an essential component for any computer game, and can be represented (in an approximate 'pseudocode') by the following:[55]

---

[53] Daniel Mackay's *The Fantasy Role-playing Game: A New Performing Art* (2001) is the most extensive discussion of role-play as performance to date.

[54] Player characters gain more abilities as they increase in "level." Thus, players are led through scenarios that are challenging but not impossible for the abilities they have at their level. In D&D, player characters begin at the lowest level as a "1st level" character, and gain earn experience in order to gain subsequently higher levels.

[55] Michael Balfour and Daniel Martin, both technical directors for Electronic Arts, researched a number of game engines and technical literature to note distinctions in loop architecture. They note that while game loops "all differ somewhat—the order of input-process-feedback can change, the time calculations vary, the

```
GameLoop()
{
    Startup();

    while (!done)
    {
        GetInput();
        Sim();
        Render();
    }

    Shutdown();
}
```

In generic terms, the game loop repeats three main operations: it gathers input provided by the player via the input subsystems; it updates and simulates the game state (e.g., weather conditions, AI behavior, and network updates, all via various network and update subsystems); and it then renders that output through sound, a frame of video, and so on via the display and audio subsystems (Hall 16). John Hall offers a visual approximation of the subsystems' relationship to the loop (Figure 8).

number of loops can differ—but they all follow this general pattern." Balfour, Michael, and Daniel Martin. "Sim, Render, Repeat – An Analysis of Game Loop Architectures." Lecture. Game Developers Conference 2006. San Jose. *GDC Vault*. Web. 11 Sept. 2010. <http://www.gdcvault.com/free/gdc-06>.

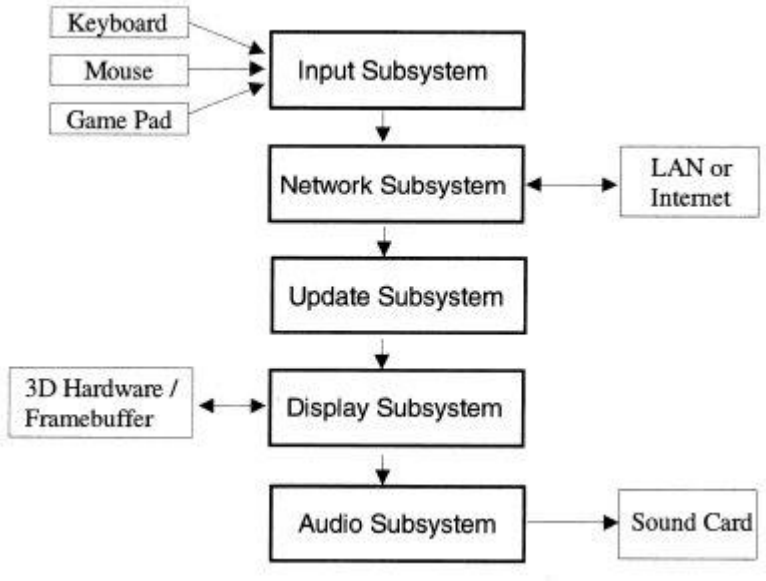


Figure 8: The Game Loop & Subsystems (Hall 15)

The loop repeats these core activities (getting input, simulating, rendering) as long as the game is running, and its timing remains a critical factor in game architectures, as it impacts to the kind of timing for on-screen output, user input and response, and so on.

Play is possible without using an official, published module. Using the rules in the *Dungeon Master's Guide*, a player can adopt the role of Dungeon Master (DM) and design an adventure for players to attempt. In game designer Edward Bolme's estimation, the control of the game's progression is very much dependent upon the DM:

> The gamemaster's job is akin to that of a director. The gamemaster takes care of the scenes, coordinates the movements of the villains and extras, and manages the plot line of the story… The players are entirely dependent on the gamemaster for their knowledge of their situation. It's the gamemaster's job to provide them with the data they need to build a picture of where their characters are. (quoted in MacKay, 6)

To the role of director, Mackay adds "a novel's author, a film's editor, a legend's storyteller, a performance's actor, and a sporting event's referee" (6). The DM becomes part of the game's control system—first by rendering the scenarios and linking them

together (first in the preparatory creation stage, and then during the play sessions), serving as dispenser of information, arbiter of rules, and centralized reward system (awarding "experience points" players need to gain their next level, as well as treasure like gold pieces or magic swords). The DM maintains the simulation and renders output for the players.

The players, for their part, are responsible for reception of data and their responsive input: creating their character, choosing which of their character abilities to use during an event (battle, negotiation, and so on), and providing their character with a sense of identity, which can range from the character (and player) acting selfishly to gain treasure to another player performing a noble deed despite losing out on a valuable item. There is no pure definition of role-playing. Mackay defines it as a "system for determining the outcome of character actions … in which players roll dice and then consult tables that are modified by their character's individual talents, skills, attributes, and physical characteristics" (7). For some players, performing rule-based actions for their characters suffices; for others, adding creative touches and personality is what differentiates role-players from other gamers.

Imagine a scenario in which group of players are investigating a murder. Upon the advice of a local townsperson, the adventuring party sneaks into the local bakery in hopes of uncovering a meeting of the assassin's guild thought to be responsible for the murder. A player's character, a fighter proficient with shields and swords, impatiently breaks down a door when the party's thief had failed to return from her scouting mission in what the warrior believed to be a reasonable amount of time. Jumping through the shattered door, the warrior discovers that the adventurers were set up; an ambush is

sprung as one of several ruffians charges the warrior, swinging a wickedly-edged axe. The warrior is surprised, and the thug hits him with his wild swing. Squaring off, the bloodied warrior and the thug prepare to trade further blows.

This is a potential variant of one of the suggested encounters in "The Assassin's Knot." The player's actions are partly rule-based, and partly guided by behavior thought to best suit the kind of character the player chose to role-play. While a thief would likely believe that caution overrules haste, the warrior, who can wear the most protective kind of armor and wield the most fierce of weapons, decided in this case to charge straight into battle—a personality decision. First, the warrior would have to roll a series of dice, adjusted by his Strength score[56], to see if he could break down the locked door (picking the lock is a thief's skill). He would then roll dice to see if he was surprised by the ambush, presumably with penalties attached to his roll because of his less than cautious entrance. Both are examples of player input, with the latter a response to the simulated game state (a ready ambush). The warrior's opponent, controlled by the DM, then would roll a twenty-sided dice (d20) to see if he could hit and penetrate the warrior's defense, which includes the following steps:

- the DM would roll a d20;
- check the warrior's armor class (AC) rating, which varies according to the quality of armor;
- check the attacker's modifying scores (e.g., a high Strength score can give a bonus to hit);

[56] Characters have six total attributes: Strength, Dexterity, Constitution, Intelligence, Wisdom, and Charisma; each can influence certain rolls (e.g., Strength can add to a character's chance to hit and damage an opponent).

- consult the charts to see if the attacker scored a hit;[57]
- if a hit is scored, roll the appropriate dice to measure the amount of damage inflicted on the victim.

These actions represent the emergent events of game play—almost any ergodic work has moments of chance, where decisions and random rolls of dice (or other calculations) determine the outcome for the player, for good or ill. They also represent the act of simulating the game state and rendering output. In the above scenario, the warrior's armor might deflect the blow; alternatively, the attacker might slay the warrior in one fell blow. Each "turn" in D&D is measured by a combat round, with each player taking a turn to simulate what happens in a single round of the game loop. Playing a character involves player-driven decisions based on the scenario as rendered by the DM, in addition to the actions allowed within the parameters of the character's class. A warrior cannot suddenly skulk and pick locks like a thief. Each turn a player can decide their input based on their impression of their own character's personality, but those actions are also bound by the limits of the rule set.

The module aids the DM in adequately simulating the game state and rendering the scene. The "Assassin's Knot" module begins with the following introduction:

> This module is different from most other modules—it is a murder MYSTERY. The players will have to assemble the clues you give to discover the murderer and prevent him from carrying out his plans. Because so much of the action depends on what the player characters so, you must pace the events of this module to be both challenging and entertaining. Remember, ACTIONS LEAD TO REACTIONS, there is a strong emphasis on character interaction, and the investigation has a definite deadline. Parties who rely only on force should not expect to do well in this adventure. (2)

[57] Different editions of *D&D* provide different formula for calculating success in various actions. "The Assassin's Knot" uses the first edition *AD&D* rule set.

Instruction as to how the game should be executed, as detailed by the Introduction, is followed by a "DM's Background" section, which outlines the story scenario. In this case, the local Baron Grellus of the town of Restenford is dead, murdered on a Sunday night, and all clues point to Garrotten, a small town eighteen miles south. The "Background" outlines all the known facts, including the fact that three clues were found—a small red ruby, a golden lute string, and a red leather button. These three clues implicate three citizens of Garrotten, while another hires the players to find out who murdered the Baron: "It is up to the party to find out who killed the Baron and why, and to bring the guilty part to Restenford if possible" (2).

The story is outlined, and likely done so in an equivalent way for the players involved; however the next section—"DM ONLY" (3)—provides the plot. The three suspects are innocent, and the intrigue is laid bare for the DM: a twisted plot of megalomaniacs, assassins, and political rivals.

CHRONOLOGY OF EVENTS

Although play will vary a good deal depending on party actions, the general plotline follows this schedule:

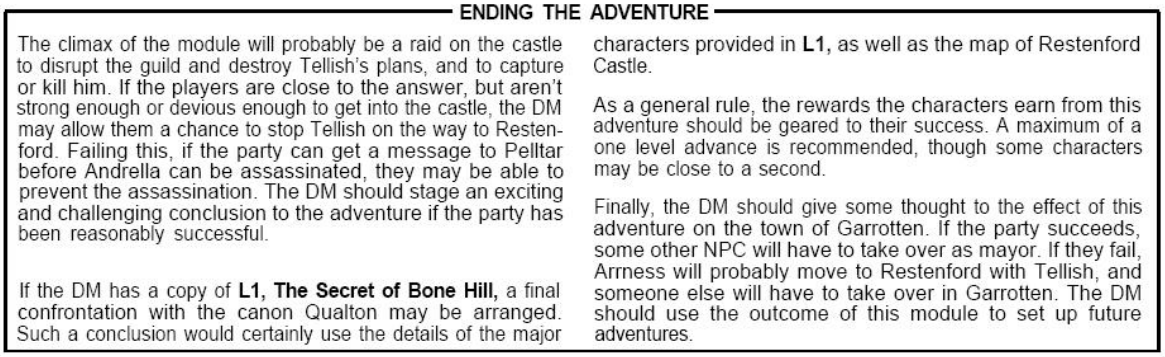
SUNDAY:	Tellish murders Baron Grellus and plants his false clues.
MONDAY:	The player characters are assembled in Restenford by the wizard Peltar. Investigations point to Garrotten.
TUESDAY:	The characters travel to Garrotten. arriving about 8 PM. They will probably stay at the House of Abraham, the only inn in town. They will be very tired after their trip.
SUNDAY:	If the players have not solved the mystery (most won't). Tellish assassinates the Baroness.
MONDAY:	Word of the assassination reaches Garrotten.
SATURDAY:	Events of this week depend on player actions. Probably the mystery will be solved and the characters will raid the mayor's castle. If the DM wants a confrontation with Qualton (using **L1),** the characters will hear a rumor that Qualton has proposed to Andrella.
SUNDAY:	If Tellish isn't stopped, he will assassinate both Andrella and Qualton.
MONDAY:	Word reaches Garrotten. Within a few days, Arrness and Tellish begin their political takeover. Pelltar retires from the scene. The characters must adapt to the new order or flee.

Figure 9: Chronology of Events in "The Assassin's Knot"

Additionally, a chronology of events is provided (Figure 9), along with suggested possible events to fill in as the game progresses. These events include the scenario proposed above ("The Ambush"), as well as others. In order to heighten tension, the DM can use "The Contact" scenario, which involves an NPC with information who is killed as he tries to share his clue with the characters. To misdirect the investigation, a DM might employ "The Octopus" (help local fishermen by killing a monster, at the cost of a day's investigation), or "The Crab Hunt" (a suspect invites the characters to participate in a local customary hunt), which is suggested as a punishment "if the players have made a diplomatic blunder or aren't concentrating on their mission" (4).

Any module, either published by a game company or created in the dungeon master's basement using the game books and their rules in a custom-made adventure, takes on properties akin to a script. The bulk of "The Assassin's Knot" is comprised of detailed descriptions of the town of Garrotten and the major areas of interest to the party. Shorthand descriptions of the many non-player characters are included, so that their role and abilities can be easily called upon by the dungeon master. The players respond to the script within the purview of their abilities; a mage might cast spells where a warrior would swing a sword, but the capacity for success is present in the combination of potential abilities to be used, which are well defined by the game rules and materials provided. Players operate against the DM, in his or her capacity to adjudicate rules, monitor feedback, and maintain the game world. Though there is plenty of emergent play—a thoughtful player can talk her way out of a scenario less able players can overcome only through brute force—players overall work within the boundaries set up by the DM. If they move too far outside of range, there are a few options available: the DM can nudge them back on track with a clue or punishment (such as "The Crab Hunt," above); the characters may lose—the assassins may kill them, for example; or the characters might essentially give up and move towards more interesting work (as professional octopus slayers, perhaps, should they follow the module's alternate paths). In these latter endings, however, the players have arguably moved beyond the module into another (perhaps to be constructed by this or another DM). While the potential exists for such a chance happening, the more likely outcome is that the group of players will attempt (though maybe fail) to uncover the plot and race to save the Baron's wife and daughter, who are also scheduled to be murdered.

Within the possibilities accounted by the game module, there are multiple potential outcomes, such as those suggested in the module itself (Figure 10).



ENDING THE ADVENTURE

The climax of the module will probably be a raid on the castle to disrupt the guild and destroy Tellish's plans, and to capture or kill him. If the players are close to the answer, but aren't strong enough or devious enough to get into the castle, the DM may allow them a chance to stop Tellish on the way to Restenford. Failing this, if the party can get a message to Pelltar before Andrella can be assassinated, they may be able to prevent the assassination. The DM should stage an exciting and challenging conclusion to the adventure if the party has been reasonably successful.

If the DM has a copy of **L1, The Secret of Bone Hill,** a final confrontation with the canon Qualton may be arranged. Such a conclusion would certainly use the details of the major characters provided in **L1,** as well as the map of Restenford Castle.

As a general rule, the rewards the characters earn from this adventure should be geared to their success. A maximum of a one level advance is recommended, though some characters may be close to a second.

Finally, the DM should give some thought to the effect of this adventure on the town of Garrotten. If the party succeeds, some other NPC will have to take over as mayor. If they fail, Arrness will probably move to Restenford with Tellish, and someone else will have to take over in Garrotten. The DM should use the outcome of this module to set up future adventures.

Figure 10: Plotting the End

But despite this potential for many outcomes, those outcomes are not entirely emergent, but programmed and pre-planned through staged episodic encounters—a series of clues laid out, with further scenarios creating the avenues for a successful final outcome. The distinction of primacy between progressive narratives and emergent narrativity serves as one of the core distinguishing characteristics in games, and serves as the primary complicating factor in trying to understand the role of story in games. To be clear: while any game may possess narrativity, not all games contain pre-formulated narrative. This example from D&D provides us with a necessary opportunity to differentiate between games types; although it is considered, in total, one "game," the design aspects—authorship of a dungeon, or the creation of a character prior to play—are fundamentally different from the play aspects, in which characters interact with a designed module and (hopefully) successfully actualize the game fiction. The former is a preparatory stage, world-building with potential for play. The latter is structured play through the game loop, resulting here in the actualization of potential, carefully measured against the rules

and guidance of, in this case, an in-person designer: the dungeon master. Should we underestimate the designer's intentions for a good story, we need only be reminded before the last grand encounter: "Reasonable story development is more important than random rolls!" (20). Playing through a module necessitates a number of staged events to be navigated by the player or players using a set but variable number of strategies allowed by the rules that ideally would conclude with the actualization of both game rules (a "win" condition) and a narrative sequence.

Conclusion

The materiality of play is deeply embedded within the rules that guide any player through a game. In *Thrombey*, the player engages the text through an enhanced textual interface, playing not only a young man in search of a murderer, but also as a reader, taking cues from the second-person address at the bottom of the page in a way that calls attention to the naturalized mechanisms of reading we have adopted over time. In *Clue*, through playing cards, the board, and tokens, players also solve a crime, but in doing so must play two roles. The first is marked by a dash of color, be it Scarlett, Plum, or Mustard, which locates their place on the board and their relationship to the other players. The second satisfies the requirements of an impartial investigator, who without remorse might be forced to implicate the very token that has served as their marker during the course of the game. In the "The Assassin's Knot," players adopt the roles allowed by their character, be they warrior, mage, or thief, but players also operate through the eyes and direction of a game master as part of the game loop. In varying strengths, the emergent play from the perspective of the players is in response to a control system set forth by the game rules and their respective materiality, a game loop of input, simulate,

render that repeats as the process of play. With the potential for computers to act as a meta-medium, computer games have both the vast possibilities afforded by such openness, as well as limitations imposed by its rules-based system. With the rise of games available via computing, which will be the primary focus of the remaining chapters, players continue to adopt a form of representation within the game—an @ sign, a verbal "you," or a 3D avatar representation—but they also engage and manipulate the flow of information and models of representation beyond that afforded by an avatar: in short, they play the interface.

Chapter 3: Playing the Interface

> Most people think time is like a river that flows swift and sure in one direction. But I have seen the face of time and I can tell you, they are wrong. Time is an ocean in a storm. You may wonder who I am and why I say this. Sit down, and I will tell you a tale like none you have ever heard. Know first, I am the son of Sharaman, a mighty king of Persia. On our way to Azad, with a small company of men, we passed through India, where the promise of honor and glory tempted my father into a grievous error.
>
> -- The Prince of Persia, in *The Prince of Persia: The Sands of Time*, Ubisoft, 2003.

In 1968, Douglas Engelbart offered a demonstration that gave us, in Steven Johnson's words, "the first machine worth living in" (25). Engelbart's work was inspired in part by an encounter on his way home from World War II with Vannevar Bush's seminal essay on the Memex (Johnson 13), an essay that was itself born out of post-war anticipations. His 1968 demonstration:

> … included the first public use of a mouse, and the sight of its pointer sweeping across the screen instantly collapsed the stark input/output rhythms of batch-process and command-line computing into a single, continuous sweep of user activity. Just as important, however, was the spectacle of Engelbart dividing his screen into distinct regions, heterogeneous in content but spatially adjoining … (Kirschenbaum, "So the Colors" 526).

This transition where the computational machine as prosthetic also includes informational space as landscape radically informs our place as user. For Johnson, this was "our first public glimpse of information-space" (11), a space that transformed the screen, in Matthew Kirschenbaum's estimation, from "a simple and subordinate output device to a bounded representational system possessed of its own ontological integrity and legitimacy" that "combined concepts of interactivity and direct manipulation" ("So the

Colors" 526). "For the first time," Steven Johnson asserts, "a machine was imagined not as an attachment to our bodies, but as an environment, a space to be explored" (24). The cursor on the screen linked to the mouse's movements in the 1968 demonstration—an interactivity that is later enhanced through sprites and avatars—marks our extensions within this screen landscape, but that landscape is also seen through a screen, windowed in a way that establishes a *space apart* from ourselves. In other words, we are both enabled to operate ever more closely within this information grid by hardware interfaces (the mouse or a game controller, e.g.) but whose very use reminds us that this landscape—this world—serves not as an extension of ourselves but rather is further removed and contains depths inviting exploration. The interface, in its invitations and exclusions, situates the operator into multiple simultaneous roles.

Fast forward more than forty years. The average American now spends between eight and nine hours per day staring at a screen.[58] Screens are ubiquitous. They adorn our walls, occupy our pockets or bags in the form of mobile phones and e-readers, flash at us along the highway or from our dashboards, glow from our desktops, and through all of these screens we enter virtual worlds. We read e-books; we navigate streamlined highways; we watch television and cinema; we drag and drop, fill in spreadsheets, empty virtual recycle bins; and, increasingly, we play games. As I argued in earlier chapters, the implementation of a user role in a game fiction complicates traditional unidirectional models of narrative communication that do not include methods of direct user response. How do you communicate a story—a fundamental drive of narrative fiction—when the receiver has some ability to change or respond to the story?

[58] Video Consumer Mapping (VCM) study http://www.researchexcellence.com/news/032609_vcm.php

If the primary goal for some games is to create a designed narrative experience, as I assert, then there must exist the potential for *agency* so that the user may act within established designed constraints. Relevant input from the audience must generate relevant output. The game loop, and its reiterative operations of input, simulate, render reflects this imperative.[59] The game engine processes input gathered through keyboards, mice, joysticks, and gamepads; output to the operator comes in the form of a rumble from the gamepad, music or sounds from speakers, and most often, from a broad spectrum of windows, bars, graphs, and flashes through the screen. This is the graphical user interface (GUI), which is complemented by audio feeds of dialogue, music, and cautionary alarms. Just as a channel for a record album is a physically-marked groove and an information space, the GUI and other output channels enable an intersection between "real" materiality and imagined data-space.

In these new media narratives, designers employ multiple focalizers and voices, each functioning as one of many *communication channels* that flow through and are managed by the *interface*. I employ this phrase and the concept of channels deliberately, as it evokes several simultaneous and necessary notions relevant to new media narrative communication. A channel is a medium for transmission, a groove for a record, a path for electrical signals. The modern interface is a manifestation of what, how, and when signals are channeled, a multimedia narrator programmatically controlled by a designed intent and yet deeply relied upon, and customized, by a user. Brian Richardson notes in his exploration of 20th-century literary fictional voice a "a general move away from what was thought to be 'omniscient' third person narration to limited third person narration to ever more unreliable first person narrators to new explorations of 'you,' 'we,' and mixed

[59] See Chapter 2 for a discussion of the game loop.

forms." (*Unnatural Voices* 13). These "unnatural voices" in literary fiction are increasingly the *lingua-franca* of the 21st-century culture of the interface. The narrative postures are multipresent, channeled via an interface that fuses data to narrative, and an ergodicism that blurs the lines between the diegetic and non-diegetic, joined as they are in the act of play.

The act of narration thus changes significantly within these multimodal contexts, still often remediating the conventions of narrative communication that are quite familiar to us, while manifesting as a function of multiple channels managed by a interface to a user who, as we shall see, adopts multiple subject positions. The interface serves as the organizing structure that is based in hardware—such as peripherals and screens—and software, such as graphical-user interfaces (GUIs) and heads-up displays (HUDs), internal cameras, and even the scripts (in both the programmatic and narrative sense of the word). In the following chapter, I will discuss how the interface shapes the boundaries of game fiction, and what the multiple (and multipresent) points of view—channels of focalization and voice, but also medium-specific cues of location, time, status and direction—reveal about user participation that is both immersive and yet necessarily detached in its interactivity, bound by a fusion of fiction and rules. In doing so, I will suggest, through the specific example of *The Prince of Persia: The Sands of Time*, methods of analysis for how game fictions use these multiple channels in an effort to aid and control the player in his or her encounter with a new virtual and vast landscape.

Rendering Ludic Narrative

In *The Prince of Persia: The Sands of Time* (Ubisoft, 2003),[60] the interface reflects an ongoing user negotiation between freedom and constraint. Employing a range of controls and feedback channels, *The Sands of Time* (*TSOT*, hereafter) fulfills the obligations of game fiction and presents a rich text for demonstrating the marriage of ludic and narrative elements in game play. The ergodic work involves puzzle solving, complex navigations, and fierce (if slightly repetitive) battles on the part of the player. The game is clearly competitive: the player must overcome not only non-player characters (NPCs) in battle, but master dynamic and elaborate puzzles and settings laden with traps, while the computer serves as the rule arbiter and the competitor. The plot is progressive with obviously pre-planned and scripted elements, and with very little potential for deviating from the mostly singular path structured beforehand by the designers. In fact, as the Prince, the player gains small visions in the form of briefly animated cut-scenes that offer scattered images of what is to come in the future challenges, both foreshadowing events and providing clues for success. Finally, the goal is to actualize the narrative, a point made especially forceful throughout the gameplay by the Prince's frequent voice-overs, comments, and even admonitions should the player

[60] *TSOT* was published by Ubisoft in 2003. The earliest instantiation of this franchise, first introduced simply as *The Prince of Persia* in 1989 for the Apple II, was created by Jordan Mechner and published by Brøderbund. Mechner had published Karateka with Brøderbund in 1984, and would work with them once again in publishing *The Prince of Persia 2* (1993) and *The Last Express* (1997). *Karateka* and *The Prince of Persia* both stood out as impressive examples of animation due to Mechner's use of rotoscoping—a process by which live action is filmed and then the individual frames of the film are animated— to capture realistic movements and implement them as game animations. The earliest *Prince of Persia* game offered a relatively simple back story: the evil Vizier imprisons the Princess and gives her an hour to decide between death or marrying him, and thus providing him with the throne. Our hero, the Prince, is also imprisoned, and has sixty minutes to break free, travel through the trap-laden palace, and rescue the princess from the evil Vizier. Echoes of this storyline are found in the revival *TSOT*, though the Prince becomes an outside invader undone by his own hubris, and the object of his affection, Farah, a princess of another land.

die: "Wait wait wait wait… that's not how it happened. Now, where was I?"[61] The player recognizes immediately his or her obligation to fulfill the Prince's narrative, and thus the unfolding of the narrative is a foundational goal of the game.

TSOT is also a game *about* storytelling, and as such, it offers a rich case study in the complexity of narrative communication in an age of multimedia, multimodal discourse and interactivity. The Prince, his father, and a small company of men are traveling through India when they come upon the Maharaja's castle. The Maharaja's vizier betrays his master and opens the gates to the Persian company, who attack. The Prince, in order to win his father's esteem, discovers the Maharaja's treasure vault, wherein he finds two artifacts—the Dagger of Time and the Sands of Time (the latter contained within a large hourglass)—which are also the objects desired by the Vizier and the impetus behind his betrayal. The Prince discovers quickly that the Dagger of Time allows him to reverse time in short bursts, saving him from a certain death within the vaults. The Persians sack the castle, enslave the Maharaja's daughter, named Farah, and take the Vizier, the Dagger, and the Sands on to their original destination—the palace of the Sultan of Azad. Angered that the king gives the Sands of Time to the sultan as a gift instead of offering it as payment for the betrayal, as promised, the Vizier tricks the Prince into unlocking the Sands of Time with the dagger. The Sands sweep through the castle, turning all living creatures within the palace in Azad into lumbering, hungry, zombie-like

[61] Or, the Prince's query: "Shall I go on?" The user selects from RETRY / QUIT, and the Prince remarks: "Then I'll continue…"

creatures. The Prince and Farah[62] work together to retrieve the empty hourglass, now held by the Vizier, and replace the lost Sands of Time.

Formally, *TSOT* can be interpreted as a series of stacked fictions, and it is my contention that it is precisely through the convention of the stacked narrative, and the controlling mechanism of the interface of the computer game, that we can understand game fiction as a joining of game rules and narrative elements into a ludic series of events. With the Prince as a recognizable narrator, *TSOT* offers a clear example of this structure, where the use of narrative as a co-conspirator towards maintaining progressive momentum while employing a user feedback loop. Figure 11 offers a simplified rendering of narrative stacks in *TSOT* (the game itself takes dozens of hours to play, and so this figure represents only a few of the many available events). The parameters of the narrative stack are described thoroughly by Marie-Laure Ryan, who likens the structure to organizing trays in a cafeteria, in which trays "must be popped in the reverse order of their pushing," following the principle of "last in, first out" (*Possible Worlds*, 181).[63] Ryan deliberately fashioned her theorization of the stack based on principles that undergird computing technology, a system of translations from one representation to another—an act of translation and translocation. This layering effect is what allows us to see the world of machine code realized as a graphical operating system, and then a browser, and a formatted Web page, a process reflecting what Kirshenbaum calls formal materiality: "the imposition of multiple relational computational states on a data set or

[62] These three characters are spared from the Sands because each holds an item of power: the Prince holds the Dagger of Time; Farah wears a family heirloom, the Amulet of Time; and the Vizier holds a staff of magical power.

[63] Ryan's primary example for the stacked narrative is *The Arabian Nights*, although Ryan does briefly discuss metalepsis and stacking in relation to computer games in *Avatars of Story*. See Ryan, Marie-Laure, "Stacks, Frames, and Boundaries," in Richardson, Brian, e.d, *Narrative dynamics: essays on time, plot, closure, and frames*, 2002. "Metaleptic Machines," *Avatars of Story*, 2006. *Possible Worlds*, 175-200.

digital object," which "tends to manifest itself in terms of layers."[64] What will be shown to be a series of cascading relationships reflects the material attributes of computers as "writing technologies—that that they are material machines dedicated to propagating an artificial environment capable of supporting immaterial behaviors" (Kirschenbaum 158). Were TSOT not a game, but rather a novel, two stacks would be evident: the lower stack would be the world of the Prince and Farah, the night before the attack on Farah's city; the upper stack would be the Prince's tale, which describes the attack, it's aftermath, and the events that allowed him to reverse time. At the conclusion of Stack B, the narrative collapses back to Stack A, concluding with the defeat (now in normal time) of the Vizier, which prevents the now-erased events.

[64] He goes on to qualify that each state is, in fact, "arbitrary and self-consistent/self-contained." (12). For an extensive discussion of formal materiality, layers of computing, the influence of von Neumann architecture on modern computing, see Kirschenbaum, *Mechanisms*, especially 12-15 and 154-158.

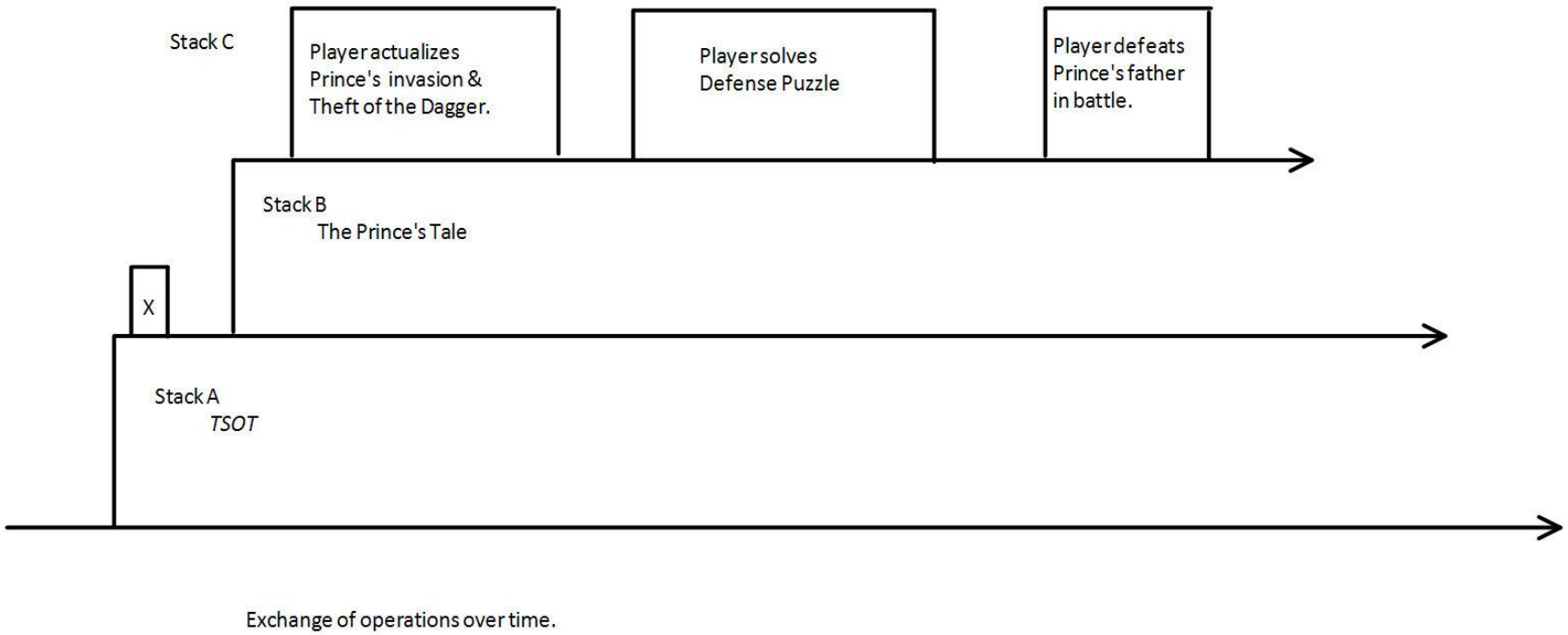


Figure 11: The stack structure of *TSOT*.

Considering *TSOT* as a game fiction, however, we can see subtle but important distinctions in the stack structure. Importantly, a third stack exists at the level of the player-activated events.[65] Throughout the assembly and disassembly of the stacks, player agency manifests first and foremost through the interface, where players receive data and through which they respond in a rapid iteration of input and output. For the sake of simplicity and clarity, let us refer to such an exchange (broadly speaking) as an event, a moment of interaction that has some causal effect. Events are nothing new to narrative or computation, of course. The complication arises in managing an event, or a sequence of events, that balances the needs for agency and progressive actualization. Balance is achieved in part by controlling the player's multiple points of view in play by using channels that guide players towards ludic and narrative actualization—channels of contextual information (location and status such as in radars and health bars in the HUD); channels of camera-based visual information and control; and channels of exposition, instruction, and action (guidance, in short, towards game and narrative *events* through the use of voice, focalization, and event staging).

Central events—what Barthes refer to as the cardinal functions, or nuclei—are assumed to be pre-programmed and pre-planned in game fiction, based on the properties

[65] In this respect, I would assert that the ontological boundary is not crossed always a matter of changing fictional worlds (at least in a cleanly delineated manner), but more as a shift in fictional position or situation. *TSOT* stands out in that each position is clearly associated with a different time, and thus can be more readily seen as an alternative world. Stack A represents the night prior to the original attack; Stack B, the attack and its aftermath (now erased); and Stack C, the player's actualization of Stack B as the act of erasure. The "X" represents the first opening move of the player, entering Farah's bedroom, and a corresponding "Y" (unmarked) at the end of the game would represent the closing battle between the Prince and the Vizier after the former's tale had been completely actualized. One action (X) opens the game loop and one series of actions (Y) closes it. Most basic game fictions will have at least two stacks, one of which is more programmatic with core functions and basic narrative framing (the base), and the other which is the player's process. More advanced game fictions will almost always have at least one other intermediary stack, which despite many potential forms can likely be described in terms of a quest. *World of Warcraft*, for example, limits players to twenty-five saved quests, and so Stack B in that game would be comprised of a matrix of twenty-five possibly interconnected stacks (for more on quests, see chapter 4).

of progression and actualization. Events to be actualized are contextualized through the interface, and players actualize these events most often through actions they take in the game—running, jumping, fighting, solving puzzles, and so on. The player's actions, I assert, function (again in Barthes' terms) as catalysers. My use here differs somewhat from Barthes' original intention, in which the catalysers were intended to "fill in" the "narrative space separating" the nuclei (93). Within an active game space, however, I suggest that the catalysers, as actions taken by the player, can also *fulfill* the nuclei, rather than only the space between nuclei. Catalysers function as true catalysts, an agent (player agency) that aids the completion of a process (actualization).[66] I will examine this further as we explore how events function within game fiction.

The base stack in *TSOT* neatly begins just after the opening credits, with a flash of thunder and rain during a brief cinematic sequence. The shot pans to a sleeping woman—Farah—who wakes up, startled; the shot cuts to the figure of the Prince dashing through the forest towards a building with a balcony and a lit room beyond sheer curtains. With a freeze frame on this shot of the window, the player is asked to "Press Start" to begin a new game. We can imagine the base stack as typical of the kind of generalized fictional framing that we often encounter in many games, a base narrative trope tied to the functional level of game actions (core behaviors) and menus of start, continue, pause, and so on. We enter and accept the game environment as a space apart, with its own rules, both as a possible world, in the fictional sense, and as the opening of the game loop, in a computational sense.[67] Both establish the game's events and core operational

[66] See Chapter 1 for my rationale in using Barthes' terms rather than Chatman's or Abbott's.
[67] Ryan's suggestion (about narrative and fiction generally) that "While fiction is a mode of travel into textual space, narrative is a travel within the confines of this space" (*Possible Worlds* 5) quite nicely provides a distinction between the a generalize fictional framing, like we see in Stack A (and many

framework. Choosing to "start" a game via the menu initiates a panning shot to the Prince, who stands on the balcony. Play only continues when the player directs the Prince (using the gamepad) through the curtains into the room, at which point, the same opening cinematic sequence plays, this time with the narrative voiceover (the opening lines found as the epigraph of this chapter) with an invitation to "sit down" to hear the Prince's tale. The player essentially chooses twice to start the game: once through the game menu, and once through a cinematic interaction (entering the room), a doubling that serves also as a fusion between operation and narration.

This seemingly odd repetition of the cinematic introduction also highlights the shift between the first and second stacks; the Prince's words are not addressed only to us directly as player, but also (we discover later) to Farah as narratee. His tale—the one we, as player, must actualize—is a retrospective one. To the Prince telling the tale as narrator, these events are in the past; he has already reversed his "grievous error" by capturing the Sands and reversing time to before the original attack. His tale is thus completely unknown to Farah, despite her role in the adventures, because the act of playing through the game is an act of erasure.[68] To succeed is to delete, and in this, we have the core event that defines the game. Actualization also fulfills the criteria of completeness required by the model of the stack. By actualizing the Prince's tale, we close stack B, undoing all the harm visited upon Farah and her city. The game's last

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generalized game frames) on the one hand, and the narrative event structure of Stack B (or similar stacks in other games).

[68] For a treatment of narrative acts of erasure, see Brian Richardson, *Unnatural Voices*, 79-105.

event is the battle between the Vizier and the Prince, which ends the game, closes the game loop, and collapses the last stack (A).[69]

If stack A represents the whole of the game fiction *TSOT*, bordered on the one end by our entrance into Farah's room so the Prince can tell his tale (labeled *x* on Figure 11), and on the other by the final battle with the Vizier,[70] then Stack B represents the Prince's retrospective story itself. The Prince's story includes a number of core nuclei that comprise the plot progression during the many levels of the game. Stack C, in Figure 11, represents moments a nucleus is actualized by the player through a series of catalyst events he or she enacts. Following the principle of "last in, first out," the completion of a nucleus in Stack C returns us to Stack B; actualization through agency thus leads to narrative and ludic progression.

The shift between stacks often brings with it a shift in the primacy of the interface channel (the acts of narration) and a shift in the behavior and agency of the player. Thus, instead of seeing the stack as a measure of narrative borders, we can also adopt—with some alterations—the stack formally as a way to understand one key component in narrative communication in game fiction: the act of narration and its influence on player response. The rapid exchange between program underpinning the base level and player at the interface level occurs over time, governed *for the player* through the various channels of communication via the interface. In this way, it is also possible to speculate that a core narrative substructure—supporting the player's articulation of their own

[69] The film *Inception* is a wonderful cinematic example of a stack, and the required impact the top-most stacks must have as they collapse to previous stacks.

[70] Which occurs only after the Prince completes his story, and which would be marked by a corresponding "y" on Figure 11 if it included the full range of events in *TSOT*. Notations "x" and "y" represent player action (catalyser events forming a "possible world" of actualization) on top of Stack A, similar to Stack C for the bulk of the narrative cycle.

"possible world" while actualizing goals and events—could be considered a kind of platform (or at least a constituent part of a platform), very much within the terms articulated by Ian Bogost and Nick Montfort.[71] Though sometimes misunderstood as a focus on about hardware, Montfort and Bogost are careful to suggest a range of possibilities for platforms, and although a full articulation of narrative as platform is beyond the range of the current study, I believe there is potential in pursing a project.

Along these lines, we should not misunderstand the stacked form (and especially Stack B, in this example) as simply "the narrative layer" superimposed on an engine comprised of rules. Neither the narrative nor the program are superfluous in game fiction. The material conditions of computation shape methods for narrative transmission. The requirements of narrative likewise shape the programmatic code. Each guides our progression and provides the rationale directing the active feedback loop. Layer upon layer, stack upon stack, they are mutually iterative, just as the myriad channels (voices and focalizations) are mutually iterative in guiding our response. Certainly there is much to recognize from traditions of print and cinematic fiction in the formal structure described here. But they are undeniably fused with the mechanisms—the formal materialities of data, code, and script—that hold a game fiction together. Game fiction may be seen as a genre of programmable interaction, through the combined

[71] Montfort and Bogost write: "The question of whether something is or isn't a platform may not ever have a useful answer, by itself. We could ask whether the Web is a platform—it certainly is, if we don't limit ourselves to thinking about HTML and static documents that are somehow delivered. Is *World of Warcraft*? *Second Life*? *LambdaMOO*? Certainly we can think of all of these as platforms, since they have APIs. But the real question should be whether a particular system is influential and important as a platform. Something is a platform when a developers consider it as such and use it; that activity can be more or less culturally interesting. Rather than asking 'Is it a platform?' we might ask 'What interesting or influential things have been developed on the system?' and 'Does the system have unique or innovative features as a platform?' … Platform studies in an opportunity to connect computation (at a fundamental level) with culture and creativity." ("Platform Studies: FQA" 4) See also the Platform Studies website (www.platformstudies.com) and the first platform studies volume: *Racing the Beam*.

acts of narration (broadly construed) channeled through the interface, cueing responses on the part of the player, often through deception (as I will demonstrate in examples that follow). I will discuss specific channels and their relationship to events individually in the sections below.

Interface and Narrative Perspective

As any attempt to account for the many theories on the act of narration would be prohibitive,[72] the following seeks not to resolve how formal characteristics of focalization, voice, camera use (in film and, later, in hypermediated works), and other such techniques of narrative transmission function on a global scale, but rather how specifically *interface serves to channel these signals of narration*, which are often remediated in game environments to produce a shared fictional experience. Channels are rendering paths, mechanisms for the distribution of data signals. The interface has audio channels, various mini channels through the heads-up display (HUD), or various cinematic or camera channels. Signals are the data that channels distribute, and they may offer data quite familiar to us from textual, oral, or cinematic discourse—a specific voice-over or a cut-scene, and so on—while the channels may follow traditions of narrative person or cinematic focalization. Alternatively, the signal can come in forms quite unfamiliar in conventional media, such as the fluctuating data in a health bar in the heads-up display, situating the acting player within a ludic and fictional context. Many signals have both narrative and ludic purpose. They serve as cues or hints for players, highlighting not just narrative progression but also means for players to, through game play, actualize the game fiction. Finally, none are necessarily bound to the kind of

[72] Brian Richardson's *Unnatural Voices* offers a deep catalogue of narrative person in 20th-century literature, and the challenges they pose to models of person. See also Chatman, Barthes, Abbott.

sequential linearity to which we might be accustomed; multiple channels may operate at the same time. Interface channels, then, are a means of data distribution, which can contain myriad signals of narration. By employing multiple channels, the interface can include many voices, focalizations and other acts of narration, which can operate simultaneously or asynchronously.[73] To aid in our understanding of channels and their relationship to the interface, we will return briefly to print examples.

Unsurprisingly, within the past twenty years, as critical interest in computing technology and writing increased through a focus on hypertext and other hypermediated forms, so too has the history of print and theories of the book become reinvigorated.[74] Traditional forms of prose, naturalized to the reader through years of familiarity and refinement, directs the reader through a generally clear, naturalized material interface. As Kirschenbaum points out, "In the humanities … it is increasingly common to encounter the idea that a book or a page is a kind of interface, a response to the understanding that the conventions of manuscript and print culture are no less technologically determined than those of the digital world" ("So the Colors Cover the Wires" 1). For a Western audience, one engages with a typical print interface—a book, say—by beginning at the top left, following the line to the right until it ends, and continuing to the next line on the same page, and so forth. Paratext may highlight our location (e.g. page numbers or chapter titles), and footnotes are routine examples of print

[73] Some signals are more recognizable as acts of narration than others, and in this respect I seek, like Chatman, to avoid an "overly restrictive definition of 'to narrate'" (113). Chatman further points out that film and other performative media often have nothing like a narrative voice, no 'tell-er'" (113), but that "narrator" or "presenter" are etymologically linked to "agent" or "instrument," and that "neither need be human." (115). See also Ryan's discussion in *Possible Worlds,* 70. While I argue that many of the channels discussed in what follows constitute a type of narrative voice or focalization (in many ways a "tell-er"), it is clear that some channels of narration, such as the heads-up display (HUD), are less *immediately* recognizable as narration, but still functionally operate as such.

[74] Steven Jones, in *The Meaning of Video Games*, offers a thorough discussion of the rise of interest in print in the age of new media.

hypertext that might deviate slightly from this linear view. A newspaper might cue the reader to jump from a cover story to page A14 after the first several paragraphs. The flare of a headline might grab our attention.

In addition to what are now recognized as common interfaces for print reading, theories of reading offers a number of ways that the reception of a text deviates from the way the text was rendered. Aarseth reminds us of such deviations by recalling Barthes notion of "tmesis," which the latter used to describe "the reader's unconstrained skipping and skimming of passages, a fragmentation of the linear text expression that is totally beyond the author's control" (78). Generally speaking, however, book design and page layouts offer an interface that ranks among the most naturalized to a literate public. Or, as Kirschenbaum explains "All of us know how to *read* a modern newspaper or magazine in terms of its visual and typographical layout as well as its journalistic content" ("So the Color Covers the Wires" 532). A key distinguishing characteristic—one might say aesthetic—of print books like *Who Killed Harlowe Thrombey?* or Mark Danielewski's *House of Leaves*[75] is that they disrupt the print interface that has become a socialized norm, presenting multiple and even complex points of view through multiple (competing and complementary) interface channels,[76] which the reader necessarily must negotiate hermeneutically and topographically, a type of navigational ergodics.

Just as game fictions use and remediate all manner of narration techniques, each game fiction uses narration in interchangeable and unique ways. And just as no universal

[75] Or any number of other well-thumbed tomes, such as Tom Phillips's *A Humument*, of the ilk that disrupt print convention. Cf. Johanna Drucker; Jerome McGann; N. Katherine Hayles.

[76] Point of view, and its subsequent division into focalization (who sees) and voice (who tells), has been considered by many to be one of the most heavily theorized concepts in narrative theory. While rarely does a new approach fail to bring with it the acknowledgement on the part of the critic that this is a well-worn theoretical trail, Brian Richardson maintains that "person remains one of the most undertheorized distinctions in the field." ('I etcetera,' 313).

theory of narration can account for all possibilities of narration, no theory of games (and their fictions) can hope to encompass all the ways these possibilities might interchange in a multimedia environment. Close readings, viewings, and "playings" are required to test the boundaries of any perspective of narrative instantiated in a medium. While a simple imposition of existing print (and film) models to the study of game fictions would eventually prove limiting, they can serve as useful launching points. In simple print game fictions like *Who Killed Harlowe Thrombey?*, for example, the page design and its combined channels of two types of second-person narration synthesizes into an enhanced form of autotelic narration. This page interface, which combines two narrative channels, also establishes the system of rules for ludic progress in *Thrombey*.

In autotelic narration, we recall, "the direct address to a 'you' that is at times the actual reader of the text and whose story is juxtaposed to, and can merge with, the characters of the fiction" (Richardson 320). This seems to suggest a shifting level of perception that on the one hand might be seen as distant or objective, and on the other hand, immersed, rather than a simultaneous reader (or player) who is *both* the actual reader of the text *and* a character (or characters) in the fiction. Such a shift between kinds of second person narration is unsurprising given the frequency with which writers may shift between other types of voice. H. Porter Abbott provides a suitable example from Flaubert's *Madame Bovary*; in the following passage, Abbott notes the shift from direct to indirect mode, providing Emma's thoughts, though the overall narrative technique is in third-person (71):

> "I do love him though!" she told herself.
> No matter: she wasn't happy, and never had been. Why was life so unsatisfactory? Why did everything she leaned on crumble instantly to dust? But why, if somewhere there existed a strong and handsome

> being—a man of valor, sublime in passion and refinement, with a poet's heart and an angel's shape, a man like a lyre with strings of bronze, intoning elegiac epithalamiums to the heavens—why mightn't she have the luck to meet him? Ah, fine chance!... (qtd. in Abbott, 71)

Here, Abbott notes:

> Though this is written in the third person ("she wasn't happy"), the voice is unmistakably Emma's. You can hear her complaining ("Why was life so unsatisfactory?"), mildly despairing ("Ah, fine chance!"), and thinking throughout in the sentiments and overblown language of popular romance ("a man of valor, sublime in passion and refinement, with a poet's heart and an angel's shape"). Her thinking, feeling, and vocabulary *momentarily seize control of what is still third-person narration*. (71, emphasis mine)

Abbott deftly describes the normal shifts of narration within a literary work,[77] but his comment is particularly telling in its conclusion: these shifts are asynchronous, which is to say that one will "seize control" of another, which emphasizes the linearity of traditional print models of narrative voice in the discourse.

On the other hand, in a print work like *Who Killed Harlowe Thrombey*, we can see how the textual interface shapes this hypertextual work as an enhanced form of the second-person autotelic, in which the progression of the reader and the event line is an act of negotiation with a modest feedback loop. The many passages in *Thrombey*, each usually a single page, are written predominantly in second-person narration, with "you" as the primary focalizer, and with information passed along most often in this case through direct citation—all in all a relatively simple style, in which the only transition of voice stems through dialogic interchange. Each discrete section of text describing the events (usually the top portion of the page), however, could conceivably be as complex as *Madame Bovary*, since it is only through the *combination of interface channels*—in

[77] For a robust exploration of strategies in narration and shifting voices, see Richardson, Brian, *Unnatural Voices,* especially chapter four, "I etcetera" (61-78).

which the descriptions of events at the top of the page are conjoined with the decision events at the bottom—that the overall progression and event planes lead to a completed narrative outcome.

To be clear: two signals of narration exist, one detailing narrative event, and another describing narrative enigma (the choice the reader-player must make). The top section outlined in blue in the reproduction of page 19 (Figure 12, below) represents a rather conventional lexia of prose in which the progression and event planes are aligned on the micro scale (the individual lexia), and in which the progression and event planes are not aligned on the macro scale (the overall plot of the book). In this lexia, "You decide" reminds the reader of a previous choice, establishes a time line ("until the police arrive"), and offers a final hint of yet another clue ("inspect the pantry"). At the same time, the reader is often reminded that they are marked as a young, male detective, in the more conventional of second-person addresses (the "standard," in Richardson's terms). Below, the bottom section outlined in red highlights a distinctly different voice, one more in line with the subjunctive in Richardson's typology, which we may recall has three features: "the consistent use of the imperative, the frequent employment of the future tense, and the strong distinction between the narrator and the narratee" (319). The subjunctive serves as navigational guide to the reader, in which the possibilities for navigation are laid bare. *The combination of these narrative channels of voice through page design is what creates the autotelic effect in this text*, with the reader at one moment juxtaposed with the characters in the text through primarily standard second person narrative, and at the next moment aligned through decisions made in response to the subjunctive narration.

Figure 12: The Autotelic through Two Channels. The top area is "standard" second person narration, the bottom is "subjunctive," and the combination of effects creates the "autotelic."

Though the standard second person narrative (at the top of the page, see Figure 12) might appear to be primal, it is in fact only through the combination of these two effects that narrative progression is possible. Although there is seemingly great potential and appeal in thinking of second-person narration as an adequate way to understand the communicative dynamic produced in a computer game, even the autotelic mode of

second-person narration cannot completely account for the empowered role of the player *as agent* within a game fiction, nor the multiple, simultaneous modes of attention required for the player in both the reception of and the interaction with a game. It is my contention that there remains much to say about focalization and voice in games, and their expansion of authority and role of empowerment in new media narratives, which direct the attentions of its audience not through a singular, linear path (despite the potential for multiple sequential voices and focalizations, long a mainstay of 20th century fiction[78]), but rather through the interface (broadly defined), which serves as the connective tissue between media hardware and applications, as well as between the user and the program—in short, the connective tissue for interaction.

Channels of Narration in Game Fiction

Where *Thrombey* uses two channels of narration in support of the game fiction, the modern game interface often employs multiple channels of narration. In order to further illustrate the principle of channels, I will turn attention to a single channel in *Asheron's Call*, which is a "massively multiplayer online" (MMO) game that began in 1999.[79] The use of software that is not part of the original game engine—called third-party plug-ins— allows changes to the *Asheron's Call* game interface, especially in ways that enhance player access to the data underpinning the game engine. A brief explanation of one such change will show how alterations to the interface can reshape the narrative landscape of a game fiction as much as a shift in narrative voice or focalization can in a

[78] And of cinema; Lev Manovich remarks that, in new media, "the logic of replacement, characteristic in cinema, gives way to the logic of addition and coexistence" (325).

[79] In 1999, the massively multiple game *Everquest* was known for huge, organized "raids" (massive battles) with clear player roles, but it was the lesser-known game *Asheron's Call* that should be remembered for its rushed mass collaborative ciphering to solve its serial storyline of quests. *Asheron's Call* offered over five hundred square miles of virtual landscape to explore, and offered monthly updates that slowly revealed a storyline, often in year-long serialized story arcs.

novel or film. The example should further illustrate how the modern interface serves as a filtering mechanism, with each channel revealing only a portion of the data operating to simulate and render a game world.

In *Asheron's Call*, players are allowed the flexibility to alter the game's interface by installing third-party programs, which are authored by unofficial coders (fans, rather than employees of the game company) and run alongside the *Asheron's Call* game engine.[80] Two plug-ins are directly relevant to our discussion. The first is Decal, a program that serves as a framework for all other plug-ins (a plug-in manager, if you will). Decal is a passive program; it only *reads* data delivered by the game server over the network. Since Decal serves as a framework, other plug-ins use the data that Decal collects to then augment game play in a variety of ways, such as enhancing the player's ability to "see" in the game environment.[81]

The screen interface of *Asheron's Call* frames the camera perspective, with character condition elements such as health and magic points displayed at the top of the screen, inventory and maps on the right side, and a textual interface at the bottom (see Figure 13). The camera field is configurable, with a wide range of views available, most

[80] A plug-in program is one that operates alongside the core developer code. The plug-in is usually developed by players of the game rather than the developers of the game (thus, third-party).Though *Asheron's Call* was a small and, compared to other MMOs at the time, unpopular game, it proved a valuable testing ground how players interface with massive game worlds. More recent (and ever more polished) MMOs boast millions of paying subscribers instead of thousands, and many now routinely incorporate a plug-in architecture as well as a specific policy for allowed interactions a program can include.

[81] Plug-ins could also enhance the game by tracking character development or creating an in game "TradeBot," A list of plug-ins available for *Asheron's Call* can be found at http://asheron.wikia.com/wiki/Plugins. Note that Sixth Sense is no longer actively developed. The use of these tools within the game environment became increasingly common. Whether or not such use was "cheating" remained a matter of fierce debate. (For more on cheating in computer games, see Mia Consalvo's *Cheating: Gaining Advantage in Videogames*, MIT Press: 2007). While some plug-ins influenced item trading and record keeping (considered by some as tedious work rather than play), others radically alter how players viewed the game's fictive environment in ways that directly impacted the communication channels used by the game, in effect changing the game's narration.

of which center on the avatar in third-person perspective (a first-person perspective is also available). Since a flat screen cannot replicate the flexible visual range that we normally enjoy, player "sight" is augmented by a radar display. The radar provides compass directions and displays multicolored dots that indicate the presence and location of other characters and monsters, signals along a discrete communication channel within the interface design.

As with most 3D computer graphics, items, characters, or monsters nearest the avatar render in sharp relief, while items further away from characters blur into the horizon as with traditional atmospheric perspective. Alongside the camera and avatar, the use of radars and maps are fictive constructions that create a player's sense of presence. While radar can compensate for the limitations of sight due to the flat surface of the screen, in this case it also reflects the natural visual boundaries within the game world. While seemingly objective enough, the radar display would hide certain monsters that were outside the normal field of view. For example, a monster hidden behind the crest of a hill would not produce the radar dot signifying the monster's presence until the player character crested the hill, where he or she might be startled to find themselves in sudden battle.[82] These omissions initially created a heightened sense of tension through a subtle focalization within the interface that highlighted some, but not all, of your environment.

In order to improve situational awareness, players used "Sixth Sense," a plug-in that reads the data streaming to the player's computer and, through an altered interface, provides a perspective far greater than either the camera or the default interface's visual

[82] This is no longer the case, as the game developers removed this nuance to the radar after the common use of plug-ins like Sixth Sense rendered it ineffective.

cues would provide. The plug-in works in the following way: as a player enters the game environment, the server sends a stream of data to the user's computer that details an entire land block—more information than a character could possibly "see" in the game at one time.[83] The data for the land block includes, among other things, the landscape design as well as any items, players, and characters that occupy it. So while a player might see a hundred yards in a single direction, the data for an entire square (virtual) mile may have already been streamed to their computer.

Figure 13: Screenshot of Asheron's Call interface. Note the radar display, top-right, where dots represent characters or monsters.

[83] Recall from Chapter 2 the three component processes of the game loop: process input, simulate, render. The *Asheron's Call* game engine would begin to simulate a larger land block than it would actually render in real-time for the player.

Figure 14: Detail of Decal and Sixth Sense. The Decal toolbar at the top holds the list of active plug-ins. The box on the left is the in-game Sixth Sense plug-in interface.

The "Sixth Sense" program mines that streamed data for special items or monsters according to criteria configured by the player in an XML file. The channels of vision afforded by the game—the visual frame, camera angles, and radar display—are extended exponentially by data-mining the game information streaming over the network and by creating a new channel. If the program identifies a desired object in this data-mining activity, even if the object was far beyond the possible visual range of the camera or radar, "Sixth Sense" provides a textual and/or aural alert to the player. Players, in effect, move beyond the visual interface of the game, adding an interface channel to scan and "read" the data signal itself, a type of networked hermeneutics unintended in the original design. By including the names of dangerous monsters in their XML database, for example, players receive alerts from "Sixth Sense" describing the monster's presence and location, even if the threat is well beyond normal line-of-sight. Alternatively, a player looking for a particular quest item could by-pass hours of tedious work by easily using

the plug-in to scan larger land-blocks than they could through the normal visual allowances. The use of "Sixth Sense" directly revises the fictive construction and control of a player's point-of-view. Even though Decal and its plug-ins do not have the ability to change the flow of data from the server, by interpreting that data and presenting it through an altered interface, player perspective far exceeds the fictive construction of avatar awareness in the world, radically altering the process of play and the actions players pursue.

As this example suggests, communication channels are an active layer of negotiation between player and ludic design, a balance in game fiction between guiding a player towards (and through) constructed events and ceding control in a virtual landscape. The wide river of data communications from a complex game engine to a user's interface are comprised of multiple small channels of narration, each constrained little pings on the screen (or a tremble in the hand, or a sound in the ear). Some chime and ring and call for attention simultaneously, while others narrate in more familiar ways, through brief cinematic sequences or in audible dialogue. These data signals point to and shape structures of events, spaces for interaction in a virtual landscape.

Interface channels serve as filter and narrator, setting parameters of player knowledge and establishing opportunities for advancement. The screen, with its ability to present the illusion of three-dimensional depth, overlapping data sets, and additional input/output devices such as game controllers and audio speakers, present to the user not just camera controls and avatars, but the potential for visual, audio, tactile, and textual data that situates the user and details possible negotiations. In a game of call and response, and in a feedback loop through various interface channels, we manage multiple

roles—controller, character, and director—even as we are controlled and directed. The combination of these effects, though not dissimilar than the use of the print interface to create an enhanced autotelic narrative effect in *Harlowe Thrombey*, reflects the expanded scale of positions and postures since Engelbart's 1968 demonstration.

Playing the Interface in *The Sands of Time*

The Prince's tale (Stack B) is unveiled through a series of narration techniques--sometimes direct narration from the Prince, sometimes cinematic (brief cut-scenes of current action, or premonitions of future action), and sometimes direction through other non-player characters (NPCs). Recall that the player is also afforded multiple configurable channels (mostly notably the camera) as well as non-configurable but highly dynamic channels such as the heads-up display (HUD). Each of these channels functions as an act of computation, on the one hand, and an act of communication on the other. To channel a signal is to deliver data *n* from one location to another via a specific interface feature such as a radar. The content of the data signal can be a voice-over audio file, a new camera view, or a signal of lowered health in the HUD health bar. It is possible to remove narrative data from these signals, rendering them purely as abstractions, but arguably the game itself then becomes a series of abstractions.

The myriad channels of the visual interface, thus, offer signals—often cues for player action—that enable a player to engage with a world, and in most cases, attempt to conquer it. It is perhaps no small surprise that the theme of conquest remains dominant in both primitive and developed computer game fictions, with the player acting as part of the resistance (e.g., *Space Invaders*) or as one of the aggressors, as with *TSOT*. Increasingly, game fictions approach this aggressor/defender dichotomy with

significantly more nuance than in previous iterations, both thematically, within the game, and with games themselves as systems of control.[84] Thus, while more sophisticated methods of player agency such as dynamic cameras have been implemented, I will also demonstrate how methods of camera focalization also enable designers to better control how, and what, a player sees, and how players learn to overcome obstacles, conquer enemies, and find the plotted line or lines of approach in a physical sense. As much as the interface is increasingly controlled by the player, so too does it increasingly serve as a means of player control (which is to say, player manipulation) through well-designed sequences.

Aarseth's conception of ergodicism as "work path" subtly reinforces this underlying struggle inherent in any control system, the careful exchange of power between a designed experience and the experience of that design. The common perception of "interactivity" as a concept too often celebrates the freedoms of user involvement, rather than noting the limitations. The twin branches of ergodicism (work and path) stress user involvement, certainly, but more importantly the focus of effort and resistance—*the friction of work*—along predetermined pathways. We see this friction at play many times, as the Prince and the player actualize events that hinder, rather than aid, their progress.

Directed Action: "Throw your lever!"

One of the more effectively self-defeating moments in the game occurs when the Prince activates the palace's defense system on the well-intentioned advice of a palace guard (a non-player character, or NPC). Here, designers make use of the many interface

[84] *TSOT* serves as an apt example, in which the aggressor swiftly becomes the prey. Game designer Jordan Mechner discusses *TSOT*'s anti-war theme in *Second Person*.

channels, but do so primarily through the use of short cut-scenes, embedded dialogue, and camera focalizations, all as reiterations of clues towards the solving the diegetic puzzle. The events are initially foreshadowed,[85] as are other events throughout the game, through the sand-vortex dream sequences, which are visual elements—diegetically, after-effects of the loose Sands of Time—spread at intervals throughout the game that provide brief cinematics and serve as useful save points.

Moments a player spends watching a sand vortex cinematic are not simply moments of non-interactive reward, but may also be considered part of the playful hermeneutics of game fiction. These sequences are sepia-toned cut-scenes that show brief, rapidly-cutting montages foreshadowing events that are to come, focalizing the player's attention on goals and objectives.[86] These cinematics encourage attention and concentration, as they provide formidable clues for the player as to how to solve the coming puzzles, navigate space, and where potential battles will occur (and the kinds of enemies he must overcome). When the sand vortex foreshadows events, such as those surrounding the Palace Defense puzzle, we witness a rapid montage. Our watching is an act of interpretation; our play becomes an act of suture. The scenes serve not simply a narrative undertone, but rather encourage ludo-narrative fulfillment by means of playful engagement. This particular sand vortex cinematic unveils both the puzzle that activates the palace defense system and the traps that—unknown to the player at the time—will actually *hinder* the player's future progress through the game.

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[85] Narratologically speaking, these moments present a rather interesting question as to whether the sequences are actually prolepsis or analepsis. For the player, it is prolepsis, foreshadowing coming events. For the Prince-as-narrator, who is telling his tale retrospectively, it is an odd combination of both. The player is playing the retrospective narrative, which means the events already occurred, and thus the Prince's relation of those sequences are analepsis; but in the Prince's original encounter, the sequences were for him prolepsis.

[86] Other game fictions manifest similar functionality in the assignment of core objects, quests, or specific goals, often cast as needs within the fictional world.

The sand vortex cinematic functions as one of many *cues* throughout TSOT. Cues are hints towards progression, notions of how the player might operate within the environment in a way that, for game fiction, will fulfill ludic goals and narrative events. In addition to stand-alone cinematics, non-interactive camera use, such as brief camera sweeps that pan an area or intense close-ups that focus on items of significance, are common in the game. In this puzzle example, as the player enters the room housing the defense system mechanism, the camera (not in the player's control) also offers a panning shot around the room, highlighting the player's setting and goals.

Figure 15: Palace Defense System screenshot. Camera view showing guard, on left, shouting instructions to player, who is on the puzzle platform center-screen.

The panning shot is followed by one more non-interactive sequence, in which a surviving guard asks "Can you help me activate the assault defense system?" The guard provides a verbal description of the puzzle as the camera (still outside the player's control) continues its panning shot, showing additional details of the room. Each of these are deliberate

cues, highlighting for the player the steps toward actualizing the event. The guard continues to offer voice prompts to the now-interactive Prince, providing advice, hints, and congratulations, while the player works through the puzzle, managing both the Prince-avatar and their interactive camera. The Prince and the guard even exchange dialogue, all channeled while the player manipulates the environment. As the player completes the tasks, the Prince wonders aloud (an automated call to an audio file): "What manner of machine is this?" and the guard replies "I told you—it's the Palace's defense system. Stop wasting time. Throw your lever!" The player, admonished by the guard, forges ahead (with an immediate response that would have been impossible had this been a fixed cut-scene), pulling the final lever that activates the defense system. The door highlighted in the initial panning shot now opens, allowing the Sands of Time to sweep in, thus turning the misguided guard into a zombie. The player quickly comes to realize he or she made the navigation of the palace imminently more difficult not for the monsters, but for the Prince himself—a point driven home through advice from the dry subjunctive narrator[87] to "Avoid spiky poles."

[87] This is another narrative voice channeled in the game, quite different from the Prince's own narrative style, in the form of a subjunctive second person instructional address (e.g. "Press R2 for First-Person Camera. L2 for Landscape Camera").

Figure 16: Avoid spiky poles.

Of the multiple channels of narration in *TSOT*, these represent several of the most cinematic; in addition to the filmic sequences, the narrative voices such as the guard, and the modest use of the player's camera controls are much more pronounced than the subtle indicators of status, location, and action implicit in the health bars, power meters, and even audio alerts that are more prominent in other active sequences. The guard's exhortation to "Throw your lever!" pushes the player, even as she recalls that same vision of the lever from the sand vortex cinematic at the beginning of the action. The puzzle literally highlights this push and pull between instruction and action, and the reiteration of cues, as the player guides the Prince through the manipulation of two sets of pulley systems in order to maneuver and properly align the defense mechanism. The puzzle requires that the four posts be picked up and matched according to the symbols of waxing

and waning moons. If anything, the puzzle highlights the directed action of the fiction, and the unrelenting prompts from the guard are as insistent to the Prince-as-avatar as the Prince's "No, no, that's not right" is to the player when he or she makes a deadly mistake. Cues such as these center the player's attention towards a ludic goal that, in this specific case, also supplies a self-defeating moment in the Prince's retrospective narrative. This unavoidable mistake hinders the player while making the game-play experience more challenging and more engaging. Narrative tragedy, slight as it may be, serves ludic complexity, and it is in the balance of this combination that *The Sands of Time* finds some success.[88]

The player, by mastering the puzzle, actualizes a nucleus by following the cues of audible instructions and cinematic explanations, most of which are sequential and repeated through multiple focalizers and voices. The bulk of the sequence is spent on Stack B (see Figure 11, above) as narrated event (representing the Prince's knowledge of narrative events, though not always his voice), and only allowing for truncated character position on the active Stack C (actually enacting the puzzle). Of the many abilities the Prince has throughout the game, the player is limited here to very few—two push/pull dials to control the puzzle. Even movement is constrained. The puzzle (and the associated limited actions) provide a series of actions (catalyser events) towards actualizing nuclei. Individual players might spend more or less time solving the puzzle; one player may run around in circles for ten minutes, while another might spin the wheels to solve the puzzle in an "ideal" playing of the sequence. While such events are

[88] As Jordan Mechner asserts: "Give the story's best moments to the player, and he'll never forget them. Put them in a cutscene, and he'll yawn" (111).

significant for the player (frustration for the former, pride in the latter), these actions are computationally insignificant beyond that either method ultimately unlocks progression.[89]

A final note on the typical cut-scene: such cinematics are oft-maligned in gaming communities, as they employ cinematic conventions for narrative exposition sometimes at the expense of ergodic input. Thus, cut-scenes remain a primary point of critique when discussing narrative and ludic opposition. The problem generally is not that cut-scenes *exist*, but rather that they are *too long*. After all, a cut-scene is nothing more than an extended animated sequence, often with dialogue, that usually provides narrative exposition. In 3D computer games, an "action"—that is, an event on the part of the player, which can range from movement, to swinging a sword, or casting a spell—is generally a *brief* animated sequence, often with dialogue (or sound effects), that usually serves a ludic (and oftentimes narrative) purpose. Both are generally preprogrammed: computer games are not so advanced that a character can initiate a character animation that has not been already preprogrammed into the game. A character not programmed to jump cannot suddenly begin to jump, unless a player manages to exploit an already existing behavior to accomplish this task. Both involve events. Both often include sound (e.g., extensive dialogue in one, the grunt of a warrior in battle in another). The primary distinguishing characteristic is *length*. A lengthy cut-scene removes the sense of agency by requiring a player to watch for prolonged periods of time, whereas a lengthy sequence of actions provides a player with agency by stringing together a series of pre-programmed actions into a sequence of events in part decided by the player within tight

[89] In Chapter 4, I explore the mechanics behind this kind of trigger in more detail.

constraints.[90] On many occasions, *TSOT* successfully uses smaller segments of pre-programmed material: a bit of encouraging (and directive) dialogue from Farah, a swift change of focalization to show an objective, all only a few seconds long and barely breaking the player's sense of control.[91] The interface channels information relevant to both story and game, providing the illusory sense of interactivity because these insertions rarely break the player's sense of control, all while maintaining strict constraints on available trajectories a player can take—truly a "work path."

Catalysts and Cameras

In order to complete puzzles and other advanced forms of interaction, the player learns to employ the configurable camera, which provide multiple viewing perspectives and offer key channels of information through which the player understands goals and rules in order to both complete the game and actualize the story. It is not insignificant that one of the first lessons the player learns in *TSOT* is that the left joystick of the gamepad controls the avatar, while the right analog stick controls the camera. Lev Manovich notes that "computer games use—and extend—cinematic language" in "their implementation of a dynamic point of view" (84), further arguing that "directing the virtual camera becomes as important as controlling the hero's actions" (84). Rather than a singular immersive focus, players must increasingly learn to manage multiple focalizations.

[90] This is increasingly being used in game design in sequence-specific actions, as in *God of War*'s major battle sequences, where the player uses context-specific controller actions (as instructed on the screen) to defeat a specific kind of monster and/or advance the plot. I discuss player action and character in greater detail in Chapter 5.

[91] *TSOT* can also be faulted for having occasional lengthy, quite constrictive cut-scenes in a few key locations of the narrative.

Interactive levels of camera control vary widely between individual video games, although some general trends can be noted as game technologies have evolved historically. Much like the fixed cameras of early cinema and the fixed play spaces of board games, early computer games with graphics provided limited options in terms of focalized space—the camera view was essentially the screen view. *Spacewar!* (1962) has a fixed omniscient view of a limited universe so small that when the rocket sprites transgress the boundaries of play at the side of the screen, they simply pass through to the other side after briefly disappearing from view. Scrolling screens—left to right, top to bottom, etc.—brought an additional kind of motion to computer games, such as in *Super Mario Brothers* (Nintendo 1985).

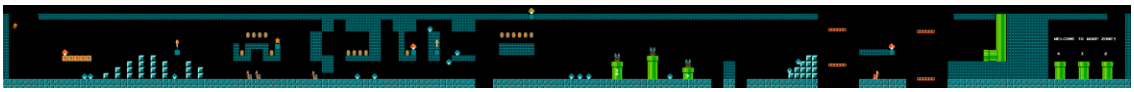

Figure 17: The complete Level 1-2 in Super Mario Brothers. [92]

Games like *Legend of Zelda* scrolled through entire screens, while the sprite (Link, who is the player's character) had full range of movement within each "room" that fills the screen (see Figure 18); Link can move between each room via the doorways, in many ways combining scrolling games with the manner in which characters "move" from room to room in text adventure games.

[92] Players would only see a portion of the level scrolling past at any one time. Image courtesy of Ian Albert (http://ian-albert.com/misc/gamemaps.php).

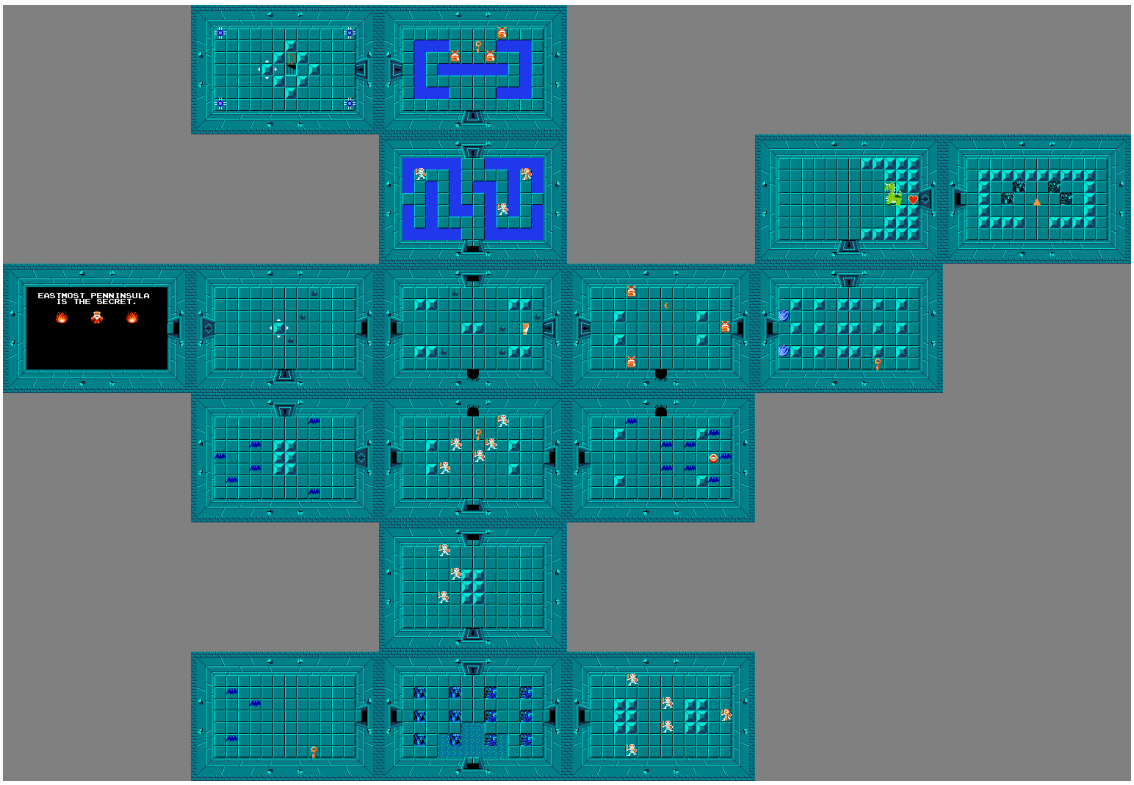

Figure 18: Stitched map of Legend of Zelda Dungeon 1—17 total "screens," with each rectangle representing a single view. [93]

A similar blending of focalizations continued as games transitioned from two-dimensional (2D) into three-dimensional (3D) space, such as in *Myst* (1993), where images of high-resolution 3D models were placed in Hypercard stacks—combining the effects of 2D scrolling games, text-adventure rooms, and forecasting fluid movement through space in a 3D environment:

> Despite its graphical interface and its being marketed as a virtual reality game, *Myst* is fundamentally a hypertext product. It was developed in the early, quintessentially hypertextual software, HyperCard, and one navigates the spaces of the game by clicking through successive cards in a series of stacks; it's just that the cards contain images rather than verbal lexias. Besides, as others have noted, *Myst* has deep (sub)cultural roots in command-line games like *Adventure* and *Zork*, with their virtual environments the player manipulates by way of raw text. ASCII commands--**turn left; open trapdoor; pick up torch**--are replaced in

[93] Image courtesy of Ian Albert (http://ian-albert.com/misc/zelda.php).

> *Myst* and its species of game with mouse clicks through a lushly rendered series of images (over 2500 in this case). (Jones, "The Book of Myst")

Each card in the stack holds a full-resolution, interactive image, and movement between cards simply reveals another preformatted 2D rendering of a 3D environment. The number of cards per area depends on the needs of the room. Play involves the manipulation of objects in a card in order to solve a puzzle; frequently players search the flat image with the mouse icon looking for clues to the puzzle, as though they were exploring the significant aspects of a painting's composition.

My intent is not to recount a complete history of visual perspective in video games,[94] but rather to show the many ways that players see game space, ranging through fixed views, scrolling and transitioning spaces, for many years almost always fixed to a singular view or perspective. Maintaining a single focal perspective remained—and often remains—a common approach to computer game design. But variable camera manipulation found its way into the video game marketplace at least as early as 1983 in Atari's rather unsuccessful arcade cabinet game *I, Robot*, a game similar to Isaac Asimov's 1950 collection of short stories in name only. The plot was more akin to a publication from 1949: George Orwell's *1984*. In the Atari game, "the player is an Interface Robot (#1984) in rebellion against Big Brother and his Evil Eyes… Players will enter another world where they must face off against Big Brother on different terrains, trying to shoot through a protective shield and advance to the pyramid where Big Brother's Evil Eye can actually be shot and destroyed" (*I, Robot Operators Manual* 1-3).

I, Robot was unusual for a number of reasons, and is often noted for the distinction as the first to include full 3D polygon graphics, heralding what is now a rather

[94] Mark Wolf offers eleven representations of game space ("Space in the Video Game"); for a critique of Wolf, see Salen and Zimmerman, Rules of Play, 394.

ubiquitous feature in modern games.[95] The game also included a free-form drawing program, called "Doodle City," making it an early example of a game that encouraged emergent, free-form play alongside a more controlled experience.[96] But perhaps most significant among the "New Features" listed in the game manual was:

> Changing Perspectives. By pressing the start push-button while in Game Play, players can change their viewpoint on the playfield. It takes them from an overhead view of the entire terrain to a ground-level view, where shooting the enemy is worth more points. (*I, Robot Operators Manual* 1-3)

The inclusion of a shifting perspective not only de-coupled camera control by making it a separate interface decision and activity, but doing so enhanced visual focalization as well as the ludic opportunities: a ground-level view provided more points, whereas the overhead view provided a better overall scope of the playing field.

Michael Nitsche notes a similar moment of transformation in the 1996 title *Super Mario 64*, which goes so far as to highlight the camera "as a separate character: Lakitu—an occasionally visible camera operator … Players control Mario, the performer of all relevant actions in the game world, as well as the *external focalizer* Lakitu" (2). Nitsche further suggests that rather than simply following cinematic conventions, focalization in the form of configurable cameras "help players…comprehend any given game situation, contextualize it (e.g. in its spatial setting), create strategies to address the event, and ultimately to trigger the event generation," (5).[97] The relationship between event or object as *seen* and the focalizer as *viewer* often combine through interaction to generate the next series of events, puzzles, or quandaries for the player to overcome. By seeing a

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[95] See *High Score* 91; *Arcade Fever* 47; *The Ultimate History of Video Games* 501

[96] Arguably, *I, Robot* might also be considered an early example of the "stealth" genre: the only method for completing the game involves jumping when the Evil Eye is closed, as the "law" prohibits jumping. If Interface Robot (#1984) is caught jumping while the Evil Eye is looking, he loses a life.

[97] A process Nitsche relates to "[Chris] Crawford's definition of interaction as 'a conversation'"

location to reach, a monster to defeat, or an object to obtain, players use the available tools to overcome the challenge and unlock the next series of exchanges—actualization in part through focalization. *Myst* serves as a quintessential example of this kind of interaction: the player studies the flat screen for clues, manipulates the environment to solve the puzzle, and is thus able to move on to another series of hypercards that comprise a "world."

In *TSOT*, the camera plays an active and essential role, and the player's manipulation of the dynamic view of the camera is part of the *play-as-process* towards actualizing plotted events. Despite the fact that *TSOT* is in effect a unicursal[98] labyrinth, with a rather singular path of fulfillment, it remains replete with challenges that require multiple focalizations in order to be successful. Players learn the array of camera controls within *TSOT* during the beginning sequence, where the Prince raids the palace in his search for the Dagger of Time, which also serves as a tutorial.

[98] Aarseth cites Penelope Doob, who "distinguishes between two kinds of labyrinthine structure: the unicursal, where there is only one path, winding and turning, usually toward a center; and the multicursal, where the maze wanderer faces a series of critical choices, or bivia." (Cybertext 5-6).

Figure 19: Normal 3rd person view. Instructions in subjunctive voice.

Figure 20: First person view.

Figure 21: Landscape view.

TSOT allows three distinct camera views: normal, first-person, and landscape (seen in order in Figures 19, 20, and 21 above, which all provide the different views at the same location in the game). The normal camera view is a third-person perspective, in which the camera follows and floats in close proximity behind the character. The player can spin the camera using the right analog control on the gamepad, and she can also zoom the camera in and out within a limited range; the player can move freely while the camera is in this setting. In first-person mode, the player cannot move the avatar, although she can see any angle from the fixed camera point. Landscape view affords a long-shot view from a predetermined location depending on which scene the character happens to inhabit.

The landscape long view provides broad contextualization of the puzzle at hand, and offers a number of cues. Players can follow the lines, understand the composition of

the long-shot, and return to normal view in order to continue their navigation of the game space. While a combination of landscape and first-person perspectives help the player contextualize and strategize for puzzles solutions in *TSOT*, normal view frames the events—moments of actualization by solving a puzzle or overcoming a monster-opponent. Consider this screenshot from TSOT[99]:

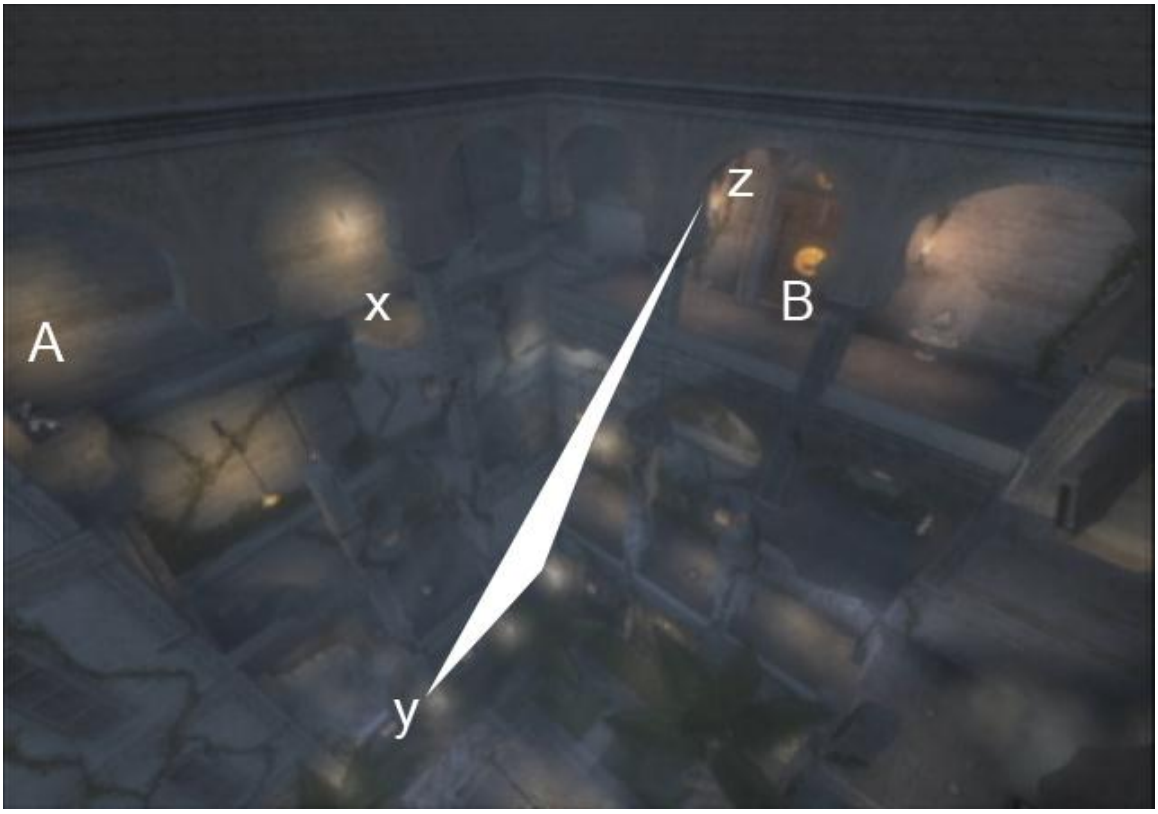

Figure 22: Annotated Landscape View.

The Prince needs to move from point A to point B (annotated on the above screenshot), which the above Landscape view focalizes attention to through the use of line, color, and light. The ledge from A, where our Prince stands, follows to a point at the center of the screen, where our eye subsequently follows the line to the right where the door stands

[99] The Prince is located at the top level of an atrium. The courtyard (where he began) is near annotation *y*. He now stands at *A*.

(point *B*), marked with a bright yellow symbol, a flare that captures the eye as a site of likely significance. The flare, as a type of cue, *pulls* the character towards an intended path or action. Game fictions depend on cues and flares to push and to pull, respectively, the player character along actualizable paths. In this scenario, the foreshadowing vision from the previous sand vortex cues the player to perform certain actions, and a player's recognition of actionable areas, along use of lighting and color, pull them along the path. For example, bright lights on the top ledge call attention to danger at point *x*, where there is no walkway (the Prince must "wall run" to get past this obstacle). The brightest light illuminates our objective, with two torches framing point *B*, and with at least four lights guiding the eye from point *y* up the wall to point *z*, lest the player miss the other clues.[100]

After the player guides the Prince to point *B*, the Landscape View available to him or her changes to the view in Figure 23. With the player character now standing at point *B*, the new landscape view shows that the Prince must trigger a lever at point *C*, which opens the door at point *B* for a brief period of time. The player must guide the Prince past the obstacle,[101] and run through the door before it closes. Thus, to move from the lowest level at the ground floor through the exit door at the top level, the player negotiates the Prince through a battle sequence, brief puzzles, a series of navigational jumps, swings, and "wall runs." For the player, coordinating the various camera views—multiple focalizations—is as important as maneuvering the avatar. The visual interface alone channels signals through the HUD, the cameras, and the layered cues and flares

[100] For more on the subtleties of lighting in computer games, see Niedenthal, Simon. "Shadowplay: Simulated Illumination in Game Worlds." June 2005 Changing Views: Worlds in Play Conference Proceedings. http://www.digra.org/dl/db/06276.16497.pdf; El-Nasr, Magy Seif , Simon Niedenthal, etal. "Dynamic Lighting for Tension in Games." Game Studies. volume 7 issue 1 December 2006. http://gamestudies.org/0701/articles/elnasr_niedenthal_knez_almeida_zupko

[101] The gaping hole between *B* and *C*; the player must "wall-run" and also avoid a buzz-saw trap within running vertically up and down the wall.

within the mapped environment. These elements are not emergent; they are designed. The player, in short, must follow the lines; aside from minor variants, the Prince's path is in every sense of the word "plotted."

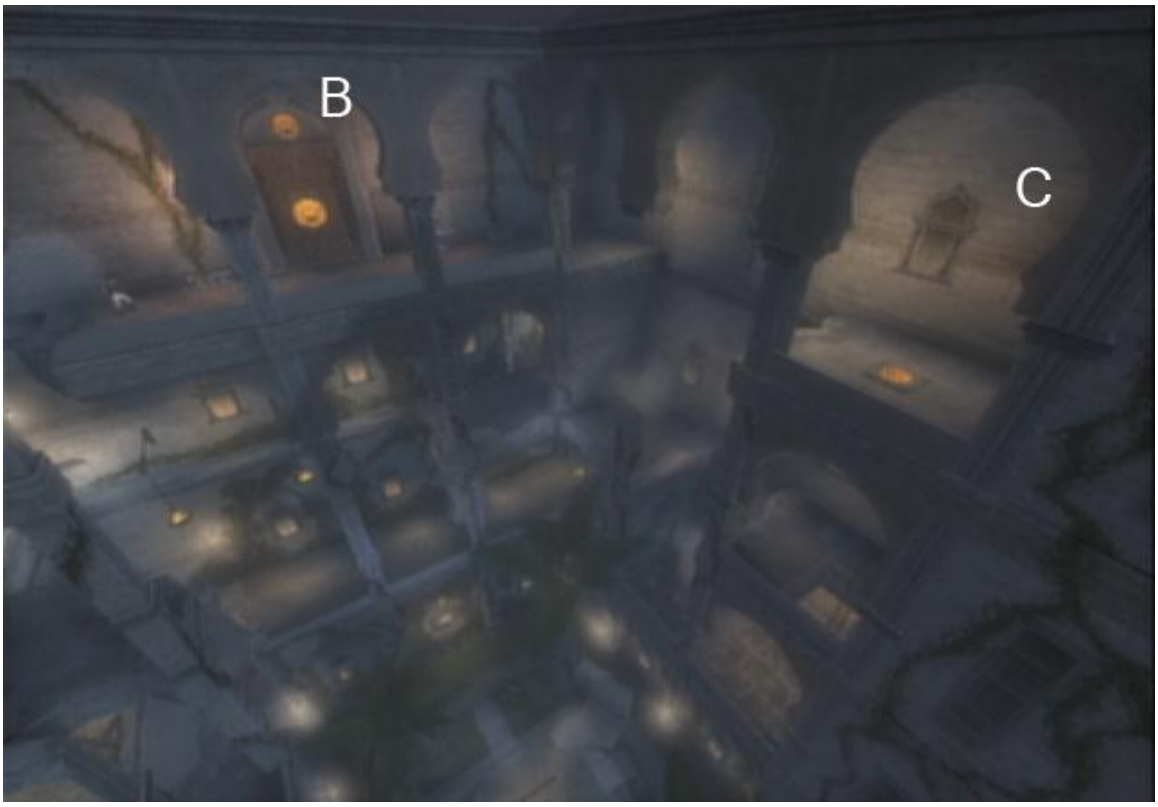

Figure 23: Second landscape view showcasing next set of events.

The player is still empowered, however, to navigate using a variety of actions (catalyst events), which are significant for the player in their particularity, and yet only significant to the game computationally as a measure of success or failure. The *degree* to which a player has the most freedom of choice is usually inversely proportional to the specificity and complexity of the nuclei to be actualized. In the example of the previous Palace Defense System puzzle, the bulk of the game section resided on what we are calling Stack B, heavily imbued with a cinematic focus, and with player action rising to Stack C in quite limited ways. While navigating the traps and climbs in this current

navigation puzzle, however, the player spends much of her time in Stack C, using her configurable camera and various jumps and moves to actualize the path and solve the landscape puzzle. In many ways, this distinction represents the different narrative voices channeled through the interface at different stacks; though not exclusive to one another, moderated moments of agency see a decreased use of simultaneous channels, while increased agency will see an increased use of simultaneous channels. Each can have impact, and their use is more often a matter of craft and pacing.

The Multiple Voices of the HUD

Pacing is quite relevant to event structure within game fictions. As we have seen, there are moments in which the myriad signals of narration reiterate the steps towards fulfilling an actualizable memory, as with the palace defense sequence, and further, in which the player's use of cameras reinterpret the landscape, as in the navigation puzzle described above. The heads-up display (HUD) is yet another layer of the interface that channels multiple, often synchronous, signals that frame interactions and events. For our example, consider another moment of tragedy for our hero, in which the Prince's father is now transformed by the escaped Sands of Time into a horrific monster who blocks progress to other parts of the palace, forcing the Prince to slay him. This Oedipal sequence demonstrates a common game trope in which progression is stalled by an obstacle that must be overcome, which often requires the solution to a puzzle, a hidden key, or the display of battle prowess (or some combination thereof). In this case, the only effective means of communication with the Prince's father is violence, and so the player must win the battle to move on.

Quite lengthy and interactive, there are plenty of individual actions (various modes of attack, e.g.) that culminate in the defeat of the Prince's father. It's quite insignificant computationally how you choose to win. Do you use a special attack? Do you vault over the monster or attempt a direct sword swing? Are you required to use the Dagger of Time to reverse time to prevent a particularly nasty attack? Each choice makes the battle quite relevant and personalized *to the player*, while for the designer, it matters only that the battle reaches a conclusion.[102] Here we have emergent play within constrained plot, a string of individual catalyst events—an extended Stack C—that leads to the actualization of a clearly significant memory in the Prince's recollected tale. It is here that the player most evidently "plays" the interface, following a series of cues, signals directed primarily through the many channels of the HUD.

TSOT employs a simple, non-intrusive HUD (see Figure 24), bordering the sides of the screen on the upper-left x- and y-axis. The life bar shows the Prince's state of health, which can be affected by falls, enemy attacks, and traps. The life bar can be replenished by drinking water, which "is life" (*TSOT Game Manual* 13)—appropriate in an environment where the Sands of Time are consuming humans and turning them into sand zombies. The Prince uses the Dagger of Time as a weapon, as well as a tool that allows the wielder to reverse time and, eventually, to control it. In functional game terms, pressing the L1 button allows the player to reverse already-passed frames from one to ten seconds, effectively moving backwards through time. The time circle, which resets after certain actions, dictates how far back the Prince can reverse time, with a full circle

[102] From a design perspective, the situation requires considerable more nuance than a simple computational toggle, however. Relevant questions in designing the encounter might include: is the encounter appropriate in its difficulty and balance? Does the player have the tools or play vocabulary—the range of actions—to complete the encounter? Is it fun? And, does the encounter impact the story effectively?

representing ten seconds. Each sand tank, which can be refilled by retrieving sand from an enemy in battle, or by capturing a "sand cloud" in the game, represents one opportunity to reverse time. The power tanks represent additional powers for the dagger, which include slow motion, hasting the Prince, or freezing enemies.

Figure 24: Annotated screen interface HUD from *The Sands of Time*.

These four subtle components (annotated in Figure 24) are displays of *condition* or *location*, metonymic visualizations that distinguish the interface as fictional as well as functional, reflecting a character's changes in status over time. As cameras provide in-game vision to describe what is seen (the fictional "state of being" of the game

environment), the HUD details for the player the avatar's "state of being." A camera angle, for example, cannot display a character's state of health; a screen interface must abstract the character's status in understandable ways for the player. Examples of a character's condition include descriptors such as "hurt," "armed," or "buffed."[103] In *TSOT*, the life bar is an example of the Prince's health condition. When protecting Farah, which is an occasional play-element during the Prince's battles, a red bow on the right side of the screen appears and functions much the same as the Prince's life bar. Should Farah's life bar empty, she dies and the game—and the story—must restart, as Farah serves a crucial role in the narrative.

Interface features are not limited to physical health, but can also indicate states of power. The sand tanks and power tanks, as abstractions of the amount of sand held within the Dagger, are visualizations of real-time descriptions of condition, representing the power available to the Prince to reverse time or employ useful battle techniques.[104] The HUD provides visual cues similar in function to *adjective* and *verbs;* each of these channels provide fictional abstracted, yet real-time signals of a character's condition and signify potential actions the player character can perform. In game fictions, these are, in

[103] "Buffed" is a term used by players to indicate the presence of spells or power-ups that enhance a character's abilities. The antonym is "debuffed."

[104] Alexander Galloway aligns such interaction along an exchange of *expressive acts* by the player (as part of diegetic player acts) and *enabling acts* of the computer (which he classifies as non-diegetic machine acts) (22-29). Expressive acts can be move acts, such as walking into a room, or other forms of action such as attacking an enemy or taking an object. With enabling acts, the "machine grants something to the operator," such as "a piece of information" or a power-up. Their "receipt or use … constitute enabling acts," which is to say, they provide data signals that set the stage for a player's next expressive act; Galloway notes the HUD as a key element of enabling acts. While Galloway describes these computational acts as "non-diegetic," he acknowledges that in many cases their incorporation into the game is such that "the line between what is diegetic and what is non-diegetic becomes quite indistinct" (28). Alternatively, Brenda Laurel identifies of the interface as the "shared context for action in which both [person and computer] are agents" (4), a notion that perhaps more suitably represents the layer of exchange in game fictions.

short, mechanisms in support of narrative communication, reflecting the progress of player actions in actualizing the ludic event.

Whereas the life bar indicates condition, the time circle displays location (see Figure 24, above). Location can provide geographic information as a map or radar would. In this case, the time circle indicates chronological location (where the Prince is in time), which happens to be integral both to the fictional imagination of the Prince's world and the logic present as part of the key to game play.[105] Again, this functions as description as well as a reflection of a narrative event. Should the prince die, either in combat or by taking damage by falling during the many platform jumps necessary to complete the game, the player can reverse time. Though the process of pressing L1 is supposed to signify the Prince actually using the Dagger of Time, the player can use this function even if the Prince has already died (thus making it relatively difficult for the Prince himself to react). The avatar is not linked to the interface, in this instance, but *is distinct from it*, a recognition of the multiple subject positions the player occupy in the act of play.

These multiple positions contrast to the immersive qualities of games articulated by Bob Rehak, for whom the "intent" behind the use of cameras and avatars is "to produce a sense of diegetic embodiment" (110)—not simply a player point-of-view into the game world, but an immersed sense of being. His extensive reviews of avatar development—a spaceship in *Spacewar*, the textual avatars of interactive fiction, and the

[105] The use of time in game varies, of course, and certain uses of time markers, such as the clock that counts down in *Super Mario Brothers*, is a limited example of fictional location, as its purpose is more a part an arbitrary rule (e.g., "You must complete this level within three minutes") rather than an indication of any clear fictive purpose. In contrast, the original *Prince of Persia* had a one-hour time limit, but this deadline was tied to an ultimatum given to the princess by the Vizier keeping her captive. As such, it functioned both as chronological location and health condition (after an hour, the princess was to be killed).

embodied-camera of first-person shooters—leads him to declare, "through gaming, then, the concepts of avatar and interface became linked" (Rehak 111). While there are certainly some examples to support such a close connection, the distinct points of view established between individual genres can vary widely. In many cases, as I have argued, the camera, the avatar, and fictional vignettes such as cut-scenes, and so forth—all signals channeled through the interface—constitute multivalent player points of view, which are complementary, unique, and crucial to the player's ability to both achieve the kind of virtual immersiveness that Rehak suggests, but also to garner the crucial clues that aids the player in game mastery. Such an experience often requires a distance that *eschews the immersive* in favor of player objectivity, a principle in line with Bolter and Grusin's double logic of remediation—a desire for both immediacy and hypermediacy.

The distinction is acute during these moments of death. Rather than achieving Rehak's sense of diegetic embodiment in which the camera and avatar are fused in a sense of immersion , with a dead avatar and a frozen camera, the player essentially plays the interface, using cues from the time circle to undo what in terms of the camera and avatar were final moments. Refuting temporarily what Galloway calls the "death act"—normally when "the code of the machine itself is celebrated, with all its illegibility, disruptiveness, irrationality, and impersonalness" (28)—the player of *TSOT* instead reasserts narrative actualization, ludically exclaiming (before the Prince does), "No, no… that's not what happened." No matter the cause of death, certain channels of information become sterile at this point in time—the camera becomes fixed, the colors on the screen dull, all signifying the status of "death"—while others remain temporarily available. The time circle signifies the only available option, which is to reverse the previous action and

try again, a mulligan for story actualization, and serves to crystallize a particular and necessary direction towards a specific goal, not unlike a shift, for example, of direct to indirect mode in narration within a novel, or the use of a specific shot within film. Limiting some channels of information and highlighting others functions as part of the grammar of game design, used in this case for ludic and narrative effect.

The Myth of Immersion

The tension between the generally progressive mechanics of story-telling and the potential for emergent, dynamic behavior in game systems remain a vexing issue for game critics, an issue Ryan originally dubbed the "myth of the Holodeck" ("Beyond Myth"). Ryan observes a key tension for participatory roles in directed fictions, a critical approach that has been adopted often to showcase the limits of ludic narration.[106] She asserts:

> If we derive aesthetic pleasure from the tragic fate of literary characters such as Anna Karenina, Hamlet or Madame Bovary, if we cry for them and fully enjoy our tears, it is because our participation in the plot is a compromise between the first-person and the third-person perspective. We simulate mentally the inner life of these characters, we transport ourselves in imagination into their mind, but we remain at the same time conscious of being external observers. But in the *Star Trek* Holodeck, which is of course a fictional construct, the interactor experience emotions in the first person mode. ("Beyond Myth")

She goes on to assert that "Interactors would have to be out of their mind—literally and metaphorically—to want to submit themselves to the fate of a heroine who commits suicide as the result of a love affair turned bad, like Emma Bovary or Anna Karenina"

[106] Juul, for example, notes: "It seems, for example, that a game cannot have the goal that the player should work hard to throw the protagonist under a train." "Games Telling stories?-A brief note on games and narratives" (http://www.gamestudies.org/0101/juul-gts/). Cf. Aarseth, Espen. "Genre Trouble." First Person. pg. 50; Frasca, G. "Simulation Versus Narrative" *The Video Game Theory Reader*. Pg. 227), Juul, Jesper. *Half-Real*. pg. 161.

("Beyond Myth"). While comparing media forms is a natural critical impulse in an increasingly transmedia world, Ryan rightly notes that certain types of plot better lend themselves to various modes of narration, and that the failure in Murray's original example is really the failure of immersion. The myth of the Holodeck exists in part because the Holodeck is presented as a non-mediated environment, a truly immersive world, lacking interfaces of control:[107] truly in all respects the ur-"first-person perspective."[108]

Yet, in our current slate of game fiction examples, in which *The Sands of Time* certainly stands out, we can see that rather than the promise of *immersion*, we have the prominence of the *interface*. The interface not only complicates but completely disrupts the notion of a single, dominating user perspective. Instead the player is offered myriad perspectives, some within her control, others—like the Prince's voice-over narration—outside of it. The player adopts both internal and external roles in game fictions; as Salen and Zimmerman remind us, the player is aware of herself as "a character is a simulated world, as a player in the game, and as a player in a larger social setting" (454).[109] Just as the internal informational landscape becomes more complex, the number of tools, models, and modes of status representation place us within a point of that landscape and feature numerous channels of information so we might navigate it. Negotiation becomes the name of the game—negotiation of rules, of information channels, of data points and

[107] Outside an invisible oral/aural call and response to the computer at the borders of the narrative. As Barry Atkins reminds us, "in this holographic future there is no screen providing a barrier as well as access to the fictional, no keyboard, joystick, or mouse to manipulate, no clumsy virtual reality glove or helmet to remind the individual of the artificiality of the experience" (82).
[108] For other critiques of what Salen and Zimmerman call "the immersive fallacy," see their *Rules of Play*, pg. 450-455, and Juul, Jesper, *Half-Real*, pg 190.
[109] For an alternative take on internal/external roles, see Ryan's "Beyond Myth and Metaphor." http://www.gamestudies.org/0101/ryan/

hit points, status bars and radars, cameras and audible dialogue—all of which can be used, as it is in *The Sands of Time*, to move towards narrative actualization.

By actualizing the Prince's recollected tale, the player correct the hero's grand mistake, allowing him (and the player) to return in time to defeat the Vizier and prevent the original assault. The completion of these ludic goals, however, brings no small bit of loss and tragedy for the central character. Though he prevents the theft of the Dagger and the Sands, and thus saves his father and countless others, the Prince also erases his relationship with Farah, who over time through subtle cues and playful bits of banter, the player comes to appreciate as a love interest for the Prince. Though hardly the equivalent of throwing one's character under a train, actualizing this particular narrative string does bring with it a large measure of sacrifice for the main character, and arguably an emotional sacrifice for the player as well.

The lasting effect is not just an effective game story, interwoven with suitably tragic and self-defeating elements, but rather a *game fiction*, analogous to prose fiction, yet a genre unto itself—a progressive, ergodic, competitive narrative that is to be actualized by a player. It reflects the complexities of narrative transmission within an environment that allows a feedback loop. Finally, *Prince of Persia: The Sands of Time* is nothing if not a game fiction about interactive storytelling—the impositions of a designed control within the constraints of a player's imagination and agency. The Prince's voice never fails to remind the player that we are playing through *his* recollection, while the available controls allow us to play through the sequence with detailed grace and, when appropriate, with helpful instruction from either the subjunctive narrator (in writing) or a friendly ally such as Farah (through a dialogue channel). The transmission of signals

through channels in the interface is but one component in the transformation of narrative communication in game fiction. In the next chapter, we will examine further the dialectic of narrative and computational mechanisms that undergird the interface. We will quest beyond the cues and narrative transmissions that guide players in their wayfinding adventure and delve into the data landscape.

Chapter 4: Data, Set

> In October of 1994, three student filmmakers disappeared in the woods near Burkittsville, Maryland while shooting a documentary called "The Blair Witch Project." A year later their footage was found.
> -- *The Blair Witch Project*

> This item – I hesitate to use the word *document* – was unearthed on the site of what was once the city of Bangor, in what, at the time prior to the inception of the Gileadean regime, would have been the state of Maine… The item in its pristine state consisted of a metal footlocker, U.S. Army issue, circa perhaps 1955… Within this footlocker, which was sealed with tape of the kind once used on packages to be sent by post, were approximately thirty tape cassettes, of the type that became obsolete sometime in the eighties or nineties with the advent of the compact disc.
> -- *Historical Notes on* The Handmaid's Tale, partial transcript of the proceedings of the Twelfth Symposium on Gileadean Studies, held as part of the International Historical Association on June 25, 2195.

> Quest Objective: Find Mankrik's wife and then return to him in the Crossroads.
> -- Quest log text for the "Lost in Battle" quest line, *World of Warcraft*

Imagine it this way: You are standing at the end of a road before a small brick building. Around you is a forest. A small stream flows out of the building and down a gully. `In.` You are inside a building, a well house for a large spring. There are some keys on the ground here. There is a shiny brass lamp nearby. There is food here. There is a bottle of water here. *Taking these, you make your way outside, following the streambed.* Downstream is bare rock. You are in a twenty foot depression floored with bare dirt. Set into the dirt is a strong steel grate mounted in concrete. A dry streambed leads into the depression. The grate is locked.

```
Unlock grate.
```

With a minimal amount of embellishment,[110] this is a representative output that a player might encounter in the opening lines for William Crowther's original *Adventure* coded for the PDP-10. Two files comprise this earliest known version of Crowther's work, both dated March 11, 1977, one containing the code and another the data.[111] These are likely earlier versions of the code than those recalled by Jackdaw Acquerelli in Power's *Plowing the Dark*,[112] but the user output would be similar enough that either version would be, for Jackdaw, "lit in familiarity's halo."

What is compelling about these opening lines? What drew in players such that, upon return from a month's vacation, Crowther found the game being played "all over the internet"?[113] The descriptions are straight-forward, abrupt, reflective of Crowther's knowledge of caving terminology and geography. Making your way from the easily discovered building—the well house—to the grate can leave a player lost amidst the forest ("You're in forest") and the valley ("You're in valley") for some time. Why march on? What compels narrative and ludic desire?[114]

Certainly the rather unique nature of this computer program in its historical moment is compelling in its own right, and cannot be discounted. But the player is also motivated to move forward in very simple, formal ways—unexplored questions, space, and items—uncertainties for the player that reflect a Barthesian hermeneutic code

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[110] The italicized line summaries four "take" commands (e.g., Take Lamp), and four navigational commands necessary to move to the steel grate.

[111] The files are named advf4.77-03-11 and advdat.77-03-11, respectively. Recovery of these files is credited to Dennis Jerz, who requested that Don Woods be given access to backup tapes of his Stanford student account. Woods provided Jerz files from the backup and identified them as early components of Crowther's FORTRAN source code. See Jerz, Dennis. "Somewhere Nearby is Colossal Cave: Examining Will Crowther's Original "Adventure" in Code and in Kentucky." DHQ 1:2. http://www.digitalhumanities.org/dhq/vol/001/2/000009.html

[112] See Ch. 1

[113] For discussion of this history, see Jerz, especially the section "Adjusting the *Adventure* Timeline."

[114] Peter Brooks' approach to the structures of plotting and to narrative desire certainly informs the discussion that follows, though more in formal terms rather than psychoanalytic ones.

familiar in other media formats.[115] The player moves from a question towards an answer, here, implicit in the allure of the "found" object; while implicit to the player through the interface, an examination of the source code will reveal the object's explicit purpose. Uncovered source code, such as Crowther's, reveals this kind of designed intention, framed by enclosures and limitations (ala Brooks[116]) either intentional (designed constraints) or programmatic (e.g., limits in computational resources). Finally, these enclosures and limitations are, for games, more often than not in hermeneutic terms tied less distinctly to temporality and more to spatiality. These mysterious found objects—the small brick building, the key, the lamp, the food and water, the locked grate—compel us to query their significance, and not necessarily only in terms of what will happen next (in temporal measures), but what place we will encounter next (in spatial terms).

At the same time, games are notably reliant on actions and series of events. The italicized line, above, summarizes what in actual play is a series of actions: player commands to take each item individually (take key; take lamp; take food; take water) and the subsequent navigation from the building to the grate. Coupled, then, with the player desire to solve these minor intrigues is the simple curiosity and suspense in the Barthesian proairetic code[117], the combined moves and responses between player and encoded structure, the calls and reactionary responses. It should be noted that suspense,

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[115] Barthes charts five codes in S/Z, with the hermeneutic code representing the unexplained questions for which readers would want an explanation. The proairetic code refers to an action that would imply a next action.

[116] See Brooks, Peter. *Reading for the Plot.* pg. 4.

[117] "… the ability rationally to determine the result of an action, we shall name this code of actions and behavior *proairetic*" (Barthes S/Z 18-19). We should note that Aarseth also appears to draw on these Barthesian codes in his assertion of the interpretative (which he links to less interactive forms of reading) and the configurative (which he sees more distinctly aligned with more interactive modes) in reader and player interaction. While Aarseth may not deliberately associate his notion of the configurative with the proairetic, I would assert that the actions upon actions perpetuated by a player (within the constraints provided by the designer) are the essential quality of player-designer interaction in forming a game fiction. (see Aarseth, 64-65).

for the player, is often heightened here, as it is within these actions is the potential for premature closure. An incorrect move can leave a player's character lost, stuck, or dead—game over (or at least, delayed), and mystery unsolved. Game fiction, like other narrative forms, rely on these two "sequential codes: the revelation of truth and the coordination of the actions represented" (Barthes 30), with the significant addition of active user input and configuration, where mastery of abilities that govern next actions (the proairetic) enables players to interpret, and to actualize, the game fiction.

While Barthes imagines these two codes as tied strongly to time and thus discursive form, it should be noted that in game fictions, space is bound with temporality, with temporality often in games represented by *an accumulation (and mastery) of space*. A player can explore the forest and valley in *Adventure* for five seconds or five hours with little eventual consequence. Thus, the temporality of the overall plot is not on the same line as the temporality of an event or sequence of events (at least, in as much as those events impact the plot by advancing the story). The time of the plot overall is less bound by constraints than a specific series of events, except in specifically time-limited fictions such as *Deadline*, a detective game limited to an hour,[118] and real-time strategy games (RTS), where the enemy continues to attack whether or not you are ready.[119] Computer narrative game fictions are arguably progressive through space as much (and with generally more emphasis) as temporality, with significant events tied to interpreting or understanding the next steps towards solving any enigmas presented (Aarseth would call them intrigues) in a specific location or set of locations. It is precisely the encoded

[118] For Aarseth's discussion of *Deadline*, see *Cybertext*, 115-123. For an advanced discussion of time in games, see Juul, *Half-Real*, 141-156, and "Introduction to Game Time" in *First Person: New Media as Story, Performance, and Game*, edited by Noah Wardrip-Fruin and Pat Harrigan, 131-142.
[119] Still, too, this becomes as much about mastery over space as over time, as we will see later in the *StarCraft* example.

nature of game fictions, and the distinction between source code and interface presentation, that the explicitly coded structures can remain enigmatic to the player at the interface level and exposed at the data level (presuming the source code is available).

In traditional card, dice, and board games, motivation for play usually originates in the pleasure of movement (often, though not always, through space) towards the next event. The players play a hand of cards, note the order thus played, and create an outcome, often based on governing rules. The players are even free to then create a recollected narrative based on those events. The player's motivation in game fiction adopts this same method within a computationally encoded structure, one that is proscribed and described to the player in a framework I will describe in sets of pairs: setting and data; quest and query. The former in each pair (setting and quest) is most apparent at the level of the player interface; the latter in each pair (data and query) is most apparent at the level of the code. The nature of a game fiction relies on the hermeneutic and the proairetic, the interpretative and the progressive. The configurative actions of the player—the step by step actions that will be discussed in greater detail in the following chapter—in one of the primary means through which players engage the interpretative act.

The kinds of stories we find in game fictions are closely aligned with the behaviors derived from—and expected of—the computer. In this chapter, we will examine data and its manipulation, all within the context of setting. In the final chapter, we will explore player activity within game fictions in the context of the game loop. Uncovering the material, encoded underpinnings of narrative in game fictions holds significant implications for not just narrative and games but also narrative in

computational new media generally, largely viewed as a genre (or genres) driven by databases. Lev Manovich is credited with one of the most provocative claims in this regard, in which he casts narrative and database as "natural enemies" (225).[120] What is the relationship between data, databases, and narrative? And what does the material instantiation—designed or arbitrary—of that relationship reveal about that status of story within a ludic framework? In the following, I will explore the liminal space that combines the attributes of game and narrative through the encoded depths beneath the surface of the interface. In doing so, I will describe additional attributes that can guide our discussions of game fictions as representations: authored series of events which involve fundamental narrative components that are, rather than natural enemies of the database, as Manovich suggests, reliant on underlying structures of data, database, and query. At the same time, I hope to establish a set of criteria that will aid in distinguishing game fictions as a narrative genre from those games that may have narrativity, but lack a defined, generated, actualizable narrative sequence.

From Game to Game Fiction

Despite—or perhaps because of—the misty outline defining game fiction as a genre, it is perhaps best to begin with a single clear assertion that provides some solid ground from which to begin:

The game of *Chess* is not a narrative.

Let us briefly explore this claim. *Chess* does not contain narrative structure, although playing a game of chess certainly has the potential for narrative—a certain

[120] An extensive discussion (involving Ed Folsom, Peter Stallybrass, Jerome McGann, Jonathan Freedman, and N. Katherine Hayles) regarding the implications of this statement within literary studies and various academic databases can be found in *PMLA* 122.5, 1571-1612.

narrativity[121]—as do all strings of actions played out by principal characters (real or imagined), with some sort of tension, and within a setting or environment. A chess match between two grand masters from rival countries and a chess match between a young boy and an old man in a New York park both have at least two levels of narrativity—the game itself, which is to say the moves and interactions towards the win or loss, and the interaction between the players on a personal level. "Chess," Bobby Fischer once said, "is life," which we can adopt as a way to understand that narrativity, the potential for narrative to emerge, permeates all aspects of what we do. This is the criticism levied by H. Porter Abbott against the game *Asheron's Call* (and computer games generally) as a form of narrative. Abbott reminds his readers the difference between story—"something that is delivered by narrative but seems ... to pre-exist it"—and narrative (a "re-presentation," which "seems to come after"). "Narrative conveys story" he writes,

> and even if Culler and others are right that the story doesn't really exist until it is conveyed, we still have the sense of story's pre-existence of the narrative that conveys it. If we hold to this useful distinction between story and narrative, then neither life nor role-playing games qualify as narrative, since there is no pre-existing story. In this sense, role-playing games, like theater improv, are like life itself. As in life, we are aware of something happening that has not been planned or written or scripted in advance—something making itself up as it goes along. (32)

Marie-Laure Ryan rightly notes that the problem with Abbott's general definition of narrative is that narrative discourse is distinctly described in textual terms, and Abbott's critique is further complicated by a review of game narrative output from the perspective of the interface, where it will most likely appear made up along the way. If "story is an event or sequence of events (the action), and narrative discourse is how those events are

[121] Recall that Marie-Laure Ryan refers to this potential as "possessing narrativity" (*Narrative Across Media*, 9), or the potential for narrative to emerge from the situation presented. See my previous discussion of Ryan in Chapter 2.

represented" (Abbott 16), then "narrative, in this view, is the textual actualization of story, while story is narrative in a virtual form" (Ryan *Avatars* 7). "Only story," Ryan therefore notes, "can be defined in autonomous terms... it is not a representation encoded in material signs." Narrative, in other words, is distinctly tied to its material instantiation (part of narrative discourse). And yet Ryan's examples draw from a variety of genres such that by her description, almost anything—and certainly any game—might have "narrativity," which is at its essence the *potential* for narrative. In many ways, we are back where we began, lacking sufficient vocabulary or context by which to focus discussion on the designed structure of narrative within ludic contexts.

Chess, one might say, develops a story as play occurs, and it becomes narrative when it is retold. A game fiction, on the other hand, has underpinnings of story and discourse. Player interaction actualizes a game fiction, with a broadly recognizable output, similar across play sessions even if slightly nuanced and player-specific. The materiality of the discourse—the medium of its representation—directly impacts how we might conceive of narrative in a definitional sense. In computer games, we have a new genre of participatory media, which brings with it a necessary obligation to understand how the material construction impacts a game's narrative discourse, the kinds of stories common to games, and the ways we can determine narrative presence pre-coded into some games while not in others.

In what way can a game provide both open, emergent play—which like life, is neither planned, nor scripted in advance—while also providing for ergodic yet re-presentational events? What follows is a method for understanding structures of play within game fictions, and open a way for discussing both formalized narrative functions

(plotted, structured, encoded events and data), its relationship to emergent behaviors, and where interactivity, participatory behavior, or ergodicism falls in the mix. As we will see, game fictions have pre-existing story and events encoded in their data descriptions, in the trappings attached to the data-grid at specific locations, and in the quests that, like queries, guide navigation, enable discovery, and facilitate actualization.

Between extreme inscriptions and flickering signifiers

In the previous chapter, I focused on how the interface frames interaction in computer games, how it helps shape narrative focus, and how it channels multiple data signals in a way that alters how we typically conceptualize point-of-view and voice in traditional print and, to an extent, cinematic narratives. Channeling allows game fictions to make use of both traditional communicative methods—such as through narration, dialogue, fixed camera perspectives—while also making use of configurable features afforded by computing technologies, from intended uses such as configurable cameras to the consequences of allowing a plug-in to alter visual perspective in *Asheron's Call*.

The interface was also discussed as a layer that both reveals and obscures, aids and hinders. Consider the popular online role-playing game *World of Warcraft*. As a player, you might find yourself in Durator, a barren land of red, cracked soil. If you were to find water to gaze into, your reflection might reveal green skin and fangs, or perhaps a purple mohawk, or simply no hair and hardly any skin at all. If you're here, then you are mostly likely part of the Horde, one of two factions in the *World of Warcraft*, comprised of the fierce green Orcs; the laid-back, "ya mon"-vernacular Trolls; the undead, skeletal Forsaken; the bovine, earth-loving Tauren; and the recent joiners—the elegant, magic-hungry Blood Elves. An equal number of races populate the Alliance, with both factions

controlling certain portions of the two main continents in the game, and each sharing an uneasy and often contentious grasp on the many shared regions. But currently you—or more accurately, your avatar—stand in front of an orc (a non-player character, or NPC) who is possibly friendly, although you find his humor difficult to discern. This is not so much because of his protruding fangs but rather his generally blank expression; evocative, emotive facial expressions remain a relatively complex computation task, after all. Over his head dances a most curious and unexpected object: a yellow exclamation mark. He must have something to say!

Like the game *Asheron's Call*, *World of Warcraft* (or *WoW*) is a massively-multiplayer online role-playing game. Unlike *Asheron's Call*, *WoW* is wildly popular, claiming anywhere between eleven to twelve million subscribers world-wide. If this virtual world was placed on an imaginary map organized by population alone, it would find itself somewhere between the borders of Sweden and Greece. Given such success, it is easy to wonder what makes *WoW* so appealing. Could it be punctuation? Impossible!

Figure 25: The WoW quest interface.

Or perhaps not. When you first log into the game, standing right in front of you is a non-player character (NPC) with a bright yellow, cartoonish exclamation point hovering over their head. When you right-click to interact with the NPC, a manuscript page opens on-screen and the quest requirements are inscribed before your eyes. Buttons to accept or reject the quest are presented, and a log of your active quests is readily available. Within each geographic region—usually in a town specific to your faction (either Horde or Alliance)—a number of yellow marks exclaim the availability of level-appropriate adventure. If you are not the correct level, the marks either do not appear, or

they appear in a dull gray color. The entirety of quest interaction is summarized by two bright yellow hovering interface elements, the exclamation mark and, after completing the quest requirements, a bright question mark. "Don't you want to talk to me again?" the latter mark inquires.

Though the use of icons or animations to reflect potential interaction in a game has long been a staple of ludic discourse, especially in single-player games,[122] there is perhaps some additional significance to *WoW*'s punctually-iconic exclamations and queries. Punctuation, as M.B. Parkes reminds us, serves primarily to "resolve structural uncertainties in a text," and to "signal nuances of semantic significance which might otherwise not be conveyed at all" (1). Consider for a moment Parkes' own example from Bleak House, first with no punctuation:

> out of the question says the coroner you have heard the boy cant exactly say wont do you know we cant take that in a court of justice gentlemen its terrible depravity put the boy aside

And now with punctuation:

> 'Out of the question,' says the Coroner. 'You have heard the boy. "Can't exactly say" won't do, you know. We can't take *that* in a Court of Justice, gentlemen. It's terrible depravity. Put the boy aside.'

Parkes makes ready note of the impact punctuation has on the sentences: Capital letters and points begin and end the sentences, while italics offer emphasis and claries antecedents, just as other symbols signify direct speech. Punctuation becomes "a feature of the 'pragmatics' of the written medium," which lacks the many direct signifiers—"intonations, gestures and facial expressions"—available during face-to-face interaction

[122] Jesper Juul comments on "The Blue Arrow of the Video Game," where praise for the immersive qualities of Grand Theft Auto III fails to remark upon the large blue arrows flashing over game objectives. As Juul notes, Salen and Zimmerman critique this less than circumspect praise as the "immersive fallacy" (466-471).

(2). From scribal copies to the printing press, changes to punctuation can be linked to changing patterns of literacy, and the shapes and marks "were subject to considerable variation according to the circumstances in which they were used" (2). If the exclamation and the query in *WoW* function in some ways similar to formal uses of punctuation—a user interface insertion as a pragmatic disambiguation of an otherwise rich ambiguous 3D landscape of rather vast proportions—and if such use reflects a changing ludic literacy that leads millions (where once there were only thousands) of a diverse user group through an extensive virtual landscape,[123] then perhaps the quest system underpinned by those sharp yellow exclamations reflects a similarly astute economy by limiting the descriptive text to that "basic unit in a western text ... since the second century B.C." (65): the paragraph.

Most of the information for quests in WoW is encapsulated in single paragraphs, perhaps two,[124] complemented by a brief summary of immediate goals. And while many of these quests may be linked to each other, one after another, to constitute a lengthy chain, each quest segment functions just as a paragraph, which, as Parkes reminds us, "indentifies a principal topic in a text, or a point of focus in an argument or narrative" (65). Together, the sum of quests—both those that link into extensive chains and those that begin or end, and often overlap, in a similar geographic region—comprise what Jill Walker notes are a network of quests that generally fall into clear, discernible categories of exploration (of an area, or an ability or feature) or domination (killing creatures) (307). For Walker, this "network of fragments, most of which are not necessary to experience

[123] And a landscape that, for all its visual appeal, is a deeply textual, deeply *coded* one.
[124] The text for a single quest item is limited to 511 characters. Jeffery Kaplan: ""World of Warcraft quest designers are limited to 511 characters," he said. "That's all that will fit into the data entry. And all you programmers know why it's not 512." http://www.shacknews.com/featuredarticle.x?id=1096 17 April 2009

the game fully...cumulate into a rich experience of a storied world" (310). This is the visualized surface of—the interface to—the rhizomatic vision,[125] each quest a link to a geographic region, overlapping with any number of other quest networks until the whole of two virtual continents link to one another. Each quest or series of quests may be kept, completed, or abandoned, with relatively little impact on the player character's ability to advance, save extra opportunities to gain an item of useful value. A popular player add-on program[126] "QuestHelper" (Figure 26) illustrates *WoW*'s network of quests for the player on the game map. The program became so popular that Blizzard updated the game engine to incorporate a similar quest tracking feature.[127]

[125] Deleuze and Guattari's *A Thousand Plateaus*. For a critique, see Ian Bogost's *Unit Operations*, 139-144.

[126] As discussed in the previous chapter, a plug-in or "add-on" program is one that is not part of or designed by the game programming team, but rather someone from the outside, usually the player community. These add-ons often change or enhance the default interface in ways that help the player better manage their avatar and play experience. For a detailed list of add-ons available for World of Warcraft, see Curse.com http://wow.curse.com/downloads/wow-addons/default.aspx.

[127] Patch 3.3 released on December 8, 2009. In doing so, Blizzard joined many other large-scale MMOs, like *Guild Wars*, in providing increasingly clear directions within their extensive game worlds, and removing any pretense that such a finding aid is cheating. See http://www.worldofwarcraft.com/info/underdev/3p3/newquestui.xml

Figure 26: QuestHelper. The "QuestHelper" add-on enhances the in-game map, showing locations of quest events and the fastest paths (the small dotted lines) to follow in order to reach them. In software version 3.3, this kind of functionality was added to the core *WoW* engine.

This effect models also the illusion of *Grand Theft Auto* writ large, where the sheer volume of quests and objectives available provides the player a sense that they are crafting his or her own story, and even further, the sense that the story is one that emerges through player choice and ability. This thin veneer makes the game feel slightly less than a ride-on-rails, like the "Pirates of the Caribbean" ride deep within Disney World, although after choosing to "Accept" a quest, player choice rarely offers any lasting impact on the game world itself. The game becomes one of personal achievement rather than worldly affect. Impact is illusory, at least until recently, where the designers began making use of "phasing," in which the game world alters after a player makes a decision

with some lasting impact. Doing so for thousands of players is a design challenge, since a player in a pre-phased area sees a different environment than the player in a post-phased area, as though they were playing in two different realities. As such, use of phasing tends to be highly scripted.[128]

If I might assert some small amount of significance for *WoW*'s pragmatic use of punctuation as part of the game's success, then surely too the distillation of even lengthy quests into bite-sized portions (and matched by a clear sense of progression and timely set of rewards) marks an equal contribution. In short, these small interface enhancements allow for a more precise mediation between the player and the data. *WoW* is certainly not the first game to make use of these features, but is perhaps the most successful to do so on a massive, multiuser scale. While in my opinion not nearly as interesting as the dynamic and lengthy story arcs offered in *Asheron's Call*, *WoW* never leaves the player in much doubt about what must happen next, and where. And just as the punctuation marks on a page reveal the material imprint of the press, so too do the hovering yellow marks remind us that each data point is a carefully constructed—certainly designed, and one might even make use of that fuzzy and occasionally derided term "authored"—arrangement of events where the principle action of the player is to choose the arrangement of quests to pursue, and from there a series of fixed-pattern actions, a grammar, that can enable you to overcome the obstacles for the quest completion. The interface serves up verbal and visual clues that reveal the underpinnings of an encoded structure.

[128] Perhaps the best example is the culmination of the Wrathgate sequence of quests in the Dragonblight map area. See http://www.wowwiki.com/Angrathar_the_Wrathgate

The interface, however, is truly only the surface. Data permeates game fictions; it forms its substance and, just like stories, it helps shape the potential for narrative and the opportunities that will be afforded to the player within the game. As Matt Kirschenbaum reminds us,

> [S]tudents of new media [. . .] tend to ascribe "interactivity" to the advent of the screen display, the graphical user interface, and the mouse in a genealogy that runs from the SAGE air defense network through Ivan Sutherland's Sketchpad to Douglas Engelbart's 1968 "mother of all demos." Yet the advent of random access disk storage goes to the heart of contemporary critical assumptions about new media. . . . [C]omputers could not have expanded in their role from war-time calculators to new media databases without the introduction of a non-volatile, large-volume, inexpensive technology that afforded operators near instantaneous access to stored records. Magnetic disk media, more specifically the hard disk drive, was to become that technology and, as much as bitmapped-GUIs and the mouse, usher in a new era of interactive, real-time computing. (*Mechanisms* 77)

It is in fact the material structures of data and the encoded textuality hovering between Kirschenbaum's "extreme inscriptions" marking the surface of the hard drive and Katherine Hayles' "flickering signifiers" on the screen that offer substantial evidence for the narrative forethought required of game fiction, the structures that allow for player actualization of well-formed experiences. The user experience at the interface level is precisely designed to mask the complexity at the granular, encoded level (or levels, as modern computational encoding often contains multiple layers of code working in tandem, a cascade of traversal functions). The responsibility of game scholars is not simply to recognize the "magic circle"[129] of game space, and not simply to play within it, but to break it, unpack it, to challenge, interrogate, rebuild, and extend it. The game should not just be played but unveiled—quite literally, with the user interface whenever possible pulled back to expose the constructive layers that form its composition. By

[129] See Chapter 1 for my discussion of Huizinga's magic circle.

exposing its materiality, this is a challenge of to both a game's sense of virtuality and its claim to "real"-ness.

Database and narrative, then, are not "natural enemies," but rather complementary structures. Our human interaction with them is not unlike that which those Barthesian codes seek to expose—a sense of the unknown and the anticipation of the next encounter, a query for the next data point and the next event in the quest. The examination of data and narrative can inform (and critique) our cultural inclination to view a dichotomy, rather than a dialectic, in form and content. As Manovich also notes, "creating a work in new media can be understood as the construction of an interface to a database" (226). In the following, data structures will reveal a surprising amount of information, especially with regards to ludo-narrative progression and actualization. The *Adventure* source code will offer insights into the ways in which designers establish parameters for exploration and discovery, that databases are themselves interfaces. Then, in order to expand and clarify how quests and setting shape narrative experiences, I will compare the data and scripting underpinning the single-player version of *StarCraft* with the multi-player, and in their differences show why one form is a game fiction while the other is not.

Space & Setting

In game fiction, setting serves as a descriptive location in which to embed actionable events. Place itself is an abstraction—a coordinate on a grid, a box in a row of boxes, a hex in a field of hexes—that becomes defined by the setting and the actions meant to govern its use. Space becomes setting when it takes on description; it becomes

ludic when it is infused with ruled, ergodic properties.[130] When those two ingredients are combined into a planned event, the game setting becomes a space for discursive and potentially emotive formation.

Let us consider what a player would see when starting the original *Adventure*:[131]

WELCOME TO ADVENTURE!! WOULD YOU LIKE INSTRUCTIONS?

n
YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
BUILDING . AROUND YOU IS A FOREST. A SMALL
STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.

w
YOU HAVE WALKED UP A HILL, STILL IN THE FOREST
THE ROAD NOW SLOPES BACK DOWN THE OTHER SIDE OF THE HILL.
THERE IS A BUILDING IN THE DISTANCE.

e
YOU'RE AT END OF ROAD AGAIN.

e
YOU ARE INSIDE A BUILDING, A WELL HOUSE FOR A LARGE SPRING.

Now consider the following text from William Crowther's original source code for *Adventure*.[132]

```
1
1    YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
1    BUILDING . AROUND YOU IS A FOREST. A SMALL
```

[130] Following Michel de Certeau's notion that "space is a practiced place" (*The Practice of Everyday Life*, 117). Foucault, in his 1967 lecture "Of Other Spaces" ("Des Espace Autres,") remarks that "our epoch is one in which space takes for us the form of relations among sites." Moving from the hierarchical, and sanctified space of the Middle Ages through the desanctified space "signaled by Galileo's work," Foucault argues that the 20th century "site is defined by relations of proximity between points or elements; formally we can describe these relations as series, trees, or grids."

[131] William Crowther's *Adventure* offers one of the earliest forms of a playful, computerized form of virtual reality, the text adventure game that set the tone for an industry. Further, *Adventure* is a touchstone for game scholars, and the story of its creation was enhanced recently in large part due to the recent cyber-sleuthing of Dennis Jerz, who was able to track down a copy of the game's original source code by William Crowther, prior to its modification by Don Woods. Jerz also engaged in a series of interviews with both Crowther's family as well as Don Woods, the programmer who eventually adopted the original code into the version most players find themselves most familiar. For an extensive history of *Adventure*, including its various scholarly treatments and issues in dating the programming, see Jerz, Dennis. "Somewhere Nearby is Colossal Cave: Examining Will Crowther's Original 'Adventure' in Code and in Kentucky." *Digital Humanities Quarterly*. 1:2. http://digitalhumanities.org/dhq/vol/001/2/000009.html.

[132] http://digitalhumanities.org/dhq/vol/001/2/000009.html#crowther1976

1 STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.
2 YOU HAVE WALKED UP A HILL, STILL IN THE FOREST
2 THE ROAD NOW SLOPES BACK DOWN THE OTHER SIDE OF THE HILL.
2 THERE IS A BUILDING IN THE DISTANCE.
3 YOU ARE INSIDE A BUILDING, A WELL HOUSE FOR A LARGE SPRING.

The first sequence is a transcript of play —in Aarseth's terms, a scripton—with the lower-case letters representing the player commands, and the all-caps words representing computer responses. The second textual sequence—again in Aarseth's terms, the texton—is from the data file from the source code in William Crowther's original *Adventure*. The file is dated March 11, 1977, and is the best approximation of Crowther's game prior to Don Woods' adaptation, which became the popularized version. It is, quite literally, the data, set (as in staged and prepared).

As Dennis Jerz explains,

> The earliest source code for Crowther's PDP-10 "Adventure" game exists in two FORTRAN files – one for data, and one for code, dated 11 Mar 1977…The data file comprises six separate tables that contain most of the game's text: 1) long descriptions, 2) short room labels, 3) map data, 4) grouped vocabulary keywords, 5) static game states, and 6) hints and events. Embedded in the code file are the static components of variable strings, such as " I SEE NO ',A5,' HERE." (where "A5" represents the name of an object). All text was written in all-caps due to the limitations of the PDP-10.[133]

In the sample above, the numbers 1, 2, and 3 group the lines in data sets, as each is a long description. If we recreated this is in a simple database today, the text for one number would be entered in one data cell to achieve the same effect. Further, we have three "rooms"—three spaces—aligned one next to another in a data grid in the data source code. Note that, following Montfort, "even outside locations can be called 'rooms' in interactive fiction; the term just refers to a discrete location of any sort where a different

[133] http://digitalhumanities.org/dhq/vol/001/2/000009.html

set of actions are possible than was before" (18). Recall the phrasing here—a "discrete location" coupled with a "different set of possible actions"—as we will return to events specific to location in a moment.

Seemingly there is little to distinguish the scripton and texton in the above examples, except the lack of user involvement (the responses to queries) in the former and the lack of the one line "YOU'RE AT END OF ROAD AGAIN." in the latter. This aberration is, in fact, the "short description" of the starting point, used to describe an area already visited. And yet, had our enterprising player not explored "east," but rather tried "west" immediately, we would see a much abbreviated scripton:

> YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
> BUILDING . AROUND YOU IS A FOREST. A SMALL
> STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.
>
> e
> YOU ARE INSIDE A BUILDING, A WELL HOUSE FOR A LARGE SPRING.

The organization of the data has little to do with its internal relationship to each other, but is rather guided by a series of pre-established pathways and a pre-established set of commands in the second FORTRAN code file that we might refer to, per Aarseth, as Adventure's traversal function.[134] Adventure's arrangement of data and the sequencing of events within a staged environment reveal an embedded narrative drive designed into the play experience. The interface may direct the player along the plot, and it may reveal at opportune (or inopportune) moments the events that shape progression, but the data for game fictions is often pre-determined, established, and obscured. The interface—for all

[134] Of course, the traversal function serves as rather poor substitute for a series of cascading computational effects. See Chapter 1.

its revelations—also serves as the protective layer, obscuring the game data. As we examined in the previous chapter, the interface is both empowering and duplicitous.

Crowther codes the pathways between rooms and the means to navigate them in data table 3 (dubbed by Jerz as "map data"), which looks like this:

1	2	2	44					
1	3	3	12	19	43			
1	4	4	5	13	14	46	30	
1	5	6	45	43				
1	8	49						
2	1	8	2	12	7	43	45	30
2	5	6	45	46				
3	**1**	**3**	**11**	**32**	**44**			
3	11	48						
3	33	65						
3	79	5	14					

The first column represents the room the player currently occupies; the second column represents what the user will read when he uses any of the keywords associated with the remaining columns. In short: where the user is (column 1), where the user will go (column 2), and what command the user must use to get there (remaining columns). Jerz provides a clear example:

> The line "3 1 3 11 32 44" [in bold, above] represents several ways to get from room 3 ("YOU'RE INSIDE BUILDING") to room 1 ("YOU'RE AT END OF ROAD AGAIN"). These include several words ("ENTER", "DOOR" and "GATE") that Table 4 lists with a value of 3; another set ("OUT", "OUTSI", "EXIT", and "LEAVE") with a value of 11; the word "OUTDO[ORS]" (which has a value of 32) and "WEST" and "W" (which we have already seen carry the value of 44).[135]

To navigate from the starting point (1) to the grate that takes you underground (8) requires navigation through five different rooms through five navigational moves (not counting taking items, found in room 3, or using items, such as the key on the lock at

[135] I highly recommend Jerz's article, which provides a much more thorough discussion. http://digitalhumanities.org/dhq/vol/001/2/000009.html (see paragraph 26, which discusses the Map Data).

room 8). The movement is as follows: 1 -> 3 -> 1 ->4 -> 7 -> 8. You must enter room 3 (the building) in order to take the food, water, lamp, and key (which unlocks the grate at area 8). Data table 3, which maps the data framework, shows us the shortest number of moves to get to area 8. Recall that the first number is the starting room (where you are) and the second number is the room that you will be should you use the commands associated with any of the numbers that follow. Preserved in the encoded format, the order follows the alphabet, from A to E, in the far right column: A (1-3), B (3-1), C (1-4), D (4-7), E (7-8).

1	2	2	44						
1	3	3	12	19	43				A
1	4	4	5	13	14	46	30		C
1	5	6	45	43					
1	8	49							
2	1	8	2	12	7	43	45	30	
2	5	6	45	46					
3	1	3	11	32	44				B
3	11	48							
3	33	65							
3	79	5	14						
4	1	4	45						
4	5	6	43	44	29				
4	7	5	46	30					D
4	8	49							
5	4	9	43	30					
5	300	6	7	8	45				
5	5	44	46						
6	1	2	45						
6	4	9	43	44	30				
6	5	6	46						
7	1	12							
7	4	4	45						
7	5	6	43	44					
7	8	5	15	16	46	30			E
7	24	47	14	30					

Consider this an efficient, stream-lined[136]—idealized—version, just as the introduction to this chapter was. By looking at the code, one might note that the most efficient move from start to the DEPRESSION with the STEEL GRATE is to use the command DEPRE at the starting point (see line 5, above, which reads: 1 8 49). Only someone who had visited this area before would even know that they were looking for a depression, which suggests that this is a short cut for a well-worn traveler rather than a new player. While not as well known as some of the other short cuts, such as travel from the house (3) to the Debris Room (11) via the magic word XYZZY (48), there are a number of commands that allow users familiar with the data landscape to puzzle out means to faster travel. Though it is impossible to move from room 1 to room 7 in one turn, you can quickly return to 1 from 7 using the phrase HOUSE.

The flat data structure of Crowther's Adventure reflects the influence of early data models predominant prior to subsequent relational and object-oriented data models. These early data models were primarily hierarchical, stressed parent-child or networked relationships between data sets, and were, above all, navigational. Unlike the intent behind relational databases, hierarchical and simple network databases required knowledge of the data design because navigation and query occurred via predefined relationships,[137] and so it is perhaps unsurprising that learning to navigate spatial structures remains a key element of many game fictions.

Each line in Table 3 clearly delineates the data structure for relationships, with strict instructions for commands allowing movement between one room and the other.

[136] Pun slightly intended—following the stream is the fastest route to your destination, and a rather significant clue as to where to go (rather than heading off into the forest).
[137] Harrington notes "…the hierarchical and network data models are so closely tied to their physical data storage and…the data structures for relationships are actually part of the database…" See *OOCE*, 6-9.

The ability to travel in one direction does not always reflect the same return movement, as evidenced by the allowed movement from 7 to 1, even though you cannot move directly from 1 to 7. Each room is described in long detail in the first table of long descriptions, and some are described with short descriptions (table 2), and the Map Data explicitly outlines the exact language a player must use to move from one room to another. Puzzles limit sections and only by solving the puzzle (e.g. use key from Room 3 to open grate in Room 8) can a player move to the next segment. So while it is entirely possible to navigate the rooms *Adventure* without a physical computer at all by simply following the Map Data table, it is *not* possible to *play* adventure, as the Map Data table lacks information about certain events, from placing and retrieving items (Key, Lamp, Food, Water) essential to solving the puzzles of the game to events such as (listed in Table 6):

2 A LITTLE DWARF WITH A BIG KNIFE BLOCKS YOUR WAY.

or

23 YOU FELL INTO A PIT AND BROKE EVERY BONE IN YOUR BODY!

As the player navigates a seemingly virtual landscape flickering on the screen, in fact the relationships between space and the exact means to travel that space were clearly outlined in the data file for any who wished to see. As is often the case—in the game, in the code, in the archive—you just need to know where to look.

Importantly, we see that while playing through the interface may give an appearance of something akin to improve or even "life itself," as Abbott suggests of role-playing games, the underlying code—within what Kirschenbaum would call its "formal materiality"—reveals something quite different. Instead, we have a series of pre-existing rooms, distinct in their description, attached to possible events, and *only the illusion* of

"something making itself up as it goes along." Yet Abbott's reaction is quite understandable, as there exists a number of games that fulfill his criteria almost exactly, from *Chess* to the familial improv of *The Sims* to the online multiplayer battles of *StarCraft*. The distinction is one of genre, as materially encoded and inscribed, and as culturally marked, as the novel, the documentary film, the short story, the lyric poem—no more one master genre in games than one "master medium" (see Bogost, qtd Hayles 130). How do we discern with some measure of success the difference between emergent games with narrativity (in general terms) on the one hand and narrative game fictions as a genre on the other?

Found

Footage in the woods. Tapes in a footlocker. A dead body. Keys, a lamp, food, and water in a small brick building by the woods. Found objects all, and sources to narrative beginnings or, in some cases, narrative closure. The act of the search—the query—in order to find an object, or discover a found object's origin or purpose, often serves in game fictions as an analogy for the quest. The "digital quest game" has been proposed by Espen Aarseth as an adequate alternative to previous attempts to understand narrative arcs within the framework of computer games, and many others have adopted a similar approach[138] in an attempt to move beyond the perceived complications of discussing games within a narrative context. Howard aptly reminds us of the etymological roots of quest in the Latin *questare,* "to seek." (2). And while I would argue that quests are certainly essential realizations of the four principles of game fiction, it would be

[138] Juul has noted the use of quests as an attempt at "bridge-building" between "the open structure of games and the closed structure of stories," citing Susan Tosca, in addition to Aarseth and Tronstead. See also Wardrip-Fruin, *Expressive Processing* (77), and Jeff Howard (2-3).

inappropriate to adopt these efforts under Aarseth's call without examining, and clarifying the differences in our theorization of the quest.

Aarseth's motive is to push critical reception of games beyond the notion that games are simply "interactive stories," as a quirky, fascinating, though less robust means of storytelling that, while interactive, have yet to be redeemed as "literary or artistic." ("Quest Games," 362). His critiques of narrativism extend throughout his writing, and here he explicitly outlines his arguments against games as stories viewed by traditional narratological lens. In this, I agree with Aarseth, as games should not be read as novels or films or short stories or even lyric poems, but taken as they are. The dangers of broad comparisons between what Marie Laure-Ryan calls "avatars of story" (which is to say, their material incarnation), can be found in Ken Perlin's "Can There be a Form between a Game and a Story?,":

> The form I have just described, of course, arises from what I will call "The Novel," which has for some time been the dominant literary form of Western civilization. Whether it is in the form of oral storytelling, written text, dramatic staging, or cinema, the basic premise is the same. A trusted storyteller says to us, "Let me tell you a story…" (13)

The overly broad and non-specific "The Novel" described here, which is meant as a proxy for all works of narrative art, ignores the material, cultural, and historical context of literary and artistic works. "The Novel" is not simply a catch-all phrase for all literary forms that tell stories; it has a particular intellectual history.[139] Computer games, no less than any other form, are not medium-less, but rather medium-full, which is to say, that computer games exist and operate in a cascade of media, a combination of codes, operations, and procedures that interoperate in the meta-machine we call "computer."

[139] See Ian Watt's *The Rise of the Novel*, Michael McKeon's *Origins of the English Novel*, and Catherine Davidson, *Revolution and the Word: The Rise of the Novel in America*, as well as Franco Moretti's "distant reading" of the rise of the genre.

Certainly literary studies, and more specifically textual studies, emphasize the material alongside the textual, the interface alongside the typeface. Computer games draw on the literary, the visual, and the performative, and so it should seem unsurprising that we would use theories of the literary, the visual, and the performative in our investigations of them.[140]

The call for quest games as an adequate and even necessary replacement for game narratives—as "post-narrative discourse"—rests partly upon the assumption that quests are unscripted events. In support of this proposal, Aarseth draws on Ragnhild Tronstad's discussion of MUD performances[141], in which she writes:

> To do a quest is to search for the meaning of it. Having reached this meaning, the quest is solved. The paradox of questing is that as soon as meaning is reached, the quest stops functioning as *quest*. When meaning is found, the quest is *history*. It cannot be done again, as it is simply not the same experience to solve a puzzle quest for the second time. *In this, quests differ from ordinary, non-ergodic stories.*[142] The experience of re-reading a non-ergodic story isn't necessarily fundamentally different from the first

[140] Aarseth states as much in his article entitled "Genre Trouble":

> Games are games, a rich and extremely diverse family of practices, and share qualities with performance arts (play, dance, music, sports) material arts, (sculpture, painting, architecture, gardening) and the verbal arts (drama, narrative, the epos). (*First Person*, 47)

His tautological introduction—that "games are games"— offers an unnecessary caveat, an obfuscation of an otherwise appropriate description of the many media forms that influence games. That they are games seems the most obvious point of all. The rhetoric of colonization that often accompanies these discussions is as much (academically) political as it is theoretical. Computer games are a rich new genre, and there is much at stake in carving out space—both discursive and physical office space—for both narratologists on the hunt for the next interesting border case and ludologists on the hunt for an academic department. Rather than natives, ludologists (a group I would count myself a part of) are as much a newcomer as any other. Such rhetoric creates a myth of ownership and an accusation of invasion—a colonization from existing academic perspectives—which ignores the influences on games from various media to the detriment to both the history and future of game study. Game studies is a field that enjoys various influences and, as such, should encourage all types of critical perspectives. Or to quote a gentler Aarseth from his introductory editorial at Game Studies: "These are interesting times. You are all invited!"

[141] Semiotic and nonsemiotic MUD performance, *COSIGN 2001: Proceedings of the 1st Conference of Computational Semiotics for Games and New Media*, red. Andy Clarke, Clive Fencott, Craig Lindley, Grethe Mitchell og Frank Nack, Amsterdam. 2001.

[142] Aarseth summarizes this line as follows: "Tronstad argues for the difference between quests and stories…" That Tronstad actually argues for the difference between quests and "ordinary, non-ergodic stories" (rather than stories, generally) is not an insignificant distinction.

> time experience of reading it. This is because stories in general belong to the order of meaning, together with the constatives, and not to the order of the act. Quests, on the other hand, are basically performative: they belong first and foremost to the order of the act. As soon as they're solved, though, they turn into constatives. The reason quests can easily be confused with "stories" is that we are normally analysing the quest in retrospective, after we've already solved it.

It is this distinction, the act of solving a quest (as performative act) against the product of a retold story (quest as artifact) that leads Aarseth to claim that the "purpose of adventure games is to enable players to fulfill quests… this, not storytelling, is their dominant structure" (*Narrative Across Media* 368). The preeminence of action over story results in an either-or distinction for Aarseth. Games that resemble stories are primary action-based, quest games which, while fun to play, have less interesting stories. They do not, for him, compare.[143]

Quests, however, exist as stories—as narratives, with their own discursive, action-based peculiarities, and they exist as such *outside* of player interaction. Quests in game fictions have computational artifacts, and we can discern the framework of a quest without playing it. If the meaning or presence of the quest is pre-defined, this evidence would suggest design, authorship, a sense of game fiction in which the story is ergodic, competitive, progressive, and able to be actualized.

Considering the *Adventure* example above, with the supposition that finding the key and using it to unlock the grate might include the most basic of quest elements, we might argue that prior to playing the game, within the texton, the quest is already done—scripted, encoded, implemented, like a trap, taut and tense, ready to spring should a player use the (limited) vocabulary allowed them to generate the scripton that unlocks the underlying cave. These found objects—a key, a grate—rather than unplanned,

[143] We might recall our earlier discussion of games about Anna Karenina.

unauthored, unscripted, are actually *fully planned, fully authored, full scripted*. Certainly variables exist, but providing the answer to the riddle, or moving past a guard field in *Storyspace*, or finding a lost body in the virtual landscape of *World of Warcraft*—the quest fulfilled—is the process of actualization of a designed moment. Finding and documenting the evidence of already embedded data, localized to the game space, is a genre-defining process.

StarCraft and Genre Mapping

Exploring role-playing games (RPG) such as *Neverwinter Nights* that are explicitly designed with quests in mind reveals a great deal about some mechanisms that guide story-driven games.[144] But there may be more we can learn by moving away slightly from a specifically role-playing game genre into a genre less known for its narrative capabilities, in part towards an effort to distinguish between phases of *narrativity* and material instances of *narrative discourse*. The former enables narrative performance (like life, or chess); the latter allows narrative actualization.

StarCraft is a real-time strategy game (RTS) developed by Blizzard Entertainment and released in 1998, with millions of copies sold making it one of the best-selling computer games of all time. RTS games focus on resource management (gathering minerals and gases, e.g.) and using those resources to build resources (buildings, units for battle) and enhance those resources (upgrading armor or weapons). In many ways this

[144] Noah Wardrip-Fruin and Jeff Howard have used *Neverwinter Nights* and *Knights of the Old Republic* (both Bioware titles) extensively to discuss the potential and limitation for game narrative. Their work will be discussed in further detail below.

form finds its roots in traditional board wargaming, just as RPGs find their roots in the "pen & paper" role-playing games like *Dungeons & Dragons*.

It is important to note that there are two distinct ways to play *StarCraft*; the game provides options for both single-player and multi-player modes. For the single-player mode, *StarCraft* offers thirty distinct missions, each grouped in segments of ten each. For each segment, the player controls the forces of one of three races, beginning with the Terran (humans), followed by the Zerg (resembling a race of Ridley Scott-style Aliens), and finishing with the Protoss (a race with psychic abilities). The story involves a series of deceptions and alliances in which the Terran Confederacy attempts to militarize the Zerg capability for building new bioforms through the assimilation of other cultures—not unlike *Star Trek*'s Borg proficiency for absorbing into the hive mind, but through biology rather than technology. The Confederacy's actions lead to a full invasion of the Zerg, the splintering of Terran groups into a rebellion, and the involvement of the Protoss in an attempt to control the spread of the Zerg. Each group has a distinct type of technology, and so players can build unique buildings and fighting units for each race.

Race	**Single-player levels**	**Technology**
Terran	1-10	Mechanical
Zerg (Hive Mind)	11-20	Biological
Protoss	21-30	Psychic Energy

Table 4: StarCraft

StarCraft stands out because it offers three distinct playable races with unique technology trees and battle forces that were nonetheless relatively balanced, whereby a

player employing the technologies and abilities of one race does not have any distinct advantage over another race. This balance is particularly important in *multiplayer* matches, where a player can compete against up to seven other opponents. The eight competitors can be a mixture of computer-driven AI opponents or real-life individuals connected either through a local-area network (LAN) or through Blizzard's international Battle.net network. *StarCraft* is popular enough world-wide that it has a professional competition circuit with matches often aired on television in South Korea and distributed via the Internet internationally.[145] That the game remains popular after more than a decade exhibits an astonishing longevity in an industry where last year's title is often discarded to make room for next year's blockbuster.[146]

Each game or scenario of *StarCraft* is played on a single map. The map is made of square tiles, with a minimum default number of tiles (height and width) of 64 squares and a maximum of 256 squares.[147] These squares are filed by 2D tiles, which are "square tiles that have isometric image characteristics," which is how the designers achieve the overall "isometric look of *StarCraft*."[148] The maps are fairly flat, although there are six different altitudes (3 ground-based and 3 air-based) available for use.[149]

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[145] Wikipedia has an extensive discussion of the StarCraft professional circuit, including links to archives of match footage: http://en.wikipedia.org/wiki/StarCraft_professional_competition
[146] *StarCraft II: Wings of Liberty* was released in July, 2010.
[147] Thus, the smallest map can be 64x64 squares, and the largest 256x256.
[148] SCC: Frequently Asked Questions. http://classic.battle.net/scc/faq/other.shtml
[149] I am using the original *StarCraft*. The expansion software package, *Brood War*, may provide somewhat different parameters.

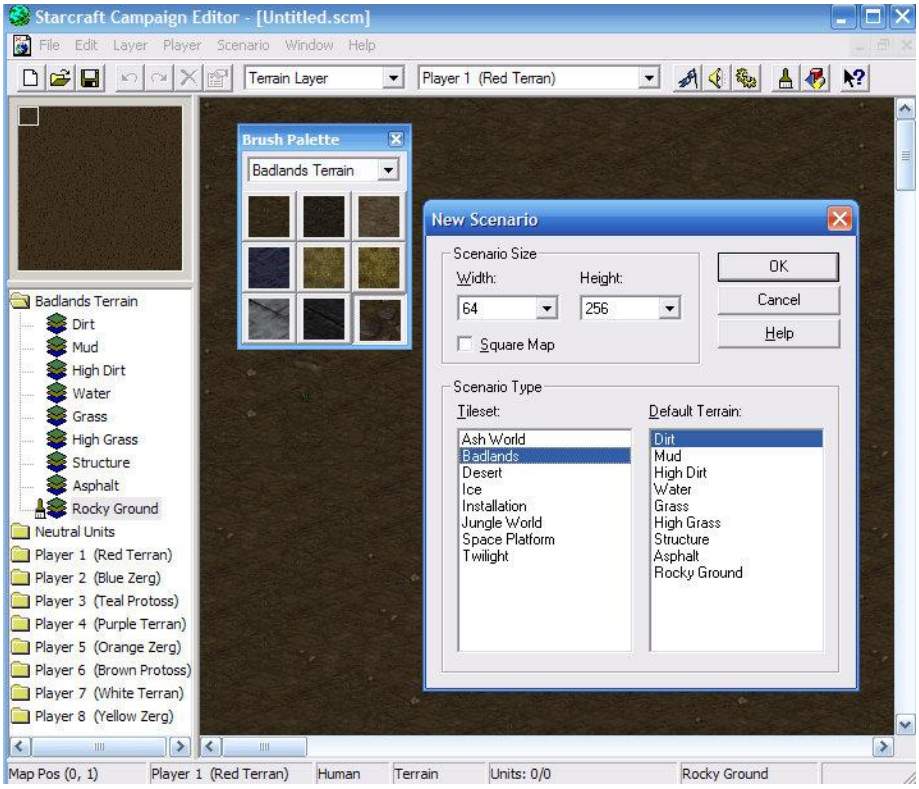

Figure 27: Terrains and Tilesets in *StarCraft*.

The basic elements of a *StarCraft* map are easily seen by opening *StarEdit*, which is a map editor program that is bundled with the game (Figure 27). While this particular map editor does not include all of the features that the game designers used to develop *StarCraft*'s missions, it does include most, allowing an easy perusal of the tiles, triggers, and "doodads" available in the game, the data structures that govern individual units (e.g., how far a Marine Unit can shoot), and basic programming features that will be discussed later. For more ambitious mapmakers, there are other programs (*StarForge* and *SCMDraft*) available developed by the *StarCraft* community that allow for a more robust interaction with the game engine, such as adjusting the hidden AI scripts not seen through *StarEdit*. With the default *StarEdit* program, a user can create a new map to share for single or multiplayer use, extending the game's playability. Inventive players

have developed robust campaigns during the many years since *StarCraft's* release, many using the more advanced editors available for download.[150]

Creating a new map using *StarEdit* reveals the relatively simple underpinnings of a *StarCraft* map file (.scm).[151] There are eight available tilesets, and each contains within their set a variable number of terrains. Terrains are graphical representations of spatial surroundings; an *Anna Karenina* tileset, for example, might have a railroad terrain. Terrains are not interchangeable using *StarEdit*—the "Dirt" terrain from the "Badlands" tileset may not be used alongside the "Moguls" terrain from the "Snow" tileset. Thus, we have eight distinct setting types, with each allowing between seven and thirteen tiles.[152] "Doodads" add feature elements, most of which are cosmetic, but a few of which are essential—such as bridge elements and stair or ramp access for elevated tiles (such as a cliff or temple wall). Other "doodads" include a few animals, statues, and other landscape features, which on their own have little special value or properties. They lack what Georgia McGregor deems as symbolic value (2), which is to say that while a Terran "barracks" building holds symbolic value as a location where the player might generate player-controlled fighting units like Marines and Firebats (thus, a barracks symbolizes the factory that generates soldiers for a player using the Terran race), the doodads generally do nothing more than perhaps impact flow—they are landscape features.

[150] For our purposes here, I will focus on the core missions (single-player) and default multiplayer maps, and will generally employ *StarEdit* for examples so that those with the game software can experiment with the same tools.
[151] Maps created for the *Brood War* expansion game use the .scx file extension.
[152] The "Installation" set has the fewest tiles at 7, and three sets have 13.

A review of the default single- and multiplayer maps for *StarCraft* reveal some interesting trends.[153] The multiplayer maps (Figure 28) underscore the balanced nature of this kind of game play. Offering one side or another an advantage creates an unfair, and thus less fun, map.[154] These spaces are "contested space," like other games in the RTS genre, and these landscape features, argues McGregor, are "influencing but not directing gameplay."[155] This kind of influence can serve a ludic purpose, but it also can establish a sense of narrativity. Resource-rich areas, for example, tend to create opportunity for an event to happen (mining, creation of a second base, or even a battle).

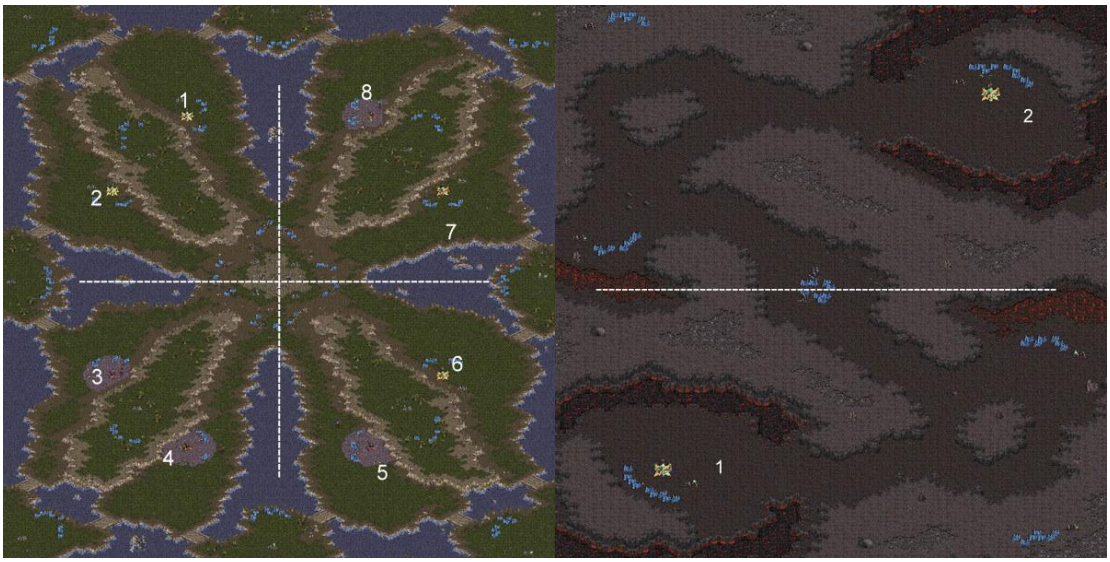

Figure 28: Two *StarCraft* multiplayer maps (eight-player on the left; two-player on the right)

A similar overview of the single player maps (Figure 29) reveals little of symmetry in evidence above, except perhaps in the later missions for each set of ten. It

[153] A full gallery of *StarCraft* multiplayer maps is available at the official website: http://classic.battle.net/scc/lp/sc.shtml Oddly, they do not provide single-player maps (noting "Only Non Trigger-driven maps are listed"), but they are available at fan Web sites such as

[154] Matt Kirschenbaum pointed out that many historical wargames have non-symmetrical maps. A full exploration of RTS and board wargames would prove to be a fascinating study. For an entry, see Kirschenbaum's essay on the topic in *Third Person*.

[155] McGregor's focus is on the RTS *Battle for Middle Earth 2*, but the point carries across many RTS games.

is, in fact, possible to chart very clear paths through the early missions, in which the player is learning to play the individual race in question, gaining access to larger portions of the technology trees that govern the development of advanced forces. With a similar trajectory, the baseline story is established more firmly, with clear events, so that fewer pre-ordained events are necessary at later stages of play.

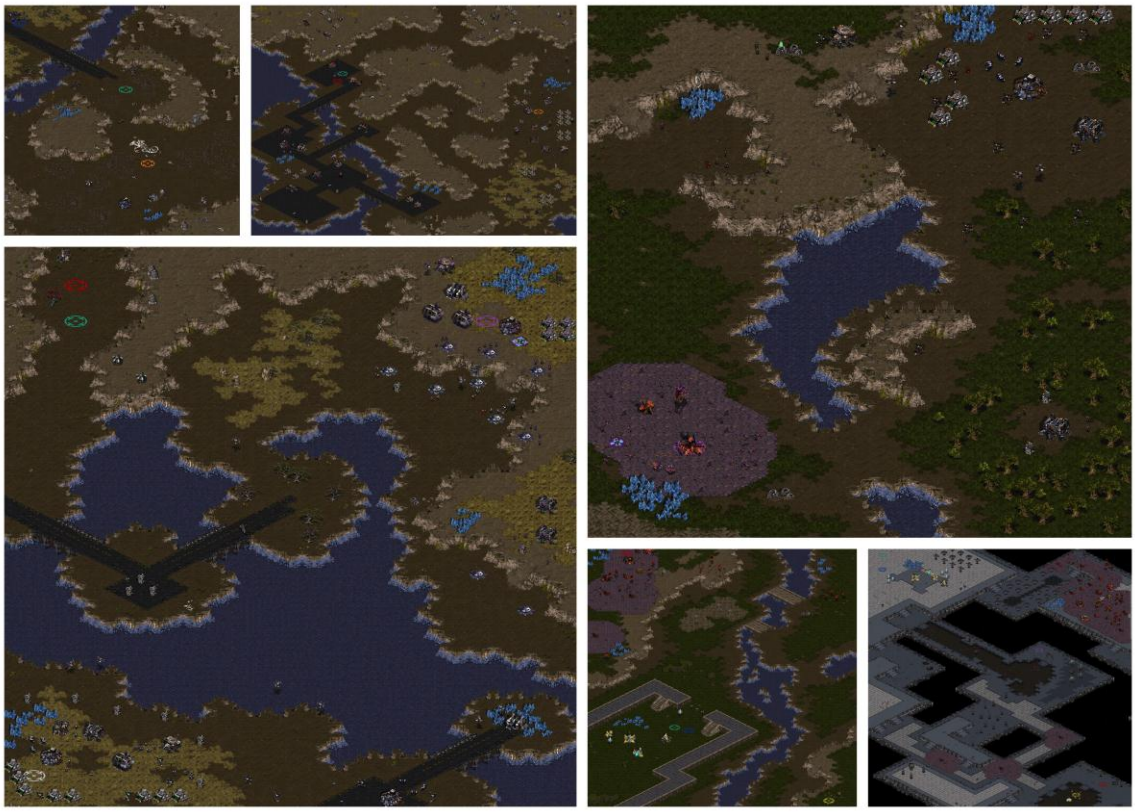

Figure 29: Single-player maps in StarCraft. Clockwise from top-left: Terran 1, Terran 3, Zerg 1, Protoss 4, Protoss 1, Terran 5.

Action in *StarCraft* is partly constrained (and directed) by technology trees (Figure 30). Technology trees control access to types of affordances (such as buildings and fighting units) for a player, usually by attaching a cost to higher-value player resources. For example, early in a game, Terran forces have access to the base troop—

the Marine—and gain further access to another troop—the Firebat (soldier with a flame thrower)—by building the Academy building. Gathering the resources to buy the Barracks > Academy > Firebat takes time and more resources (Crystals and Gas), forcing the player to decide if they want to focus on larger forces of Marines or including the more powerful ground troop. In *Chess*, it would be akin to forcing your pawns to gather gold, which you could use to build the Rooks, which might be a building that would allow the player to produce Knights.

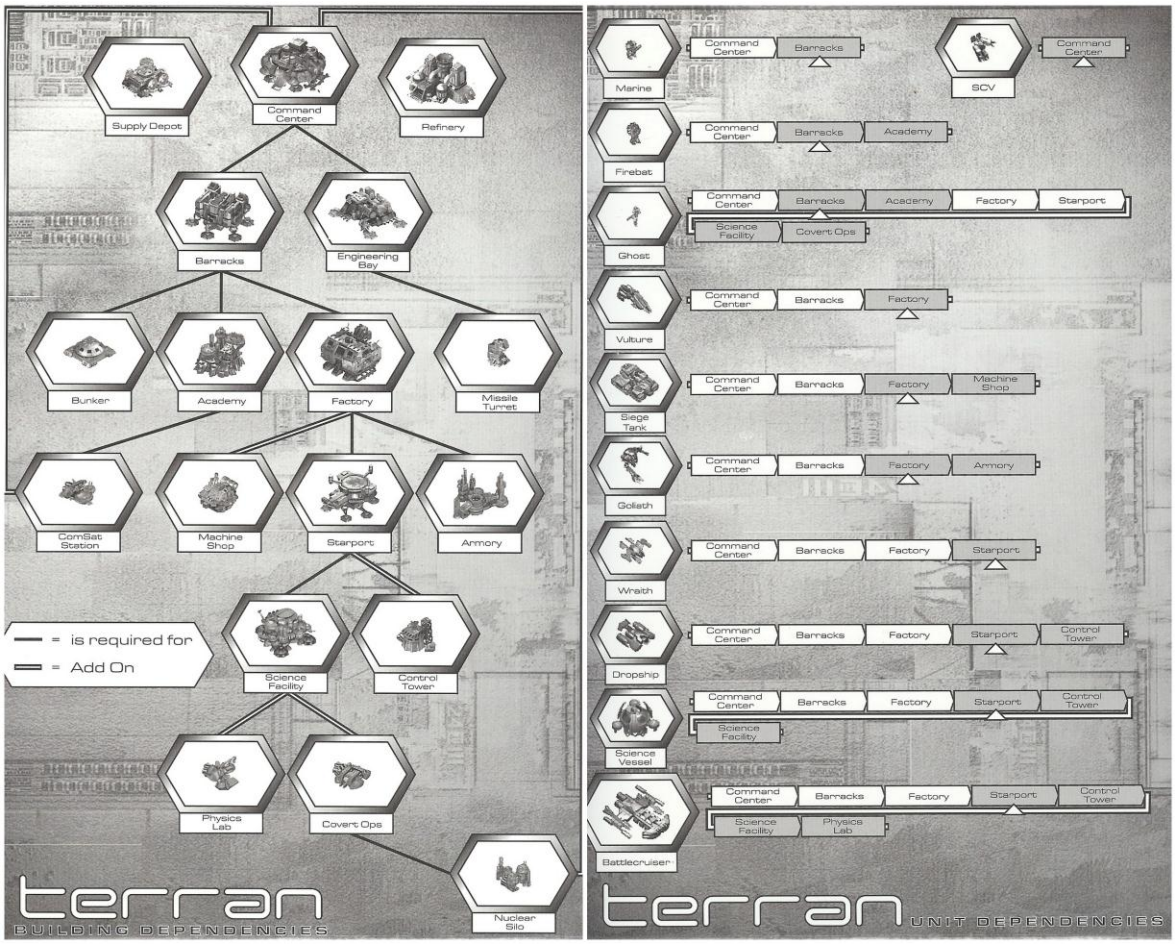

Figure 30: Terran technology trees. The left panel displays the buildings accessible to the player; the left panel shows the units that can be created (and the buildings required to produce them).

Rather than a robust engine with clear tools for advanced story-driven techniques, like one might find in *Neverwinter Nights*, we have a strategy game much more akin to

Chess than to *Anna Karenina*. What evidence, then, does *StarCraft* provide for the techniques that often govern game fiction in genres like computer role-playing games, such as dialogue trees. A dialogue tree quite literally is a tree of possible conversation chains between a player and a non-player character. While they may purport to allow for variety, as Wardrip-Fruin explains, dialogue trees rarely expand beyond a few variations of limited outcomes; thus, they are suited for narrative ventures in game space, though not without their limitations and problems.[156] Unlike most dialogue trees, technology trees are expansive rather than constrictive, allowing for more possible potential actions (manifested in new buildings and troops) the further you delve into the tree. "The logic of the dialogue tree," Wardrip-Fruin writes,

> is essentially that of the directed graph. Rather than modeling conversation as a set of discrete exchanges with no context (as in Eliza) the dialogue tree always locates the current conversational state at one particular point, among a set of pre-determined points, from which navigation is possible to other points via pre-determined links. As with the milestones of quest flags, it's usually impossible to go backwards—the graph is directed toward "progress" in the conversation—but it is also usually possible to loop back to the main trunk of the currently-available conversation, if occasionally rather circuitously. (58-59)

In many ways, the logic here is not dissimilar from the logic in the early *Adventure* game or many other progressive games—pre-determined points and pre-determined links—although navigation through the dialogue tree comes with less ease than backtracking through *Adventure*'s woods and caverns.

Wardrip-Fruin continues, noting that "somewhat like the graphical logics of games, the logics of dialogue trees and quest flags are about location in a given space. But while the graphical spaces of games are often simulated in a manner that supports almost innumerable possible locations, the milestones of quest flags and graphs of

[156] See *Expressive Processing*, 56-68.

dialogue trees mark out all the possible positions (and transitions between them) ahead of time" (59). For Wardrip-Fruin, this "mismatch proves problematic." He shows how the quest mechanics and the progressive nature of games like *Neverwinter Nights* or (specifically) *Knights of the Old Republic* (*KotOR*) can lead to confusions—or bugs—in the timing, where a player does or does not have certain knowledge of an event, and the computer doesn't recognize that knowledge. The progressive nature of the quest is a mismatch for the seemingly open landscape.

Alternatively, I would suggest that the progressive nature of the quest is precisely and primarily a genre consideration, that the imposition of events in time-space within a ludic framework is a fundamental quality of quests.[157] This distinction may best be seen by taking a game engine—*StarCraft*—that was built to support open free-play in its multiplayer matches (and arguably is most used for that purpose), and which uses a more open system for player interaction—the technology tree—and understand what must be done to structure a fictional space of open play (narrativity) into a quest sequence.

Elements of Ludic Narrativity

"Possessing narrativity," as discussed earlier, has served as convenient shorthand for elements that might provide eventual plot, though perhaps with uncertain outcome—a performative space more akin to life than prepared fiction. Usefully this reflects the variable nature of game fictions, the fact that a game is rarely wholly game or narrative, and usually contains both emergent and linear properties (at least, if it has any hint of story at all). However, I argue that these following elements of narrativity—material and

[157] I would also note that the examples (*Quake Team Arena*, *Counter-Strike*, and the multiplayer version of *Return to Castle Wolfenstein*) used by Aarseth to formulate his assertion of "Quest Games as Post-Narrative Discourse" are more akin to the multiplayer matches of *StarCraft* than the single-player quest battles.

encoded within the formal materiality of the game—can help us understand the syntax of game fictions, and the how player agency works within the designed experience of a specific title.

Data structures: It should be understood that a great deal of a game's assets, including art, voice, objects, text, and so forth, is simply data, stored and ready for use. Data files, as our exploration of *Adventure* revealed, offers a rich source to mine the shaped environs of the game space. Generally, computerized data generally is held in some structured environment, though this structure can range from flat file data sets to detailed tables. The data in *StarCraft* maps (.scm) are less evident in the singular map files, since these are compiled records. However, the *StarEdit* program functions as an adequate interface to the data records, which include the buildings, units, tiles, and other elements that comprise the setting in the game environment. Data records can be suggestive of a setting, for example—"Mud" graphics tiles; "Marine" units (with data detailing range of fire, damage, movement speed, and the like); and buildings.

Description: As the Adventure source files made evident, data may often be accompanied by some kind of description, which may be text, visual, or some combination.

```
1    YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
1    BUILDING . AROUND YOU IS A FOREST. A SMALL
1    STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.
```

As data has become increasingly visual, the description is less often textual, although the database structure—fields, e.g.—may provide intriguing context, such a title in a title field. A *StarCraft* tile, for example, may be labeled in the database as "Mud" within the Badlands terrain, which gives a vague impression of what the tile will look like or the setting to be evoked. "High Dirt" suggests to us that in addition to functioning as a visual

tile, this landscape feature also can control movement and pathing for ground troops, all depending on its placement. Were we to imagine the simple dataset for *Chess*, the "Knight" piece would evoke narrativity by virtue of its simple descriptive moniker. And yet descriptions of settings, characters, or other entities will only evoke narrativity, will only be suggestive of potential narrative occurrences, and do little to satisfy the criticism that these games are like "life itself."

Properties (variables): Influence on game play depends largely on an object's actual computational properties or variables. A description might provide a sense of what a data object might do, but the object's properties have an impact within the game rules. "High Dirt," from the example above, takes up a specific number of tiles in a *StarCraft* map and sits at an elevated height. These are variable properties that directly impact game play—a designer would either have to provide a ramp (found in the Doodads dataset) or a player would have to develop flight technology. The game engine's algorithms enforce the rules of the game—the physics, for example, that prevent a unit on the ground from floating to an elevated height. Thus, while the properties of data determine the objects' parameters, the game rules reflect how data objects relate to one another. Example: while "High Dirt" establishes altitude, the rules determine how height can impact a unit's vision of the area.[158]

Placement: Tiles, units, and other entities simply exist in a database until placed within a specific location on a grid. In many respects, a single entity from one grid (the database) is duplicated many times on another kind of grid, the game space. In *StarCraft*, that grid is relatively simplistic, even though advanced 3D graphics in later games turn

[158] For several examples of how the properties of tiles can impact gameplay, visit the StarEdit Wiki, specifically: http://www.staredit.net/wiki/Tiles_properties

that grid into a polyglot of polygons. However, for our purposes, an understanding of *StarCraft*'s 2D space on relatively simple x,y planes is sufficient to comprehend the significance of specific spatial attributes for narrative effect. If a designer places a valuable resource at a higher altitude, then the designer limits access to that resource until such time as the player develops the ability to access it (e.g., building a "dropship" in order to ferry troops and gatherers toe the resource).

Data placement on map coordinates impacts game design, but also influences narrativity. The likelihood of an event occurring at a location increases when placement focuses attention to a specific location. Flat planes, in other words, are open spaces for events. Putting resources on a elevated plane on a map (Crystals on "High Dirt") means that there is an increased likelihood that an event (e.g. development of flying technologies) will occur in a game space, because there is increased incentive to do so. When combined, landscape and architecture features can play two primary roles. As McGregor notes, landscape and architecture features (whether they are walls of a building or landscape features such as mountains) often function as means to create rooms and circulation space, which lead to either activity or contested space, each influencing but not necessarily directing game play (2-4).

From Narrativity towards Narrative Purpose

We will assume, for the moment, that games like *StarCraft* or *Neverwinter Nights* fulfill at least two of four criteria for game fiction. They are ergodic in that they require non-trivial effort that exceeds the interpretation of events. They are competitive in that they place a player against a series of challenges (battles to be won, puzzles to be solved, etc.) that must be resolved. The remaining two criteria rely heavily on setting, which

together with plot and character comprise Ryan's "three basic components of narrative grammar" (15).

The two remaining required criteria for game fiction—a progressive nature, and the actualization of events—help us distinguish the spectrum that spans from "possessing narrativity," on the one side, and narrative, on the other. This relies, in part, on a designed infusion of purpose within a data point. Purpose may be contextual, but there are often computational traces that make it more than just a subjective guess. Purpose is where data (and its properties and placement) and rules intersect, and the computational traces inform and clarify the blurred boundary of narrativity and narrative, where events show attributes of progression and actualization.

Data, its properties, its placement, and its relationship to the game code all can tell us a great deal about narrative purpose in games. Let us begin by focusing on a single entity with few properties, the "building" (as classified by the game database) of the crashed spaceship Norad II, which is central to the map in the single-player Terran campaign Mission 6 (Figure 31 is a detail taken from the full .scm, which is Figure 32). The ship sits in the bottom of a cratered area, accessible either by air, or by ground via the ramp in the northeast wall. Two bunkers, several marines and SCVs (the base-level gatherer/builder units for Terran players), and a round glowing platform surround the crashed spacecraft (which, incidentally, is presumably not to scale, since it appears no larger than the bunker). On all sides, the purple biomass of enemy Zerg forces is visible.

Figure 31: Norad II, a spaceship, lies broken in this crater, surrounded by Zerg enemies.

We can note the asymmetrical map style (below), which suggests that this is likely a single-player map. Players start with ground troops in the red circle at the southern point in the map.

The mission is relatively straight-forward in both story and goals. At this stage in the game, the player belongs to a group of rebels—the Sons of Korhal—led by Mensk, and supported by the soldier Jim Raynor and the "ghost" Sarah Kerrigan.[159] A Confederate ship, the Norad II, has crashed on Antiga Prime, and General Duke has sent out a distress call. Mensk wants Jim Raynor (at your direction) to rescue Duke, in hopes

[159] A "ghost" is a type of ground unit that has special abilities and serves as a scout. Each named, playable sprite (e.g., Jim Raynor) is modeled after a unit the player can build, although the named entities have advanced properties (e.g., they have more health, or can do more damage). These added survivability traits stems in part from their narrative importance (rather than ludic importance); should a named character die, the mission ends in failure, because without the character, the narrative cannot continue.

of saving the colony and also swaying the powerful Confederate general to the rebel's cause. These details are outlined for the player in the "briefing," a short introductory sequence that outlines the goals for each playable mission (distinct from the cinematic cut-scenes that also occur throughout the single-player game). In addition to spoken-word elements, the goals are plainly detailed both in the introductory sequence and through the game menu during the course of the mission. The two mission objectives are:

- Protect Battlecruiser Norad II.
- Bring Raynor and two dropships to Norad II.

Figure 32 represents the full battlefield for this mission. Jim Raynor (your first representative) is accompanied by a small group of troops, and begins at the red marker in the southwest corner.[160] The minimap is covered by the "fog of war"[161] except for one point just northwest of Raynor's position, which shows the white Terran forces. A brief battle with Zerg clears the way to the white marker in the southern portion of the map. The white troops are aligned with General Duke, the commander of the Norad II and a member of the ruling Confederacy. Aligning with Duke's outlying base provides additional troops and the opportunity to begin gathering resources and developing the technology tree. It also gives you, as player, control over all Terran forces, both Jim Raynor's rescue force and Duke's Confederate base and those left defending the crashed Norad II.

---

[160] Each set of forces is represented by a color, just as in *Chess*. Here, red represents the Sons of Korhal, white represents Duke's forces, blue the Surtur Brood (part of the Zerg swarm), and orange the Garm Brood (also part of the Zerg Swarm).

[161] The fog of war plays a significant role in obscuring areas where players have not yet visited. Players can remove the fog of war by moving a troops through that area (scouting) or by using some technical means via abilities gained through the technology tree; Terran players, for example, can upgrade their main base with a Comsat Station, which they can use to scan areas of the map.

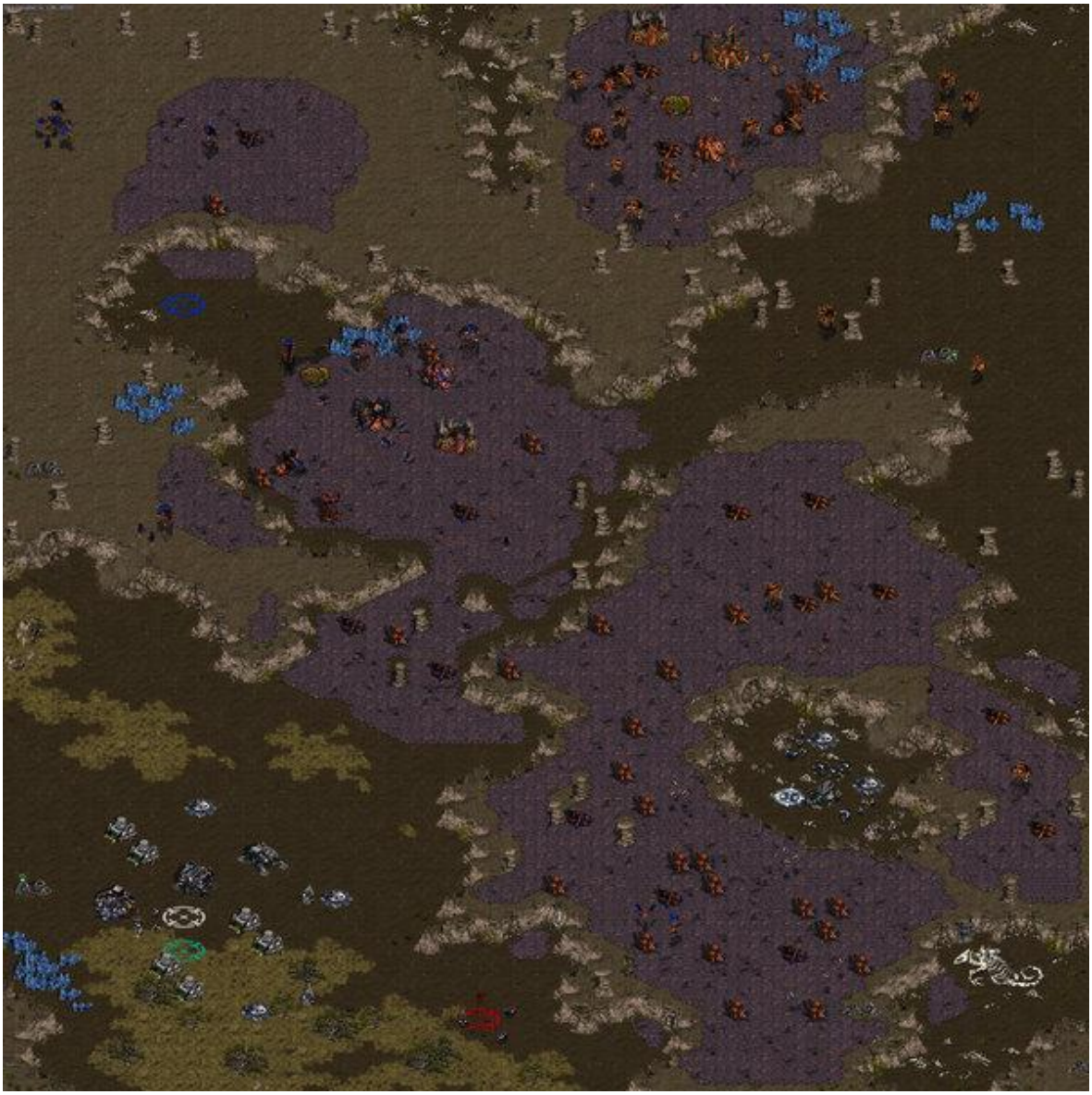

Figure 32: The full map of Terran Mission 6.

With this scenario, we have all the required elements for possessing narrativity—a setting with active participants each of which has some limited agency (whether driven by artificial or human intelligence). Of course, this general description could describe almost any general multiplayer game of *StarCraft* as well. The map (.scm) features a starting location, resources (minerals and gas), and landscape that creates the opportunity for contested spaces. Note, for example, the ramp leading first up to the raised ground

(annotation *3*, Figure 33) and the subsequent ramp leading down into the crash site (annotation *4*). The path from the base (denoted by a line from *1* to *2*) to ramp is a gauntlet through dangerous, enemy-occupied territory. Something could happen; thus, the sequence possesses narrativity.

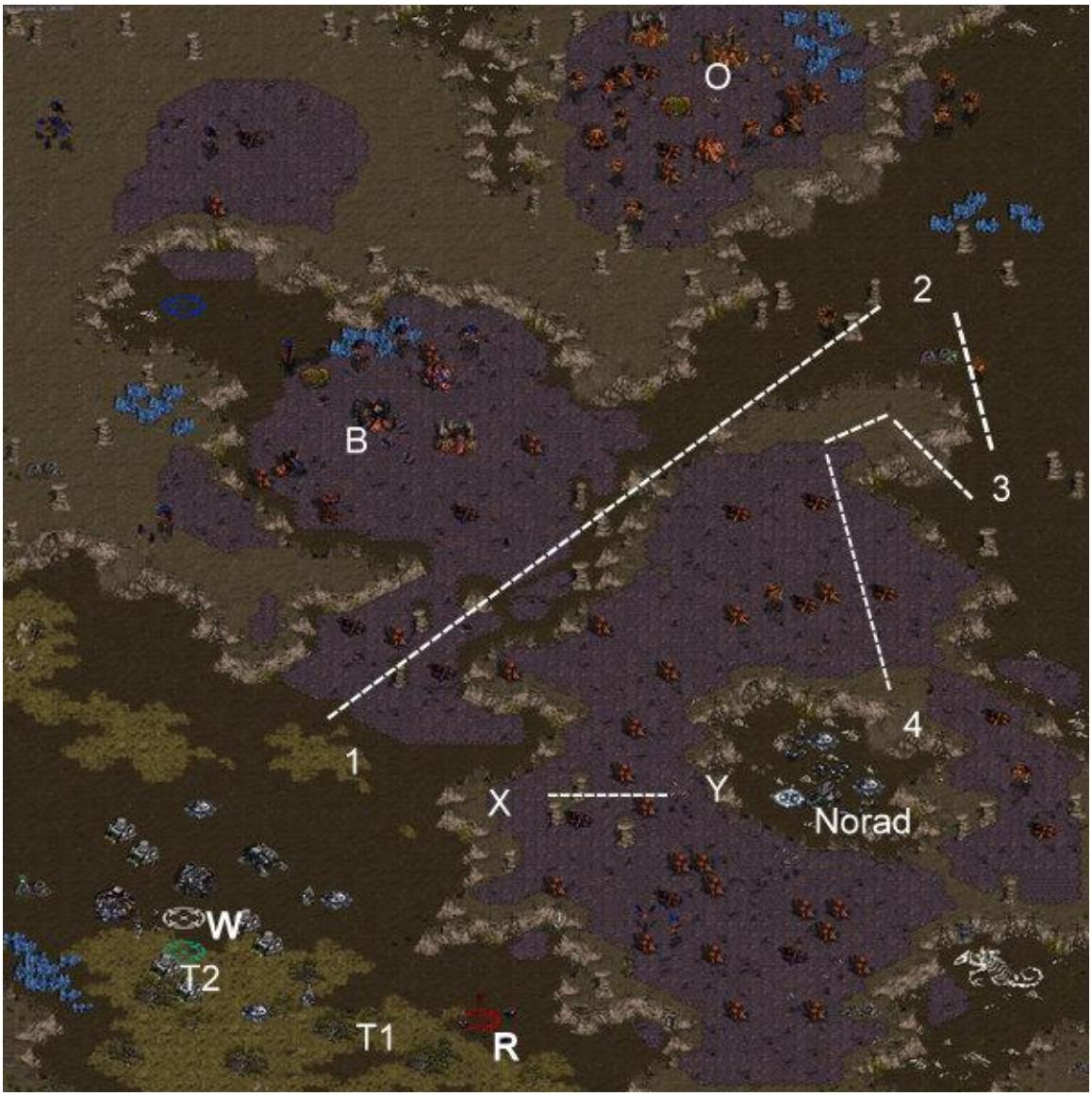

Figure 33: Annotated map of Terran Mission 6.

However, this specific .scm is also encoded with specific behaviors that create a narrative logic, triggers that are built on conditions and actions. The behaviors are

location-based, algorithmic, and reflect the nature of most game quests—that they are designed, constrained, progressive, ergodic, competitive, and require actualization. The objectives of this map are twofold: protect the Norad II (and, by implication, General Duke) from destruction, and bring Raynor via dropship[162] to the fallen battlecruiser. A simple rescue mission is imbued further with tensions more appropriate to the broader quest: secure Duke's allegiances for the rebel group. The design of this map allows for a careful balance where plotted events establish trajectory, careful setting allows for further narrativity, and the character abilities—the technology tree—enable actualization.

Event: Triggers, Conditions, and Actions

While Aarseth convincingly argues that "the defining element in computer games is spatiality" ("Allegories of Space" 154), the core feature in ludic fiction is the event. Individual sprite or avatar events will be discussed in greater detail in Chapter 5, but structured, *triggered* events will here highlight the difference between narrativity and narrative, between fiction in games and game fiction—in short, a distinction of genre. Triggered events are frequently location specific. The stronger the tie between an objective and a location, the stronger the tendency towards progression and actualization.

In the first minutes of the game, there are a number of triggers unveiled for the player. Raynor's team begins at their starting point and move towards the white Terran team. Blue zerg attack Raynor in transit (T1, in Figure 33). Arrival at the white base aligns all Terran characters under your control; this includes both the core base and the Norad II location under attack and presumably under Duke's control (T2, in Figure 33). This second trigger is accompanied by a reminder that buildings can be repaired using the

[162] A flying transport trained at the Starport and requiring the following tech tree elements: Factory, Starport, and Control Tower.

core SCV unit.[163] A third trigger (T3, timed approximately 30 seconds after T2) forces a camera shift to highlight the Norad II under attack and Raynor's voiceover reminding the "administrator" (you, as player) that we had "better hurry," as the Norad "won't last long against those Zerg." A final trigger (T4, in Figure 33) occurs at the Norad itself, when the two objectives of the mission are fulfilled.

The combination of specific triggers—narrative events—and the setup of potential narrative events at key locations—narrativity—imbues this map scenario with a core balance of ergodic, competitive behavior that is progressive (and episodic) and involves actualization of both ludic and plot goals. The cut scene and mission briefing suggest an alliance of disparate forces, which is further reinforced by several triggered events: the initial attacks on Raynor and on the Norad II, and the shared resources allowed when all Terran forces are given to your—the "Administrator's"—control. Computationally, the second trigger fulfilled places the stated quest goal within your reach—in ludic terms you control both the forces for both Raynor and Duke, and such control happened with very little ergodic effort on the player's part.

The *recognition* of this control, however, is guarded and locked until the player fulfills the objectives of the mission—bringing Raynor by dropship to the Norad itself. Only then does the player 'win' the scenario; that the player actually already controls all Terran forces is inconsequential. The trigger for the event only fires after the player proves *mastery* of those Terran forces, in ludic terms, by protecting the fallen battlecruiser, by building the forces to take it back, and by successfully reading the map terrain. The mastery of the technology tree and the interpretation of the strategy all lead

[163] The SCV is the primary Terran unit. SCVs gather minerals and gas, build all buildings, and can repair those buildings.

to the actualization of the narrative objective, which is the successful cojoining of Duke's Confederate forces with the rebel Sons of Korhal. The player is given control of the forces within the first minutes of the scenario in computational terms, but must trigger the narrative outcome through successful hermeneutic and proairetic management.

Loading a custom map within *StarCraft* requires a choice between three potential game types. A player can choose "Melee," "Free-for-all" (FFA), or "Use Map Settings" (UMS). Melee means that a single player will fight against the joined (computer) forces opposing them (up to 7 other players). Free-for-all means all opponents are equally aggressive to one another. UMS, on the other hand, overrides many of the defining rule-sets governing generic matches or games; essentially, this setting defaults to the wishes of the map designer, who can use any number of scripts to craft a staged series of events. The first two map types (Melee and FFA) will likely have only three triggers, as seen in Figure 34.

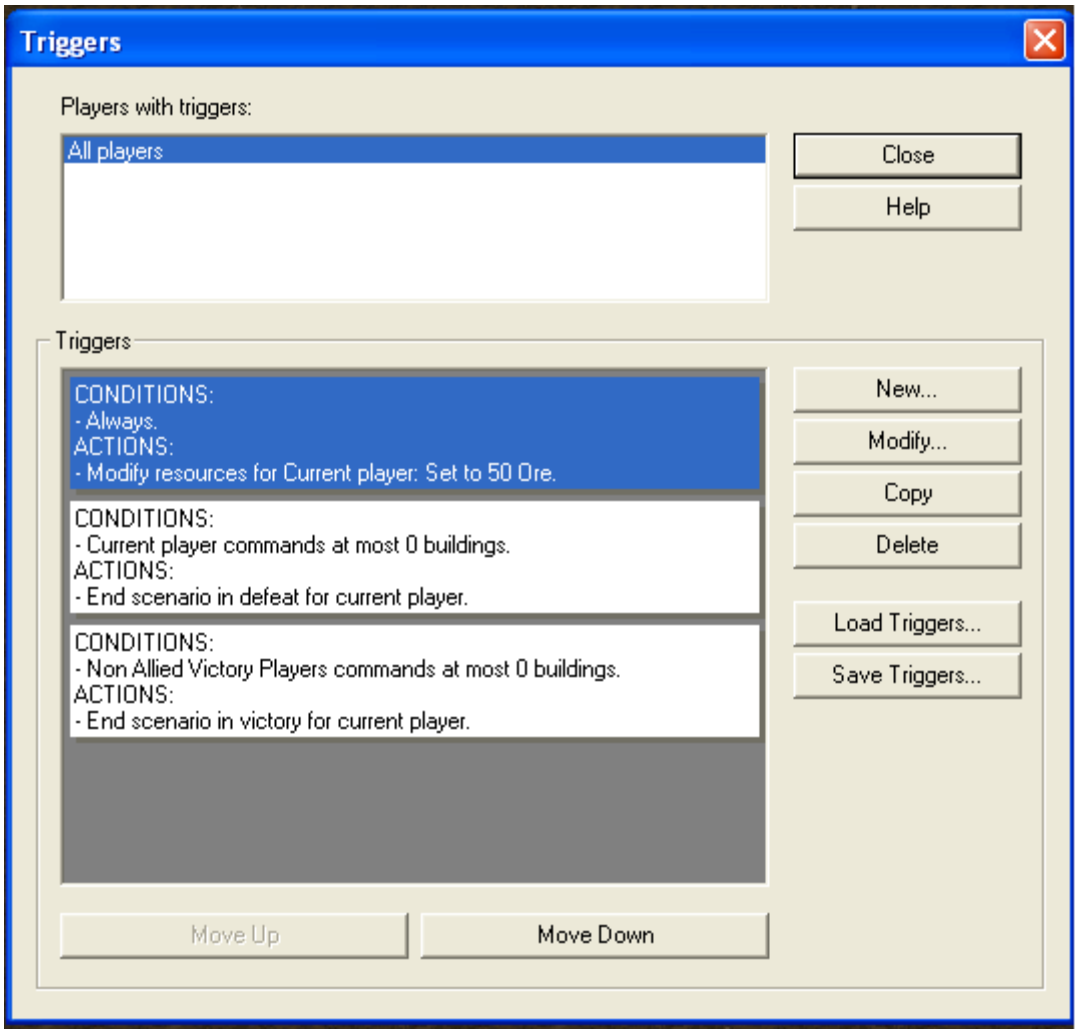

Figure 34: Triggers, Conditions, and Actions in StarEdit.

Note that all triggers are comprised of conditions and actions (a point I will return to in detail, below). The first trigger in the list defaults all players to a base value of 50 Ore; this is the minimum Ore required to create one mining drone unit. The next two triggers are quite simple. In the second, if a player has no buildings left, then the scenario ends in defeat for that player. In the third, if a player's opponents (non-allied players) have no buildings left, then the player is victorious. Combined, a generally symmetrical map, these three triggers, and the default AI programming comprise the basic elements of any emergent game play in *StarCraft*. Like *Chess*, this may have a great deal of

narrativity—someone can create a wonderful "After-action report" from the battle—but this is not a game fiction.

UMS maps are more akin to the single-player versions of the game. For example, I can place the "Special Building" Norad II (Crashed Battlecruiser) on a map (Figure 35).

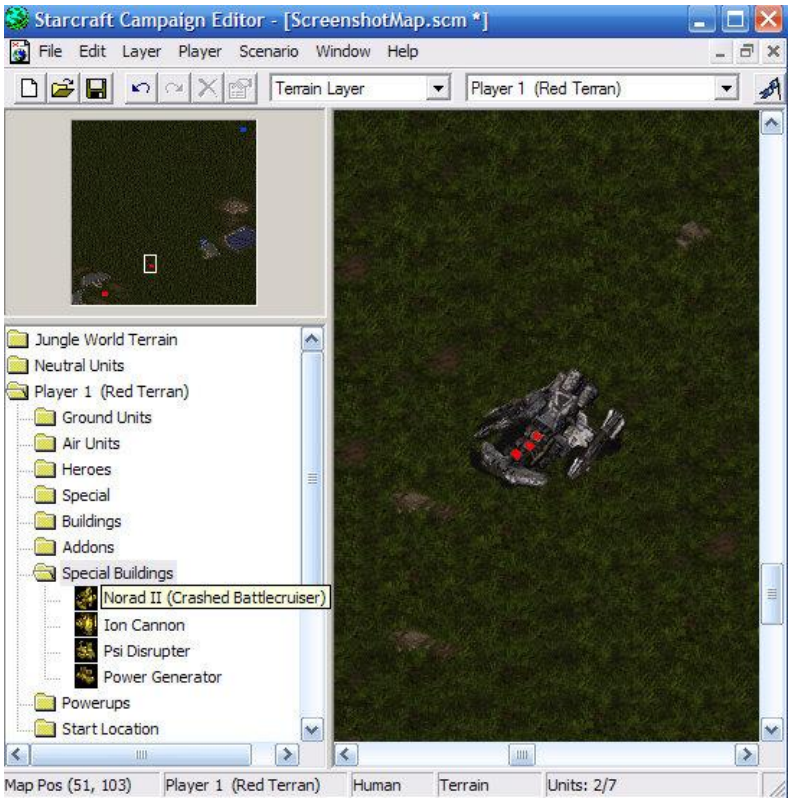

Figure 35: Norad II placement on custom UMS map.

I can then give that Norad II a location setting (Location 0) by drawing a square around it while in the Location Layer (Figure 36).

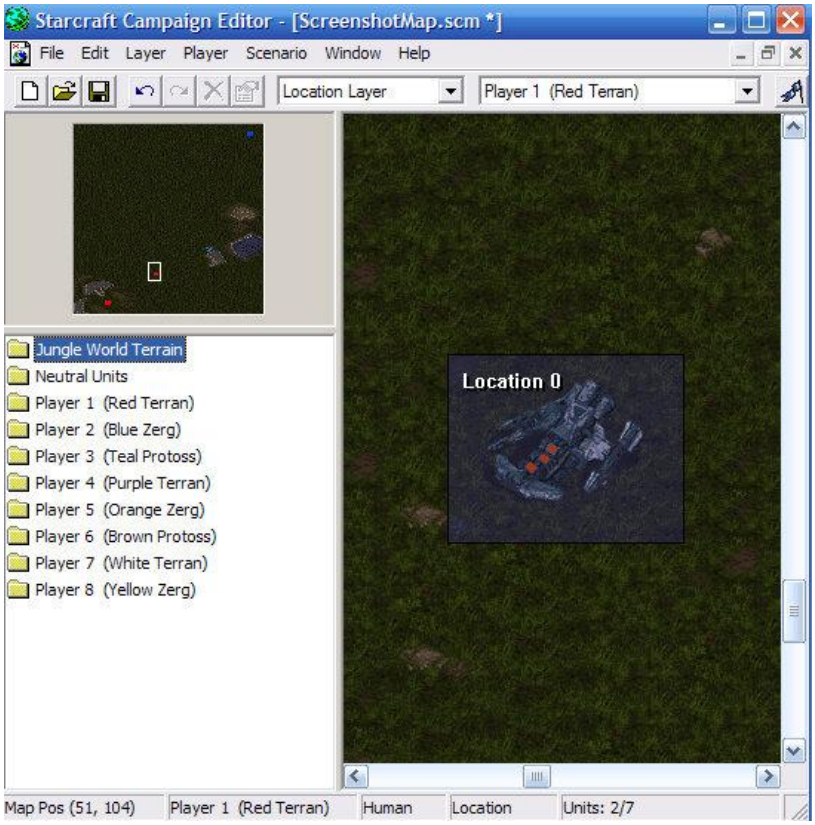

Figure 36: Setting location.

Finally, I can create a trigger for this area not unlike that in Mission 6: Norad II (Figure 37). Here I've assigned the Condition: "Player 1 brings at least 1 Jim Raynor (Vulture) to 'Location 0'," where Location 0 is the area in the grid that contains the object Norad II. Locations are a unique layer, although this distinction is invisible in the player interface. The resulting action is a display of text that offers a congratulatory note. To reproduce the final scene of dialogue in the Norad mission exactly, I could call a string of triggers that would display text and also play .wav sound files of the dialogue. Thus, the underlying scripting sets the parameters for a visual event within the play action of the module. Note that triggers can serve as a snare as well as a spring, which is to say that they can hinder progression as much as they can advance it. Triggers are often used in such ways in role-playing games—traps that can kill a character, ambushes that can

surprise, all part of the ludic landscape where data, within a location, can offer competitive opportunities for ergodic response.

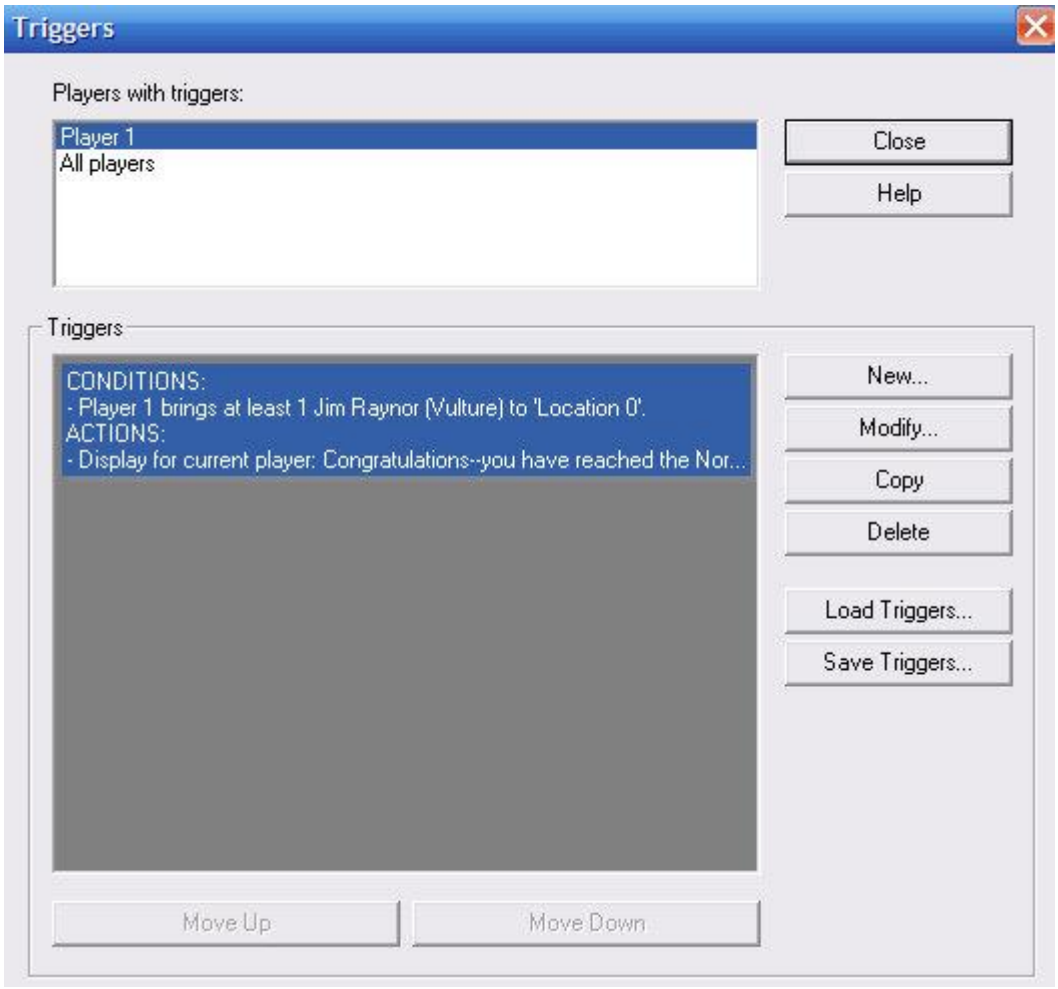

Figure 37: Setting conditions and actions.

While Tronstad is correct in that quests "belong first and foremost to the order of the act," game quests also rely on—in fact, count on—actualization within an ergodic, competitive environment. Formalized game quests are *both* constative (the parameters of quests are encoded) and performative (the player must spring the triggers for the quest in order for it to be fulfilled), and should be distinguished from generalized game goals. The purpose of game fictions, if I may reconfigure Aarseth's assertion, is to enable players to fulfill quests that have been designed with a plotted goal in mind. Ludic

interaction within a structured sequence is their dominant structure, and storytelling rests alongside ludic fulfillment (otherwise known as fun) as their outcome. The triggered stages in this scenario require careful actualization of stated game objectives; the syntax governing these triggers is notably similar to data management language. These triggers—with predefined conditions and actions—reflect one core element of game fiction, just as the query remains a defining characteristic of databases.

The Quest as Query

A designer creates data structures within a space—let us assume a tree, or a network, or a grid—with data a potential user either wants to find, update, delete, or enhance. The user scours the grid, learns its structure and arrangement, and then executes the command to accomplish one or more of those tasks. Such a scenario can apply equally to a record in a database or a quest in a game fiction. Even if the manner in which we store data records in computer games has gained vast complexity, the manner in which players engage with data in a representational questing environment still recalls the fundamental precepts of data manipulation language (DML), most colloquially known as 'the query.'

Most of us are familiar with queries, from a Google search to a library book search, but more often than not such queries are non-procedural, which is to say, they do not require the user to know where to find the information within the data structure. Procedural DML, however, requires that the user to state what data they need, and how to get it.[164] I should reiterate that this is not to suggest that all computer games are designed

[164] See Gupta, Aditya Kumar. *Taxonomy of Database Management System*. (6), and Dixit, J.B. *New Approach to Computer Science* (634). Wikipedia also discusses DML: http://en.wikipedia.org/wiki/Data_Manipulation_Language

with a certain model of data management in mind. Rather, the principles of quest design are such that, for the player, the solutions are generally spatially-driven and navigational, and the act of that navigation is a search for a data object (broadly speaking) in order to *act* upon it. Jill Walker noted that the many quests completed in her adventures in the World of Warcraft can be broken down in these basic structures:

> 1. Explore, by:
> a. Finding a person (report to a person, deliver an object to a person).
> b. Exploring an area (scout an area, report back and tell us the condition).
> c. Learning to use a game function, such as buying an item from a vendor, finding flight routes, playing dungeon instances, or joining the skirmishes on the battlefields.
> 2. Slay monsters, with slight variations:
> a. Kill X number of a particular kind of monster.
> b. Bring the quest-giver an object that is found on the body of a slain monster.
> c. Bring the quest-giver an object that is found in a monster-infested area. This also involves exploring, of course. ("Network of Quests" 307).

Most quests can be broken down into: quests of retrieval ("Find Mankrik's wife."), quests of deletion ("Kill 6 rats."), and quests of modification or creation ("Cure 6 sick gazelles"). Note, then, the resemblance to the basic function of DMLs (and SQL more broadly):

- Retrieval of data, e.g. SELECT operator for a relational model.
- Modification of data, e.g., UPDATE operator.
- Deletion of data, e.g. DELETE operator.
- Creation of new data, e.g., INSERT operator.[165]

[165] See Wikipedia for extensive discussion of DML (http://en.wikipedia.org/wiki/Data_Manipulation_Language), and Gupta, Aditya. *Taxonomy of Database Management Systems*.

To create a semblance of complexity, quests oftentimes are a combination of these basic structures, as with the "Caught!" quest in the Searing Gorge zone. The explicit directions read as follows:

> Kill 8 Dark Iron Geologists and bring 15 pieces of Silk Cloth to the person locked in the outhouse in Searing Gorge.

In this amusing scenario,[166] the quest combines deletion (killing the monsters), retrieval (15 Silk Cloth), and updating (bringing the Silk Cloth to the dwarf stuck in the outhouse).

If we were to imagine a very simplified SQL query for the above quest, it might look like this:

```
SELECT monster
FROM SearingGorge
WHERE enemy = 'Dark Iron Geologist' and loot = 'Silk Cloth';
```

This overly simplistic representation is not intended to model the underlying dataset, but rather to serve as a very basic representation of a player's actions in the game space, a query against a data grid according to specific criteria. The player's actions—searching the landscape for the right monsters, killing them, looting and collecting objects, and updating a previously-encountered data point—follow the basic principles of data manipulation in a computational environment, and do so partially because the process is embedded within a setting, a staged environment that requires navigation.

---

[166] The narrative framing, however, provides a bit more context (and humor), as a voice calls out from behind the door of an outhouse:

> Hey! Hey, you! Get over here!
> Ya gotta help me out. I was runnin' from them Dark Iron dwarves, and I hid in here to get out of sight. Damn geologists and their magic ways! They musta seen me hide, cause next thing I knew, they locked the door and stuck me in here.
> Teach them geologists a lesson! Oh... an' can ya get me some pieces of Silk Cloth for... for... nothin'.

Details available http://www.wowhead.com/quest=4449

StarCraft UMS maps have a familiar syntax in their scripting, relying heavily on *conditions* (such as Accumulate, Bring, or Kill) and *actions*, which are the resulting triggers or changes to the environment of play. Just as we recreated the condition/action in our initial exploration of *StarEdit*, the preformatted conditions allow the designer to specify data points necessary to enable a trigger. In traditional database and query design, triggers, "sometimes called *event-condition-action rules* or *ECA rules*", are "only awakened when certain *events*, specified by the database programmer, occur … events allowed are usually insert, delete, or update…" (Ullman and Widom, 340). Similarly, in *StarCraft*, when an event occurs, the trigger tests a condition, such a "Player accumulates 500 ore," as in Figure 38 below.

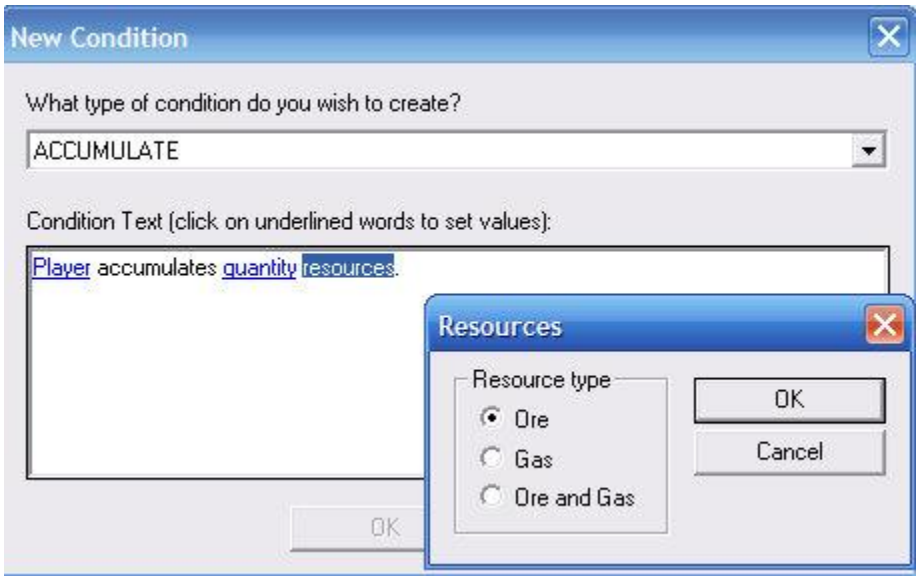

Figure 38: Creation of a condition statement in StarEdit.

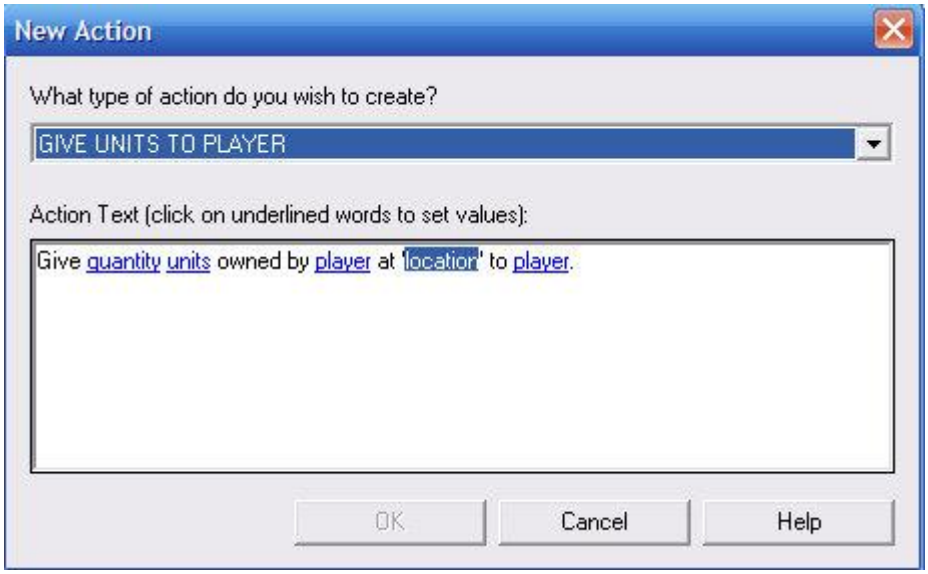

Figure 39: Creation of an action in StarEdit.

"If the condition of the trigger is satisfied," Ullman and Widom note in their description of generic ECA rules, "the *action* associated with the trigger is performed."[167] Again, the action as depicted in Figure 39 follows similar patterns. This trigger, then, might give troops to a player once they mine 500 ore. Notably, a trigger relies on a collaboration between the designed system and the player's actions. The player must find the location of the trigger,[168] fulfill its conditions, and then respond to action in subsequent moves.

A careful reader—and player—of the sixth Terran *StarCraft* mission would correctly point out that in between the first series of triggers and the last trigger remains a great deal of open space—of narrativity—in which very little is seemingly actualized. I would argue, however, that there is a subtle economy of action at work here, based on both the careful creation of the map itself, and the expected progress of the player using the technology tree. There are two likely progressive paths in the asymmetrical map provided. The first, and likely most difficult, would follow the numbered path in the

[167] See Ullman and Widom, *A First Course in Database Systems*, 340-344.
[168] Though some triggers can simply be time-based, many in game fictions are explicitly tied to a specific location, either on the map, grid, tree, or network.

annotated map above, from 1 through 4, following the ramps up and down to the Norad II itself (see figure 33, page 172).

The game objectives, however, provide a subtle cue that one should explore options at higher elevations, namely through the use of dropships (which can transport troops). The dropships are necessary presumably to escort the embattled troops out of the crash zone, although the game ends victoriously when Raynor is brought *to* the crash zone via dropship. The zerg defense around the crash site is heavily imbued with ground-to-air defense, with little ground-to-ground defense. Further, a careful player will note that area "X," annotated above, provides a safe haven on the elevated plateau, offering a staging ground for a full attack on the defenses without having to attack through the gauntlet by ground (which would be difficult enough), or a full overall attack on all Zerg forces (unlikely given the limited resources allotted). Certainly each of these three scenarios are possible, but it is not insignificant that all three are fairly evident via a casual perusal of the full map. Strategic use of player abilities, such as scouting and reading the map—in short, a combinational use of those Barthesian codes—lead to a successful campaign.

Thus, I would continue to argue—as I have above—that the asymmetrical nature of the map, providing a directed narrativity, the limitations (or offerings, depending on your point of view) of the Terran technology tree, and the use of triggers, all provide significant cues to the player. The technology tree is seemingly more open than a directed dialogue tree, and yet it still streamlines a path for progression. There are expected, preordained events (the creation of a Starport, so that a player can build the required Dropships), which consume a certain amount of resources, thus limiting other

options. In many ways, this kind of narrativity reminds us that gameplay is the navigation of constraints, and thus a more subtle path towards progressive game play holds strong potential.[169] In the next chapter, I will address the flexibility of ordered events and how it relates to character. At this point it is perhaps sufficient to note that play requires flexibility, and thus suggest that the required events occur generally how they must, and non-required events are allowed to happen as they may. Both kinds of events are necessary for game fiction, and are not unknown in traditional narrative discourse.

A relationship of space (and location) to event and data does recall, as we discussed above, those hierarchical and simple network databases which required knowledge of the data design because navigation and query occurred via predefined relationships. It is my suggestion that basic game fiction design relies on this early *vision* of hierarchical databases and that the process of fulfilling the quest (or game objective, more loosely defined) is that of enacting of a procedural query, of the careful search and uncovering of a data design that is based on predefined relationships. A query, we might recall, requires input from both a design and a user perspective, and it is in this combination—one of anticipated guesswork on both sides: the needs of a user and the design of a programmer—that a query is executed. Thus, a query is, in many ways, an initial foray into understanding data design, which often has a fog of war in its own right.

A successful (which is to say, a completed) query is a collaboration between user-input values and a predetermined search algorithm. Search algorithms can value certain

[169] See Wardrip-Fruin's chapter "Computer Game Fictions" in *Expressive Processing* for an advanced, and not unfair, critique of the limits—some might say bugginess—of progressive game fictions. Though I respect the criticisms, I am perhaps more sanguine about occasional glitches in more advanced fictions that Wardrip-Fruin is.

fields over others, such as give more weight in ordering returns based on a date-value having precedence over a keyword value. Those algorithmic preferences are often designed considerations, often obscured by the interface of a simple search page. A user foray against data fields is not unlike the Terran infiltration of hostile territory to recover an important resource, and the Zerg resistance a likely representation of a failed attempt to probe the unknown grid in search of a hidden data point.

This metaphor has its limits, of course, but the principle of shared authorship, one that for so long served as the theoretical underpinning for a great deal of postmodern musings on hypertext theory, is one that finds some support in the data structures of game fictions. On the one hand, data—its description, properties, and location—have direct impact on its narrative potential (narrativity), and that specific events, triggered by player behavior but positioned through data placement and scripting by the designer, enable a game fiction to remain competitive and ergodic while allowing for progressive actualization. On the other, designed quests are akin to a series of staged research queries in a database, and importantly in a database structured akin to those in which objects are bound to specific location, specific fields in the data grid.

The codes, material signs, written and inscribed, highlight the pre-planned nature of narrative progression. Specific events are necessarily actualized for narrative *and* ludic progression. There are multiple methods for the player to fulfill these or any other events in a game fiction (something to be discussed in greater detail in the next chapter), but staged, actualized progression highlights an important and necessary distinction between games with fictional elements (narrativity) and game fictions (a narrative genre).

That there are material signs that suggest the presence of narrative gives us hope that future discussions of narrative acts within ludic contexts will be accompanied by a clear discussion of genre.

It could be argued that this actualized narrative sequence from *StarCraft* is both simplistic and not terribly deep, but such an argument is itself rather insignificant. While this one mission is not, in itself, a story of overwhelming note, it may be equally argued that a single chapter from a lengthy novel would find itself on similar uneven footing. And as the mechanics of setting, quests, and narrative are my primary purpose here, and while arguments as to the merits of this full narrative could, and should, be made elsewhere, I will note that politics of war—of loyalty, betrayal, and allegiance—and the nature of humanity (which is called into question in more than one way in the thirty episodes of this first game) are perhaps suitable inquiries for game fiction, just as the psychology of a woman torn between her husband and her lover was appropriate for serial publication in the 19th century.

This is not to say that many game fictions extend beyond the most superficial of plots. If the story for *Super Mario Brothers* seems particularly weak, that's because it is. The game relies heavily on narrativity but its narrative architecture lacks deep or interesting actualizable events, further hampered by simplistic non-ergodic supports (the lack of decent cutscenes, e.g.). If the story for other games, such as *Half-Life*, feels overly proscriptive, and especially if non-ergodic cut-scenes dominate the event structure, the balance might again be found to be uneven. Successful game fictions—those that provide a rich story experience within an ergodic and challenging framework, such as *Prince of Persia: The Sands of Time* or the single-player missions of *StarCraft*—find a

balance, such that players feel an ability to contribute to events, even as they actualize them. The quests feel like a query, the events built on data and encoded, and yet still left challenging to enact through a sequence of actions; both may arguably touch of those Barthesian codes—the hermeneutic and the proairetic, respectively—in ways that help explain our intertwined narrative and ludic desire, to both fulfill the quest and to enact the quest. The encoding for such strategies may differ, from technology trees to dialogue trees, but structured, actualizable events remain a central element of any game fiction. Otherwise, we are left only with narrativity, where, like life, many things can happen.

The following, final chapter will examine character, roles, and ergodic behavior, further discussing the ways in which players enact actions through loops and strings towards progressive actualization.

Chapter 5: The Game Loop

> Can the loop be a new narrative form appropriate for the computer age? It is relevant to recall that the loop gave birth not only to cinema but also to computer programming. Programming involves altering the linear flow of data through control structures, such as 'if/then' and 'repeat/while'; the loop is the most elementary of these control structures… As the practice of computer programming illustrates, the loop and the sequential progression do not have to be considered mutually exclusive. A computer program progresses from start to end by executing a series of loops.
> -- Lev Manovich, *The Language of New Media* (317)

> "Because it's a thing of beauty, the ability to spin the cloth of reality, and you're a sucker for it: Isn't story-telling what being human is *about*?"
> -- "Jack," *Halting State*

A central theme throughout my argument has been that game fictions link progressive narrative structures to basic principles born from computing technologies—database structures, queries, and interface design. In this manner, the formal materiality of the game engine and narrative form comprise the double-helix of game fiction. This adherence to core concepts, I believe, holds true for progressive, actualizable games even if those very games might be programmed in a much richer, more complex language with robust, modern data structures. We can read basic computational structures in technical terms—how the game operates as a kind of formalism—but we can further read them on a *metaphorical* level, with an eye on how they impact themes, operations, and interactions in the game's design and in the game environment. We have deliberately progressed from the interface, through the data landscape, and will now turn to an examination of play as an act of user input in modern game fictions, formalized materially and thematically through the loop.

The Game Loop as Formal Mechanism

The game loop and its foundational operations of receiving input from a user, simulating the game environment, and rendering output may be our best representation of the formal materiality for Huizinga's magic circle, and at the very least it should be considered for the broad scope of computer games—not just game fictions—as genre-defining. Michael Balfour and Daniel Martin's formal definition of a video game is "a collection of one or more game loops processing inputs and outputs for entertainment purposes"—in short, a "video game is a 'bunch' of game loops."[170] Alan Thorn further notes that "programmatically, one of the key dividing factors separating games from nongame software is the … game loop" (74). In event-driven software such as a word processor, the program waits for input from the user before performing an action, whereas the game loop, while also responsive to events (player input), still does *something* even if the player does nothing (Thorn 74). This distinguishes game space further as both "a space apart," an environment in which user input is but one factor in determining the world state, *and* an interconnected feedback loop between player, creative assets (designed data and algorithms), and the interfaces that bind them.

In review, let us quickly map our investigation thus far as it relates to the game loop and its various subsystems. By exploring the interface and its many channels of narrative data signals in Chapter 3, we understood how the act of rendering can also been

[170] Balfour and Martin, both technical directors for Electronic Arts, note that the game loops used today are not fundamentally different from those used fifty years ago. The first software game, *Noughts and Crosses* by A.S. Douglas, used a software loop, as did *SpaceWar* in 1961. *SpaceWar*'s architecture was changed to hardware by Nolan Bushnell when he produced *Computer Space* in 1971 (Balfour and Martin). Balfour and Martin remind us that "Hardware and software solutions crossed paths several times" in game development history, a trend likely to continue: "3D rendering was originally software, then it moved to fixed hardware, then became more flexible again with software shaders. The pattern of trading software and hardware solutions will likely continue in the future."

seen as an act of narration, involving multiple voices and focalizations. Within the context of data systems and scripts in *StarCraft* in Chapter 4, we began to uncover the methods by which designers simulated a world in advance, such that the scripting and setting awaited player actualization. In all instances of game fiction, user input remains a required element, an ergodic actualization within a competitive and progressive field. How do we account for the range of potential inputs that might be offered by a player, and how these inputs might actualize—or disrupt—a crafted fiction? To conclude, I will investigate in greater detail the role of player input as part of the greater game loop, how this feedback can impact on our perceptions of character as a fictional input/output subsystem, and how such perceptions relate to thematic underpinnings of redemption in game fiction.

Halting State

Jack's ruminations on humanity and our general propensity for story-telling in the epigraph above—"the ability to spin the cloth of reality… isn't that what being human is all about?"—reads somewhat ironically, as his observations are made while he adopts the avatar of an anthropomorphic bear, dropping into the virtual reality space of Avalon Four. Jack is one of three primary characters in Charles Stross' *Halting State*, a near-future novel told almost entirely in the second person (standard form) from three distinct voices. "You" are Jack, computer geek, recently-fired game designer and recently hired freelancer. Jack serves as a guide to Elaine (also "you"), an auditor for the "reinsurance risk analysis house" Dietrich-Brunner Associates (and occasional Live-Action Role-Player, or LARPer), who is currently investigating a "complex crime…inside Avalon Four," for which "certain parties are liable for an enormous amount of money if the

details come out" (68). Finally, "you" are Sergeant Sue Smith of the Edinburgh Police Department, and you are the first officer on the scene of this the puzzling crime involving the theft of virtual items, the security of which is managed by Hayek Associates.

Halting State opens with an investigation of a crime evolving out of unusual user behavior that disrupts the operations of Avalon Four. You, as Sue, arrive at an underground bunker that serves as the office space for Hayek Associates, who works under contract to manage in-game economies. "There was a guild of Orcs—in a no-PvP area—and a goddamn dragon, and they cleaned out the bank," explains Wayne Richardson, Marketing Director (9). The scene replays out before you on a video screen, as "a formation of monstrous soldiers… larger than life and twice as gnarly, prognathous green-skinned jaws featuring tusks capped in gold" march into the Avalon Four central bank, and then:

> This is when something—we're not sure what—nerfed our admins back to level zero and cast a Time Stop on everyone in the room. That's a distressingly high-powered spell, and it normally affects just one target at a time. (14)

Following the game neophyte Sue, the reader is allowed the same skeptical, uncertain perspective they would likely entertain when hearing of this unfamiliar scenario, and Sue's "hard questions"—"*So someone found a bug in your game, and you called the Polis*?"—allow Stross the opportunity to dip into the expository through responses from the corporate characters. Marcus Hackman, CEO, explains that this is no ordinary snatch-and-grab of virtual goods. There is a formal materiality behind the interface at work in the game systems like Avalon Four, a system that governs the exchange of objects through security keys and cryptographic tokens. While those objects can be game-related, like a valuable sword, that same technology (in this novel of the near

future) also governs monetary exchange via normal banks, the exchange of secrets—in other words, the currencies of governance for worlds both real and virtual.[171] The perpetrator of the crime engaged in behaviors that normally are forbidden within Avalon 4, even impossible. This exhibition of power by a user in literally stealing control from the game designer—"nerfed our admins back to level zero"—changes the full range of possible narratives and behaviors. The collection of possible actions for any one character in the game twists into a more robust grammar of behavior. Here is one kind of halting state: quite literally a "time stop," undermining the game loop such that the game world—the various *simulation* subsystems—breaks, freezing all players except the enterprising thieves.

Stross is also hyper-attentive to the significance of the interface as a means to *render* output, from the thematic undermining of "CopSpace" to the deliberate confusion of "you" in the narration of three distinct characters perspectives in standard second-person. The software keys that govern virtual reality in *Halting State* also manage the formal systems that govern the security all activity, from playful games to the augmented reality of police interactions. "CopSpace" creates for the police like Sue an augmented overlay that facilitates her job interacting with the public:

> CopSpace sheds some light on matters, of course. Blink and it descends in its full glory. Here's the spiraling red diamond of a couple of ASBO cases on the footpath (orange jackets, blue probation service tags saying they're collecting litter) …the green tree of signs sprouting over the doorway of number thirty-nine, each tag naming the legal tenants of a different flat. Get your dispatcher to drop you a ticket, and the signs open up to give you their full police and social services case files… This is the twenty-first century, and all the terabytes of CopSpace have exploded out of the dusty manila files and into the real word, sprayed across it in a Technicolor mass of officious labeling and crime notices. (77)

[171] Though any true distinction between the two is suspect in a Strossian world.

Ownership of the keys of authorship—these cryptographic tokens that allow secure exchanges of all types—leads to ownership of information channels and data distribution. Just like tweaking the interface to guide a player in a particular direction in *The Sands of Time*, when the keys of authorship change hands in *Halting State*, reality bends. "CopSpace" as an interface of governance becomes unreliable. Authorship and authority are linked to, after all, the power to manipulate simulation and rendering subsystems.

The virtual robbery in *Halting State* is discovered to have been a side gambit, an unforeseen, unauthorized venture from a lackey exploiting an opportunity. The true culprits turn out to be "Team Red," representing Chinese interests, and it was only through the orc-driven bank robbery that Team Red's infiltration of the state system of secure exchanges is fortuitously revealed. Herein lies another deeper and more sinister implication to Stross' title: the potential to literally bring the 'state'—in this fictional case, the newly independent Scotland, and potentially the whole European Union—to a halt by stealing and manipulating the authoritative ruleset that governs the country. Augmented reality becomes *alternate* reality. By stealing the keys, the flow of data to the authorities (quite literally the 'state') can be altered by interests opposed to the state. This detective novel becomes a novel of espionage.

The example of *Halting State* recalls for us some important threads throughout my argument. First, there exists tension in the system of control and exchange at the level of the interface. Any interface is a filter, has material constraints, and holds the power to reveal or deceive. As Sue notes: "Once you accept someone else's reality, there's really no telling, is there?" (160-161). Second, we can recognize the power of authorship in designing (or manipulating) the simulation system. Team Red's hacking of

the data represents the power of authorship in interactive systems. As such, it is thematically relevant to how we understand narrative transaction within game environments. It reflects the highest level of competition within any game loop: the imperative struggle of player against designer, and defines a complex problem within any looped system—the impact of input. Here we approach a final meaning of Stross' title: a reference to the halting problem.

A historical conundrum, the halting problem asks if there exists one algorithm that can determine if a computer program will halt (a halting state) given arbitrary input (Hein 849, Svozil 114). Karl Svozil calls this a "problem of forecast for a mechanistic system" (114). Henry Walker and Neil Dale offer the following summary of the complexity:

> One way to tackle this problem is to start the specified program running with the given input and wait to see what happens. If the program stops, we know that the program is not caught in an infinite loop, and the answer to the question is obvious. If the program continues to run awhile, however…the program may be caught in an infinite loop and never halt. However, it is possible that the program eventually stops; you just have not waited long enough. (525)

The halting problem is often credited to both Alonzo Church and his contemporary Alan Turing (who is most often given recognition),[172] and it has proven unsolvable. There is no method for calculating the potential that undetermined input might halt a running program. For Stross in *Halting State*, where the virtual and the 'real' are inseparable, life is itself a Turing-complete universal computer, and the arbitrary input is human behavior, each moment another turn in the loop that may or may not bring about a halting state.

[172] Though likely not called the "halting problem" until Martin Davis did so in *Computability & Unsolvability*, 1961: "There exists a Turing machine whose halting problem is recursively unsolvable" (70), as noted by B. Jack Copeland in *The Essential Turing* (Clarendon Press, 2004), 40.

Life, as one long-running test of the halting problem, is a run against the infinite loop, and there is no accounting for human behavior.

At the same time, Stross' attention to narrative form as interface and his use of second-person address underscores the distinctive voice and focalization that each character's perspective brings, even as the endless repetition of "you" that accompanies each character negates individuality. Within this doubling of conjoined address and individual identity, characters stand out not only for their psychology, or even Sue's brogue, but also for each character's ability. Though each pursues the investigation, each does so in their own way. Stross offers us here almost a type of adventuring party—Elaine as auditor; Jack as hacker; Sue as enforcer—playing on the idea of a range of classes or character types (and thus abilities) available in most computer role-playing games.

If game fiction can be faulted for a lack of depth in its short history as genre (a point I believe that can be challenged by more robust interpretations and 'deep playings' on the part of the critic, and a broader spectrum of cultural approaches and topics, on the part of the designer), such a lack also falls in part upon our desire to see the reflection of traditions from other media of the twentieth century. In game fiction, we may not have an equivalent of the novel of psychology at the turn of the last century, with its pervasive insight into human individuality against the backdrop of cultural landscape, but the genre does offer potential in its form, where the active character functions as interface and as perspective, a seeming alignment with an almost distinctively postmodern approach to individual relativism. We, as consumers and as players, engage the character-as-interface, and we operate against the game fiction through action and verbs, which brings

us towards an understanding, as I suggested in the first chapter, of collective tradition under the guise of individual experience. Each play session remains unique and individual to the player, and yet, as with Jackdaw's echo of *Adventure* through the network in Power's *Plowing the Dark*, the act of play brings with it a cultural tradition of place and of experience—narrative intertwined within the art of play.

In addressing game play as an art, I look not to define games as art, per se (though I believe some games are, and many can be), but to rather recall the notion of *craft* as an act of artful creation or what we may call authorship. Drew Karpyshyn, lead writer for the 2007 game *Mass Effect* (Bioware), offers a rather stunning assessment of the scope of writing that one finds in recent game titles:

> *Mass Effect* has a word count of around 400,000 words - somewhere in the area of 4-5 full novels. But, unlike a novel, we also have visual images and other ways to tell a story. Our word count would be even higher if we had to describe settings or characters, but we actually have art and graphics to do that for us. I think a better comparison to give the full scope of our game is to use movie scripts. In *Mass Effect*, every line of dialog has full voice over, and we have 20,000+ lines of dialog - roughly the equivalent of 20 movies. That seems like a lot - and it is - but it's necessary to keep a player engaged in our game and story for the 20+ hour critical path. ("Mass Effect: The Write Stuff")

Karpyshyn refers here only to the writing of the script, which must interoperate with the other systems of interaction that comprise the entire game. In terms of quantity, the question of authorship as craft would seemingly be settled, although thorough studies of designer methodologies and means of collaboration merit additional critical attention in the field of game studies.

Beyond this quantitative measure, the question as to whether games are art is as subjective as it might seem, and certainly beyond the scope of the current study. [173] That said, I find informative a response offered by another game designer, Clint Hocking, to popular movie critic Roger Ebert's public claim that games are not, in fact, art. In his response, "On Authorship in Games," Hocking critiques Ebert's suggestion that if art exists in games, its presence stems from the interactive input of the audience. Hocking writes:

> First, there is authorship in games, no matter how much we abdicate [to the user]. The form of the authorship is different, and hard to understand, but no matter how much we try to abdicate it, it will always remain … it is inextricable from the act of creating a game. Second, interacting with a work does not shape the work, it 'only' reveals it. Therefore, while there can be an art of expression in the way someone reveals the art, this does not necessarily diminish the art in the design of the work itself. ("On Authorship in Games")

Hocking further clarifies his claims as follows, "I author mechanics that yield deterministic outputs in the game dynamics that lead the player to experience the aesthetic I want them to experience (within a given tolerance)."[174] His caveat ("within a given tolerance") is an important one, directly related to the very halting problem Stross alludes to in his title, in which there exists always the possibility of disruptive play (whether a product of ingenuity or deviousness).

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[173] Ian Bogost offers a compelling accounting of the balance of art and popular culture, play and cultural production, in *Unit Operations* (111-118).

[174] Hocking's full essay offers necessary clarifications, including the impact of collaborative authorship, distinctions in types of creation, and the increasingly significance of multiple perspectives in many types of media. Likewise, it should be noted that the games that Hocking has designed tend to fall within the criteria I have outlined here as emblematic of game fiction, with attributes of progression, ergodicism, competitiveness, and actualization. I suspect game designers of more emergent games, like Will Wright, designer of the popular *SimCity*, *The Sims*, and *Spore* franchises, would offer a different assessment of the role of authorship in games. See http://clicknothing.typepad.com/click_nothing/2007/08/on-authorship-i.html

Hockings' assertion of authorship, and my own reliance on narratological assumptions of authorship (such as in my adoption of Chatman's communication model), reflect a belief that game fictions (and games generally) are authored systems, based on code that is itself inscribed via writing technologies, enshrined in layers of computation as they may be. Game fictions as formal systems, however, more fully assert this degree of authorship than their more emergent and playful kin, through methods that I have tried to explicate in previous chapters.

Where, then, is agency? Where is the player in the loop that comprises the art of play? In addressing the halting problem, I have intentionally manifested the assumption that player actions that range far outside the spectrum of intended interactions (such as creating machinima films from within game fictions) take us into interesting but unquantifiable realms that can only be addressed in other contexts, and in individual cases.[175] I will, however, conclude with some thoughts on player agency, and in doing so I will tease out a few more threads of thought introduced in previous chapters—actions and events, the goals of actualization, and the act of questing—all of which can be tied to character, complicity, and themes of regret and redemption. Perhaps the first best example is a game that you do not play at all.

Progress Quest

Developed by Eric Fredricksen and released in 2002, *Progress Quest* is a satire of the role-playing game, and its commentary is both a celebration and an indictment of the

[175] See the final chapter, "Countergaming," in Alexander Galloway's *Gaming* for a discussion of hacking and altering games "as a political and cultural avant-garde" (126). This kind of emergent behavior is certainly worthy of study and interest in the broader scope of game scholarship, but as it often takes on properties of remediating the data and codes of games as an act of new authorship, it falls outside of the scope of this current study.

pleasures in the reward systems inherent in such games. It is important to note that *Progress Quest* operates at the primal level of the game loop, with one important caveat: player input isn't just negligible, it is non-existent beyond initial character creation (which exists outside of the game loop). Instead, *Progress Quest* co-ops the role of the player, taking actions, selling inventory, and itemizing the character, while the 'player' sits and watches (or allows the program to run in the background). Fredricksen created the program after spending hours in the MMO *Dark Age of Camelot*, in which he repeatedly directed his character to the same field so that he could slaughter monsters—"spectral hogs"— over and over again. This seemingly mindless repetition in leveling his character alongside the visualization for character advancement in the user interface recalled for him the progress bars like those that appear on the screen during the installation of programs in the Windows operating system.[176] The newest, web-based version of *Progress Quest* reinforces this association, where the "game"—with an interface reminiscent of older database programs—rests against the default background of the Windows XP operating system (Figure 40).

[176] This kind of "grind" can be typical of the genre, requiring players to spend hours repeating actions in which to level their character to new heights of power. See Fredricksen's interview with Eric Dolski on Radio K's "Culture Queue" program (aired on June 17th, 2010), linked to from the July 21, 2010 entry on the Progress Quest news site: http://progressquest.com/news.php

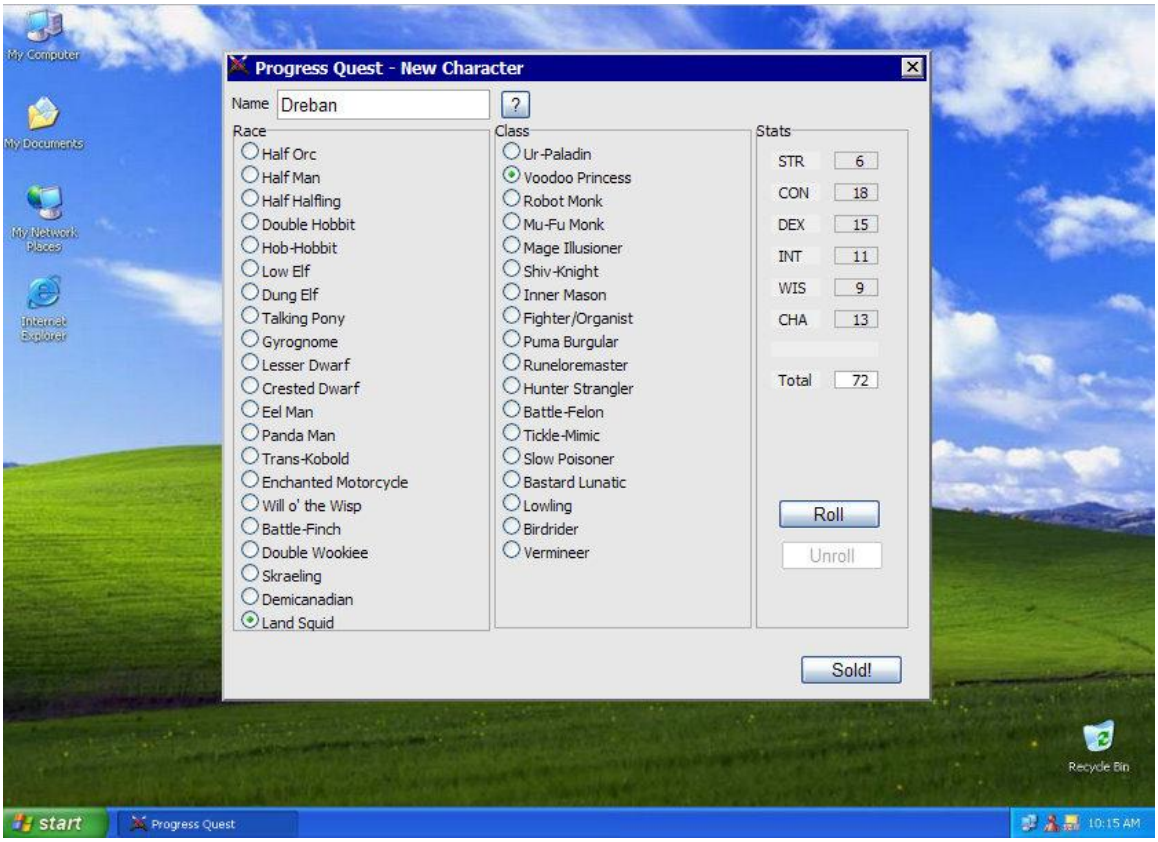

Figure 40: The character-creation screen for the web-based version of *Progress Quest.*

Progress Quest requires no input from the player beyond the initial creation of a character, the typical opening procedure of many kinds of role-playing games in which the player chooses a race, a class, and determines their "Stats" (for "statistics," which are the range of attributes that determine basic qualities like strength and intelligence). In addition to traditional options for races like Half Orc (a default race from *Dungeons & Dragons*), players may opt to play a range of satirical creatures: Half Man, Lesser Dwarf, Talking Pony, Panda Man, Double Wookie, Battle Finch, and so on (my own preference is Land Squid).[177] Class options are equally ridiculous, allowing you to explore the

[177] The Land Squid is described as follows: "Possessed of superhuman strength, the Land Squid, a giant, lunged cephalopod, makes for a fearsome fighter. But its real strength rests in its brace of dexterous iron-shod tentacles, which make the Land Squid an ideal Fighter/Organist; it is also exceedingly well suited to the Robot and Mu-Fu Monk professions, having a natural talent for "unarmed" combat."

professional capabilities of the Ur-Paladin, Voodoo Princess (my choice), Fighter/Organist, Mage Illusioner, Robot Monk, or Bastard Lunatic (among other options). Two clicks from these two lists of radio buttons, a "roll" of the stats, a choice of a name, and a click on the "Sold!" button, and the player has exhausted their input. The game—and the game loop—begins.

Although amusing in its mockery of standard procedures that form the beginning of many role-playing games, Progress Quest's introductory process is instructive inasmuch as it details one common methodology for developing an in-game character for the player, and how those properties can affect our conception of character within game fictions.[178] A character is frequently defined by attributes (how strong they are, for example), which often holds some algorithmic advantage or disadvantage based on subsequent choices of class. The selection of a race likewise can typically offer a particular enhancement; in *Dungeons & Dragons*, the choice of an elf as race brings a reward to the dexterity score and a penalty to their constitution (giving them a better ability to hit monsters with weapons, but a weaker health score). As the land squid description in Progress Quest mockingly implies, the race has a "natural talent for 'unarmed' combat." Finally, class defines the range of a character's actions, and thus suggests the player's grammar of game input; my voodoo-princess in *Progress Quest* can cast the spell "Revolting Cloud" while a different class—the birdrider—can use the spell

[178] I should note that not all game fictions allow players to choose their beginning characteristics, and instead offer them pre-defined avatars. Attributes, race, and class may be assigned as a default, although generally characters will reflect such elements in their abilities; I will expand on this in examples that follow.

"Aqueous Humor."[179] Many role-playing games also allow for cosmetic customization in the form of hair styles, facial structures, and body types.

Taking for a moment these standard qualities as among the basic components of character in game fiction (with the understanding that various games employ standardized, premade characters while others allow for a broader range of customization), we might assume the following definition of character in game fiction: a collection of attributes and behaviors embodied by a textual or visual representation within the game setting. This definition works rather well alongside the basic construction of character from a literary or cinematic perspective, with the possible exception that one might typically distinguish between characters (or speaking more broadly, entities) and actions. I should note that the avatar is but one component of character, often a visual representation that performs on screen many of the actions available for the character; the idea of character extends beyond this visual representation and encompasses the underlying functions, of which the avatar is simply one part. Within game fictions, it is hard to imagine character without relying intrinsically on the notion of action, and action over time, even going so far to qualify our definition further:

> a character is a collection of attributes and potential actions—*and the accumulation of those attributes and actions over time*—embodied by a textual or visual representation within the game setting.

Here, character intersects with the other operations of the game loop, and the many pre-ordained events that the character may actualize over time.

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[179] While the range of available actions for each class in *Progress Quest* are intentionally nonsensical, the fact that each class draws from a database of available pre-programmed actions reflects the traditions of many types of game fictions. In point-of-fact, in a slight departure from tradition (comedy over-riding game design) *Progress Quest* appears to randomly select abilities from a common pool, rather than linking abilities to specific classes, which is typically the norm.

Progress Quest, as the anti-role-playing game, proves once again as an instructive example of the interrelationship of these systems. Figure 41, below, is the "playing" interface for *Progress Quest*.

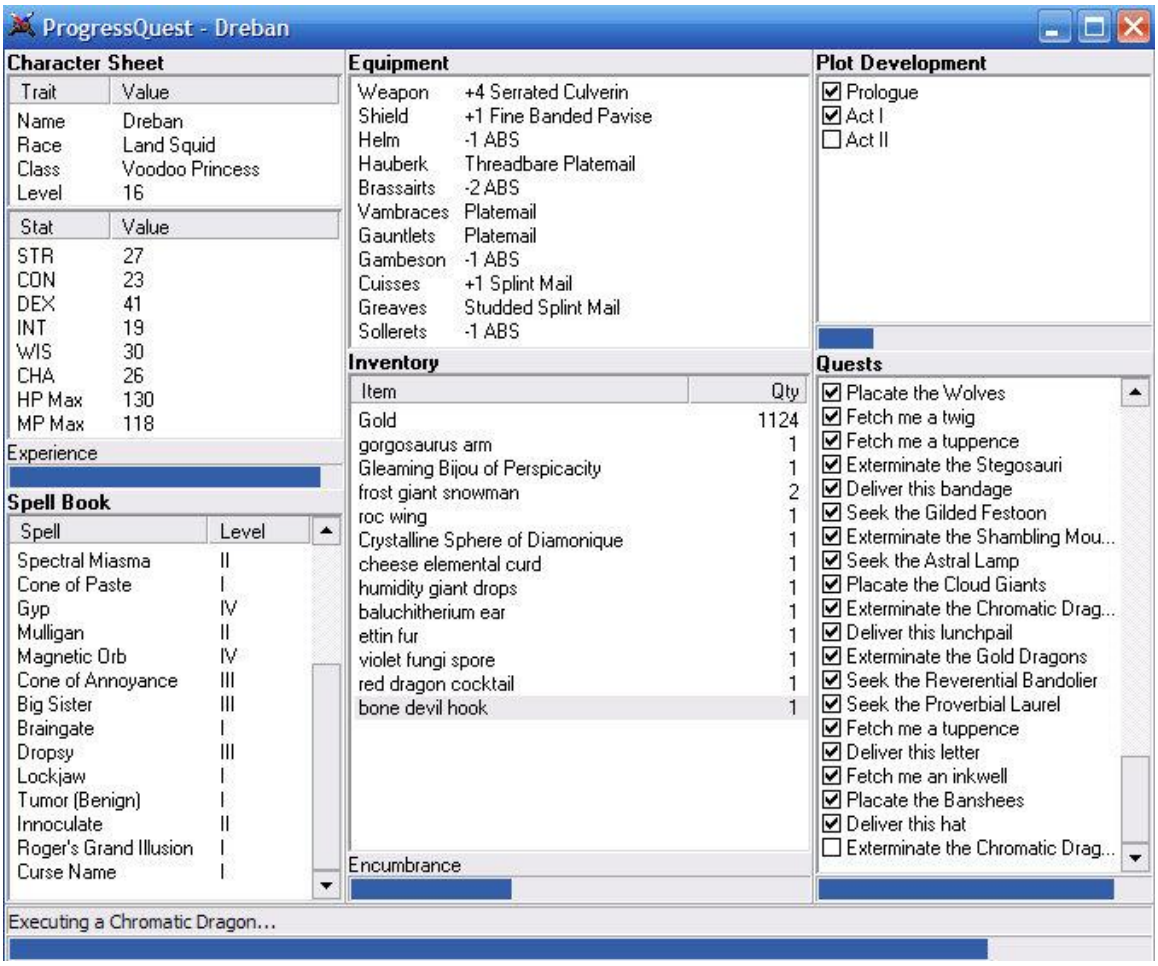

Figure 41: Progress Quest interface.

Reading the interface clockwise, beginning at the top left, we see the character sheet, with traits such as name, race, class, and level, followed by the stats and a progress bar (in blue) tracking our experience points. Filling the bar levels the character. Our equipment is displayed center-top, showing for example that my weapon is a +4 Serrated Culverin (a culverin is an ancestor to the musket, begging the question as to why it needs to be serrated). Fredricksen mocks here the common trope of the accumulation of

magical items, which becomes a mini-game of itemization in itself in most role-playing games. The plot development appears as a checklist in the upper-right corner, and the quest section below it derides events common to the genre: fetch, exterminate, deliver, and so on. Note, again, that both the plot development and the quest section have individual progress bars, where we can see that my character, Dreban the Land Squid has almost completed the quest "Exterminate the Chromatic Dragons," but my fearsome cephalopod is still in the early stages of "Act II." In the inventory, we find a range of items—ranging from "bone devil hook" to "gorgosaurus arm"—and an "Encumbrance" progress bar that, when full, requires an automated visit to the village to sell the items for gold. On the bottom-left is our spell book, which tells me I can cast a level three "Cone of Annoyance" or a level one "Tumor (Benign)." Finally, at the bottom, is the most active progress bar, topped by a description of current actions (Dreban is "Executing a Chromatic Dragon…" in fulfillment of his open quest). The progress bars interlink: executing the chromatic dragon (immediate action) actualizes the associated quest, which in turn actualizes the plot of Act II.

In the very absence of our participation in the loop (which is precisely the point of the satire) lies a suggestion towards a definition for role-playing in broad terms, not just for the traditional RPG sub-genre but for game fictions generally. In Chapter 2, I cited Daniel Mackay, who defines role-playing as a "system for determining the outcome of character actions … in which players roll dice and then consult tables that are modified by their character's individual talents, skills, attributes, and physical characteristics" (7). I suggest the following alternative: *role-playing is a complicit act of participation in the game loop, by means of a player's joint process of interpretation and the selection of*

input from a range of available actions, manifested through a fictional projection. Complicit participation is necessary in order to fulfill the obligation of knowing engagement in the fiction, a willing embrace as it were, that allows the recentering of discourse to the alternate world, a notion I discussed in previous chapters. Complicity further allows the kind of double-play common in many games, such as playing a character of the opposite gender. As I suggested in Chapter 3, players frequently engage games with a self-aware posture, eschewing a full sense of immersion. Thus, fictional projection allows for a full range of activity, from simply playing your character to speaking with a different accent or playing another gender. It is also important to note that play requires both interpretation and configuration in the player's navigation of constraints. Our willingness to engage with the game loop, rather than set ourselves apart from it, enables the many subsystems that any game requires to operate in full; player input fulfills the loop, enabling progression. Finally, a player must materialize their action through some form of projected manifestation, often a character and, by association, a visual or textual avatar. This definition excludes *Progress Quest* in some respects, as the game offers no real function for user input within the game loop, although I believe the "game" should be celebrated for its elegant simplicity and soothing sense of achievement. One final caveat: this definition of role-play is intended to be general in design and useful across game fictions, but does not always account for the very particular cultural nuances that attach themselves to different types of role-playing games, which could thus enhance such a definition. While this definition accounts for both Western and Eastern style of role-playing games, for example, each brings a distinctive style different in their implementation, as would "live-action role-playing" (or,

LARP) games. All, however, I would assert, could equally fulfill the criteria of the definition I offer above.

We have before us, then, the humble substance of character, which is further refined through the act of competitive play against a field of encoded resistance. As Ernest Adams suggests, "character growth in power and abilities is a key feature of the [role-playing game] genre" (454) This process of growth is significant not just for a strictly defined genres, but any game in which you control a character and engage in role-play, as I've defined above. It is often in this process of growth where we find opportunities for themes familiar to us, from coming-of-age stories to opportunities of discovery, recovery, or redemption. Character growth, however, is rarely possible without contextualization, which establishes the parameters for forward (or backward) movement in developmental goals. *Progress Quest's* opening Prologue—appearing as the following simple string of lines in the opening stages of the loop—offers an example that establishes the character's rationale and purpose in wonderful satirical generalities:

> Experiencing an enigmatic and foreboding night vision….
> Much is revealed about that wise old bastard you'd underestimated….
> A shocking series of events leaves you alone and bewildered, but resolute...
> Drawing upon an unexpected reserve of determination, you set out on a long and dangerous journey...

Each line is provided its own progress bar, and each bar speeds up slightly to create a sense of urgency and completion. To continue our exploration of the role of character and player input as a fundamental component of the game loop, we will turn to a better exemplar of game fiction, where the character's back story reflects a humorous indictment of historical framing, and our participation in the game loop offers a chance at redemption.

Death Becomes You

As a character, few stand out in such a unique manner as Sir Daniel Fortesque in *MediEvil*, a PlayStation game developed and released by Sony Computer Entertainment studios in 1998.[180] A knight of the late medieval age in the fictional kingdom of Gallowmere, the history books describe Dan as a man "always destined for greatness, with his square jaw, steely gaze and thick shock of hair … he looked every inch the hero."[181] This description is an amusing contrast to the visual avatar you control. Dan lacks that square jaw (he has no lower jaw at all); his steely gaze is undermined by the empty left eye socket (he lost it in a battle one hundred years ago); and all that is left on the crown of his head is, well, the crown of his head. Dan has been dead for one-hundred years, struck through the eye by the first wave of arrows in the opening salvo against the evil sorcerer Zarok. When Zarok disappeared, the then-king professed Dan a hero: "songs are still sung of how he spearheaded the charge deep into the accursed multitude, how demons fell before him like wheat before the scythe, and how at last, though mortally wounded, he destroyed the sorcerer utterly."[182] This history is a complete fabrication. Dan is but a shadow of his former self, a collection of bones and rusted armor, who arises in undeath only due to an unintended effect of Zarok's recent use of magic. The sorcerer has returned one hundred years later to finish his task and, having conquered the unsuspecting Gallowmere, it is up to the undead, skeletal Dan—and Dan's player—to redeem the knight by freeing the kingdom.

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[180] *MediEvil*, as we will see, follows the traditions of platform and adventure games more than the traditional role-playing game (RPG) genre and, as such, reflects the broad adaptability of my definitions of character and role-play offered above. *MediEvil* was followed by a sequel two years later, and the original was re-issued (with changes) in 2005. The original is now available for download for the PlayStation 3. I used the original PlayStation version on a PlayStation 2 game console.

[181] You find this text among a series of historical books in the library of "The Sleeping Village" game level.

[182] These are among the lines in the opening cinematic that provides context for the game.

Regret, repetition, and redemption comprise the thematic loops at play within *MediEvil*. The opening cinematic sequence highlights the celebrated heroism of Dan, and then immediately undermines that vision as we watch him fall first in battle with an arrow through his eye. Narration of goals for each of the twenty-two playable levels[183] comes through three primary narrative voices: gargoyles who speak of Dan disparagingly as "it" (and of themselves as "we") and know his history of failure; books scattered throughout the kingdom that detail goals, advice, and history (see Figure 42); and other true heroes in the Hall of Heroes, who both disdain Dan for his rather unforgivable role as heroic imposter, and who also give him advice and weapons as rewards for fully completing previous levels.[184]

[183] In this sense, a game level is a single playable rendered environment, or in other terms, a single playable map. The first screen of Pac-Man is a single level. The third playable series of events in *MediEvil*—"Cemetery Hill"—is a level. Level design is core component of game design, and involves the arrangement of the paths and activities a player is expected to take.

[184] Each game level requires the defeat of a certain number of puzzles and monsters. Killing a monster releases an innocent soul stolen from Gallowmere. If a player fully actualizes the level by killing all the monsters, they can collect "The Chalice of Souls," which earns the player a trip to the Hall of Heroes and either gold or new weapons.

Figure 42: *MediEvil* screenshot. Sir Daniel Fortesque, with gargoyle and book in background. Note the heads-up display, which (left to right) highlights Dan's active weapon, shield, health status, and wealth.

Dan's own sense of failure and his regret are reinforced by the mocking complaints of the other heroes, who pepper him with insults like "jawless arrow magnet" and suggestions that "you're just not carved from hero material." The latter joke carries a double-meaning: each of the heroes is represented by a carved statue in the Hall, but Dan's own statue is translucent, reflecting the illusion of his heroism. The informational gargoyles, on the other hand, are talking heads that litter the landscape, where they collectively "observe all" history (*MediEvil Manual* 23). Thus, they know Dan's dual history, and offer amusing barbs throughout Dan's adventures alongside their advice and

quest directions. In "Dan's Crypt," the introductory training level of the game, the would-be-hero encounters two of these sarcastic stone works. The first plays on Dan's regret: "It has risen again – Sir Daniel Fortesque. See? The Hero of Gallowmere who fell at the first charge! The fog of war and the shrouds of time conspired to turn the arrow fodder into the saviour of the day. But we knows better…" Against this backdrop of Dan's regret for this false history, another gargoyle offers Dan the hope for redemption: "Fate has given it a second chance. A chance to forget the ignoble truth, a chance to defeat Zarok and live up to the legend. We hopes it does well." In Dan, we find an empathetic character, reinforced by claymation-style animation and the humor embedded throughout the game. His base state of failure means that each successful action in the game is a simultaneous growth toward redemption. Achievements thus have both ludic and thematic (and psychological) effects. The consistent reminders of Dan's initial failure, and our subsequent shared experience—our complicity in his success—further strengthens this connection.[185] Ludic actualization begets character development and connection.

While cinematics play a role here, most are dialogic exchanges between Dan and others who know his rather sad state of affairs. The gargoyles are particularly useful and serve as a primary mechanism for quest delivery in the game. As a type of historian, they frame the current events within the knowledge of Gallowmere's past. Other cinematics and books scattered throughout that you can read supplement our understanding of the context as well as the primary objectives. As such, the gargoyles, books, and heroes function akin to the Prince's tale in *The Sands of Time*, as discussed in Chapter 2. As the

[185] As critic and game designer Tracy Fullerton reminds us, "characters are the agents through whose actions a drama is told. By identifying with a character and the outcome of their goals, the audience internalizes the story's events and empathizes with its movement toward resolution" (94).

base stack (A) is comprised of the introductory framework of Dan's past (and his life),[186] the story of Dan's undeath—and the quests related to him by the gargoyles—represent the second stack (B) to be actualized by player action (stack C). Of the twenty-two game levels that you play through, each has its own quest objectives, puzzles, and strategies, but the actions within each of those levels reflect at least three qualities that, in combination, I believe increasingly distinguish game fictions as a genre via the function of character, on the one hand, and player action (and agency), on the other. I will turn to a specific level in *MediEvil*—the third level, "Cemetery Hill"—to further explore these three qualities, and to understand the various degrees of agency as an active system complicit in the game loop.

First, actions within the game loop in game fictions are increasingly *catalytic and additive*. I began to explore in Chapter 3 the notion that player participation is a joint act of interpretation and configuration. For *The Sands of Time*, this was a suturing effect, joining memory and event. The selection of particular actions in games over a sequential period of time creates strings of acts that, when combined, are the grammar of ergodic response and the answer to ludic query. "Cemetery Hill" provides a strong example of how actions must be chosen from an array or collection of potential options based on an interpretation of framing in both narrative contextualization and setting design.

The level design is comprised of three core areas—the base area of the hill, a hidden series of rooms (the "Witches Coven") underneath the hill (accessed by smashing open the entrance at "B" in Figure 43), and the hill itself (the top half of Figure 43). It is possible to simply move from the beginning straight up the hill past the boulders to arrive

[186] Stack A would also include moments of collapse back to the overall game map between the twenty-two game levels—a representational travel map of Dan's movement.

at the end. Doing so requires only a few brief battles against enemies and the navigation of the hill itself, which is not dissimilar to *Donkey Kong* and his trundling barrels down sloped platforms connected by ladders. We will return to this similarity in a moment. As I have discussed, books and gargoyles scattered throughout the levels give suggestions that more is afoot within a particular area, and even go so far as to directly outline quests in more advanced stages. Immediately at the beginning, a book (marked *2* in Figure 43) suggests that clubs or other weapons can remove obstructions, a cue for the player—who does not as yet have a club—to look for such a weapon. Actions in *MediEvil* are primarily weapon-based, although the range of that vocabulary can be a bit more robust upon inspection. Obstructions can be found blocking access to the section marked *A* in Figure 43, as well as the underground cavern marked *B* (the underground rooms are set apart in the Figure but go under the hill itself). Based on an exploration of the non-obstructed areas on this level, the player is aware that they must reach the top of the hill (main objective), find a club (secondary objective), and investigate the "great archaeological interest" in the underground cavern (another secondary objective dependent on the first).

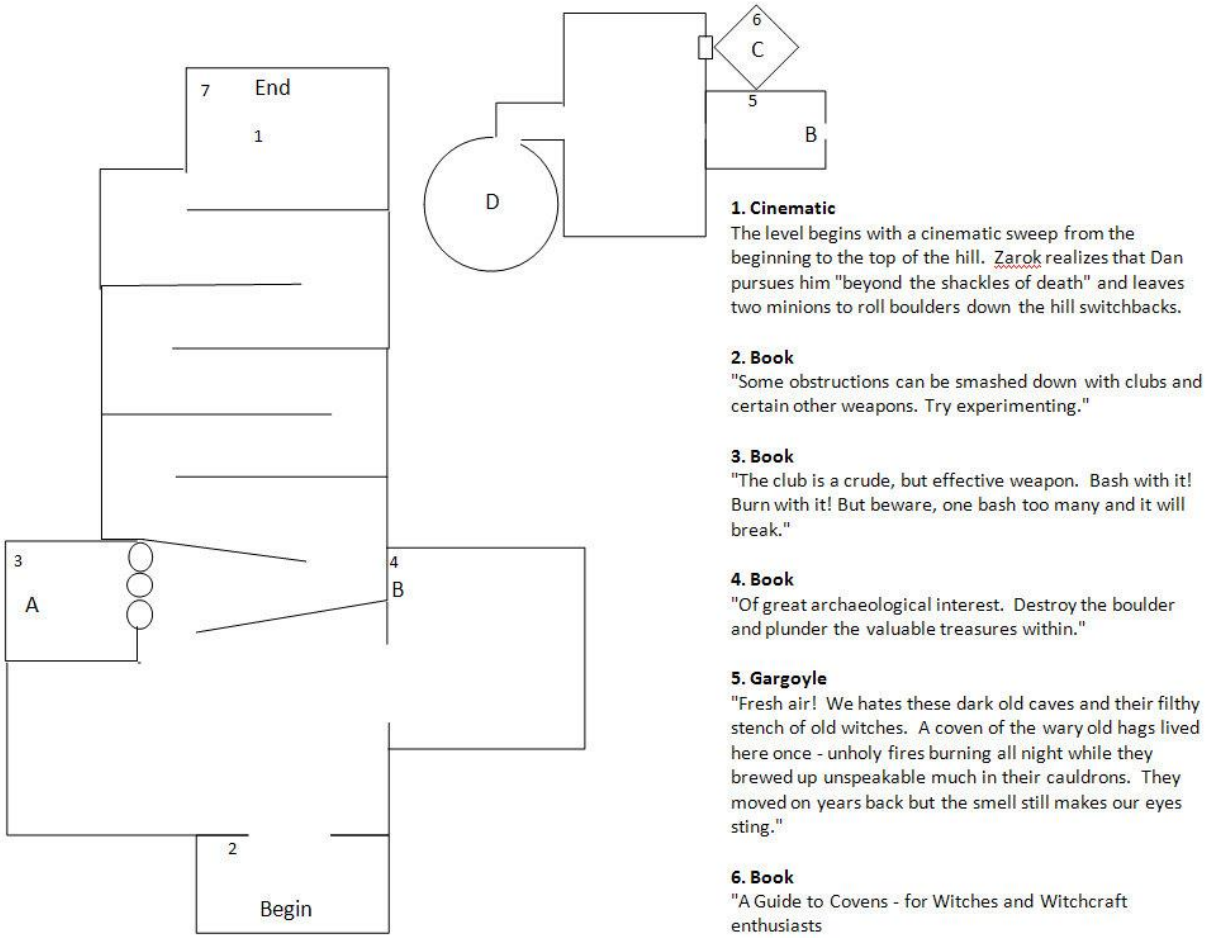

Figure 43: A map of the level "Cemetery Hill" and a list of its quest context. B on the left map corresponds to the entrance B on the cavern map to the right.

In many ways, the experience is not unlike early text adventure games, where procuring an item in one location expands the vocabulary of useful actions so that another event might be actualized in a further location. The process of adding to the inventory is also a process of expanding the player's possible discourse of exchange. As an adventure platform game, two primary methods of player input are expected: movement (or

navigation) and attacks in battle. The areas at the base of the hill provide ample opportunity for both kinds of activities, and it is useful to be reminded, as I discussed in Chapter 3, that the successive arrangement of actions fulfills nuclei events. That each movement or attack is additive (that is, they build upon one another) is relatively unsurprising in general terms, but the principle is worth brief reconsideration. When Dan swings a sword, an abstracted input (the press of the X button the PlayStation controller) converts to rendered action based on calculations within the game engine as to whether Dan strikes his opponent, a process reflecting the stages in each round of a game loop (gather input, simulate, render).[187] Calculations are dependent in part on the visualization; each respective weapon or action has an animation affiliated with it. As Paul Ward reminds us, "When responding to the player's actions, the game engine draws upon a library of short, pre-rendered animated sequences … [that] are combined and recombined in the real-time of the game play, with the result that the complete animated sequence as experienced by a particular player …comes into existence *only* at the point of playing the game" (123-124). So when Dan swings his sword, the animation is drawn from the series of potential animations that form the 'character' of Dan, and in the combination of the player's input and pre-rendered animations in a particular moment that comprise the event as rendered on screen.

The addition of the club to Dan's arsenal would seemingly only expand his fighting prowess, but the club proves far more valuable as a tool than as a weapon. To find the club, which is hidden in an area behind rocks that can only be removed by smashing them with the club, the player must instead guide Dan up the first set of

[187] In point of fact, several passes of the loop would be involved; the timing of game loops is rather precise technicality that I am simplifying for the purposes of clarity.

switchbacks on the hill, and then drop into the area marked *A* in Figure 43. Once the player has the club, she can smash the rocks (circles in the Figure) and proceed to the next section, which in an ideal playing would be the hidden cavern marked *B*. Here additive and catalytic take on broader implications. While the most straightforward perspective is of the combined effect of action within a single event, we also here see the potential for those combined events to compound towards further actualization. As discussed in Chapter 3, the interface channels various voices and focalizations, from cinematics to texts and dialogue to HUD indicators, that cue the player's actions towards fruitful progression.

The inventory of weapons and items prove not only to be an array of single actions, but offer multiple opportunities for interpretative action. The club once again is a fruitful example. In one sub-quest, the player uses the club in at least three manners: in breaching the entrance to the cavern (marked *B*) and a hidden room (marked *C*); as a weapon, if desired, against enemies spread throughout the caverns; and as a means to carry fire from point *C* to point *D*. This last is a small puzzle and its solution requires reflection on the many points of advice received until this point. The book at *2* suggests the presence of a club; the book at *3* notes that the club can not only smash, but also burn; the book at *4* suggests the presence of valuable treasures; the gargoyle at *5* hints grumpily at the usefulness of fire for the coven; and the book at *6* (in a room hidden behind a smash-able bookcase) details facts for "Witches and Witchcraft Enthusiasts," one of which is the power of the "sacred flames." In this room is one flame, and at location *D* in another room is an unlit flame, along with several alcoves guarded by gates. Behind the gates are both monsters and treasures. The player must hold the wooden club in the lit

flame at *C*, carry it to *D*, and ignite the unlit pyre found there. This actualization triggers an event (in much the same manner as discussed in Chapter 4): enemies charge out from the alcove and in defeating them the player can then collect the treasure, especially the Witch Talisman. That actions are additive reflects the interoperability of ergodicism with the properties of progression and actualization in game fiction, suggesting a balance between agency, on the one hand, and its limitations, on the other. That this additive discourse—a grammar of game input—is not only simply action but also interpretation suggests subtleties in user vocabulary and a range of potential meanings in interaction.[188]

The additive nature of player action is complemented by the second quality: the outcomes of player input are increasingly hereditary, which is to say that the results from actions for one moment impact subsequent moments in significant ways, often across large spans of the game narrative. I have explored this aspect of user action to some degree in my discussion of *The Sands of Time*, where with each collapse of the stack, the remaining stack inherits some properties that leave it altered. We also see inheritance across levels in a game like *MediEvil*. With the recovery of the Witch Talisman after solving the puzzle in "Cemetery Hill," the player gains the ability to use that item at various locations in subsequent stages of the game. Having completed what is in effect a side-quest for this specific level becomes an essential decision that impacts progression at later stages. The Witch Talisman is used to summon a witch in two subsequent levels

[188] It also suggests that we have here a potentially fruitful complement to what Ian Bogost describes as unit operations, which "are characteristically succinct, discrete, referential, and dynamic" (4). While he primarily draws upon emergent systems in his examples of video games, there may be much to be gained in considering game fictions as progressive, episodic aggregates of units that allow for interactions between authored and playable systems. Certainly his reliance on systems analysis, in which an operation is "a basic process that takes one or more inputs and performs a transformation on it … the means by which something executes some purposeful action" (7), reaffirms my suggestion that additive qualities of player action, drawn from an array of potential moves within a contextual framework, leads towards meaningful interaction.

("The Pumpkin Serpent" and "The Enchanted Earth"), both of whom offer you a quest. The reward from the first quest is one of two Dragon Gems that you will need later (the second Dragon Gem is found "Inside the Asylum"). The second quest takes you into a completely hidden level—"The Ant Caves"—where Dan is able to save prisoners and earn reputation, all reflecting his redemptive progress. Still later, Dan must use both Dragon Gems he has earned in a puzzle that allows a battle with a dragon (in the level "The Crystal Caves"). Victory here provides him a reward of armor impervious to fire, which becomes the only way to pass through a gate of fire in the level "The Gallows Gauntlet." In short, failing to complete the first seemingly ancillary quest allowing Dan to find the Witch Talisman would alter and possibly halt the story altogether. The significance of a player's choice is inherited—and impacts progress—in at least five subsequent levels (or approximately one quarter of the game).

Heredity as a concept also returns us to *Donkey Kong* which, as I mentioned previously, is a rather clear referent in this specific game level. *Donkey Kong* was designed by Shigeru Miyamoto,[189] in collaboration with Gumpei Yokoi, "the dean of Nintendo's engineering team" (Kent 158).

[189] Miyamoto is widely recognized as one of the foremost game designers in the industry, and his Mario (originally "Jumperman") has become a widely recognized character. Until *Donkey Kong*, Nintendo's attempt to break into the U.S. arcade market had met with lukewarm success. Some 2000 *Radarscope* arcade machines, sitting unsold in a warehouse, were converted into Donkey Kong machines (Kent 158-160), and Nintendo eventually earned some $280 million on the game by 1983 (Loguidice and Barton, *Vintage Games: An Insider's Look at the History of Grand Theft Auto, Super Mario, and The Most Influential Games of All Time*, Focal Press, 2009. 272.).

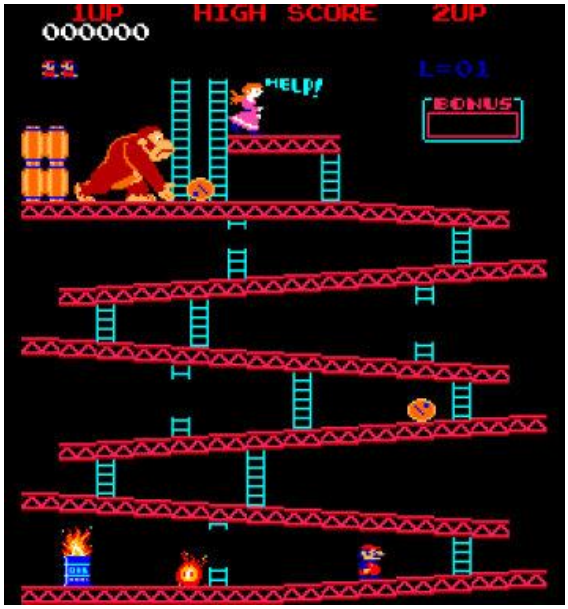

Figure 44: The first level of Donkey Kong.

Donkey Kong stands out not only for its iconic characters (originally "Jumperman," who we later would know as Mario), its platform mechanics, and its attempt to tell a story in four screens, introducing the "save the girlfriend/princess" motif that would remain popular for some time to come (Demaria, 82; Sellers 66-68; Kent 155-160). A comparison between *MediEvil* and the first level of *Donkey Kong* exposes a number of similarities. Though trail-blazed switchbacks replace industrial girders (compare Figure 45 to Figure 44), the principles remain relatively the same, from the clear goal at the top, the connections between each platform (stairs and ladders in *MediEvil* and *Donkey Kong*, respectively), and even the ability to smash some boulders (or barrels) with a kind of hammer. The switchbacks indicated in the top half of the map in Figure X represent the climb up Cemetery Hill, which is complicated by boulders rolling down to the bottom, quite similar (in 3D) to the (2D) barrels in *Donkey Kong*. The boulders are of two types: one is brown, and can be smashed by the club, while the red boulders are impervious and

can push Dan into a lava pit at the bottom of the hill; similarly, a flaming barrel (in Figure 44) threatens Mario at the bottom platform.

Figure 45: Screenshot of a portion of the Cemetery Hill climb.

Donkey Kong provides a useful measure of the development of heredity as an attribute of player input. Though rightly praised for its relatively forward-thinking design in 1981, the hereditary impact of player actions in *Donkey Kong* is relatively limited. The game loops through four sequential styles of platform to navigate, each industrial in theme. As the player reaches the top of the first three, the primate simply grabs Pauline and advances to the next level. A player's successful completion of the fourth level defeats Kong, saves Pauline, and the game loops to the beginning again, with faster timing to increase the difficulty. Each level exists in its own right, and the only carry-over from level to level is the score of the player and Mario's number of lives.

The principle of heredity suggests that in game fictions, player actions have the potential for impact in later stages of play. The impact may be as simple a discovered item, like the Witch Talisman, to open up future avenues of play, but it also offers thematic significance. Herein rests the final quality: a shift from a literal loop, as we see in *Donkey Kong*, to opportunities for thematic loops, as in *MediEvil*. The process of building character in *MediEvil* is not just ludic. Rather, the player's continued actualization of Dan's story serves also as an act of redemption, a kind of philosophical loop for a character who gains over time the grudging (and amusing) respect of the various characters throughout the game, and who eventually earns his place in the Hall of Heroes. Steven Poole notes that *Donkey Kong*, as an archetype of the platform game, has given rise to much more robust "exploration games," in part due to a transition to three-dimensional representation (29-30), but I would argue equally that the thematic opportunities have expanded alongside graphic and memory capabilities, giving rise to explorations of character in addition to landscape. Within this context, my articulation of role-playing, above, extends beyond a single sub-genre of computer games, and instead is meant to embrace the broad expanse of interaction with and through game fiction characters—a complicit act of participation with thematic implications.

Certainly the path that Dan takes in the long road towards redemption is intentionally comedic—a rather joyful, engaging experience in which we embrace the underdog in his quest for self-actualization. Our sympathetic attachment to Dan as character supplements the experience of play, and that connection offers a sense of psychological reward in success. For a game fiction infused with death, where death *becomes* you, the final moments of the game feel more like rest, or rather, a kind of

rest*fulness*, with the rich attention to completion that such a word implies. After defeating Zarok, Dan returns to his crypt where our story began, and sinks to his bier with a delicate sigh, a moment of deliberate inaction after this recent afterlife of action. The final action of the player is the final attack on Zarok long before; the concluding cut-scene is an exit from the game loop, a halting state. The halting state itself is a particular kind of death, an end stop, as the player lays the controller aside in an inevitable conclusion very much different from the constant loop of death that attends most game play.[190] Here, the loop ceases to function: input is not gathered; simulation ceases; the act of rendering alone continues, preordained and cinematic. In the original production of *MediEvil*, two final endings are possible. For those who did not fully actualize the game events, Dan's single eye closes and the screen goes dark, a return to oblivion after the reworking of history. For the player who fully actualizes the game by collecting all required chalices spread throughout the levels, the scene continues on to the Hall of Heroes. Juxtaposed to the vision of Dan at rest, the player sees the Hall, not as we have seen it before, with statues and the aural hint of a background party, but fully realized, as the other heroes gather to celebrate Dan and his achievements. Both endings are different kinds of peace.

"All plots tend to move deathward," notes Jack Gladney, in Don Delillo's *White Noise*, to a group of assembled students: "This is the nature of plots. Political plots, terrorist plots, lovers' plots, narrative plots, plots that are part of children's games. We edge nearer death every time we plot" (26). E.M. Forster quips "if not for death and

[190] Although the end stop that attends a game's conclusion is different from the "death act," as described by Alexander Galloway, where the premature "game over" puts, for him, "the gamer into a temporary state of disability and submission," at least as much as he relates it to a "disabling act" that "infringes negatively on the game in some way." (31).

marriage I do not know how the average novelist would conclude" (95), but he also notes a distinction between the "and then—and then— " in the "curiosity" of the "gaping audience" which forms the basis of a story, versus with the plot, where "we ask 'why'?," which "demands intelligence and memory also" (Forster 86).[191] Here we find a difference between *ProgressQuest* and *MediEvil*, a sort of heart to the genre of game fiction, a rebuttal of the "and then—and then—" that comprises the singular reliance on subsequent actions in a game without narrative inclinations, and, instead, buttressed with a vision of *why* that forms the plot in game fictions. *ProgressQuest* critiques unthinking progress even as it manifests it completely; *MediEvil* queries the role of history, the desire for redemption, and the nature of heroism, couched in humor and the progression of play.

[191] Echoed again in Barthes' later formation of the proairetic and hermeneutic. As discussed earlier, both are important elements for game fiction.

Conclusion

The landscape of game studies has changed considerably since the publication of two foundational critical volumes in 1997: Janet Murray's *Hamlet on the Holodeck* and Espen Aarseth's *Cybertext*. Like graphic novels, hypertext, and film before them, games—as objects of critical study—have increasingly found their way into the university curriculum, university press publications, and academic journals,[192] while at the same time they have gained in popularity as entertainment, as advertisement, and as a medium for learning and advocacy. And yet, despite incredible progress toward understanding games, the relationship of game to narrative has remained an uneasy one. Each new publication has brought with it a nod towards the "narratology-ludology debate," the old chestnut everyone wished would disappear and yet, with a sense of unease, also feels a need to reference. "Fiction" serves all too often as easy short-hand for a non-specific manner of dealing with the question of narrative, and collectively, silently perpetuates a mythology that these are terms to be set in opposition to one another or, at best, that occasion a temporary or uneasy alliance before a turn to an interaction sequence here, or a cut-scene there. Instead, articulating a set of principles for game fiction as a genre is meant to create opportunity for discussion beyond this initial foray, an invitation to move past the sense of contentiousness that seems to accompany the false dichotomy, and see instead a type of synthesis, where we acknowledge that while some games have little narrative impulse at all, others clearly do, and a means to distinguish the two.

[192] MIT Press alone has started two game-relevant book series. Journals include *Game Studies* and *Games and Culture*, as examples of the former, and Digital Humanities Quarterly

I intentionally based my reflections on mostly older games from before or around the turn-of-the-century, although the small dataset reflects a number of traditional sub-genres such as platform, text adventure, role-playing, real-time strategy, and massively multiplayer online games. With great anticipation, I look forward to forms of game fiction that disrupt and strain the careful terminology I employed here, with assurances that the formal materialities will continue to evolve and with them, hopefully too will the kinds and sophistication of the stories that can be told. The framework for game fiction is meant to be flexible and analogue, rather than rigid and binary; there are strong and weak game fictions, and both expose ways to consider narrative within ludic environments.

I remain convinced, likewise, that narrative itself might be fruitfully considered as a kind of platform, as I suggested in the third chapter and hinted at elsewhere, and in a way that one gleans from Marie-Laure Ryan's distinction between narrative and its various 'avatars of story.' The needs of narrative are not ancillary when developing a game engine, not merely supplementary to the game itself. Such a study, however, would require a great deal more data, with specific attention to the programming that informs all kinds of game fictions. Thus, I likewise anticipate the growth of methods and means to capture larger, more robust amounts of data. Even within the limited dataset that I drew from here, there were many times when source code remained unavailable or obfuscated, or suppositions about coding were necessarily inferred from noticeable behaviors on-screen. The need for more robust data collection is bound by the imperatives of preservation, on the one hand, and requirements for research, on the other.

Two recent publications are emblematic of the promise and the problems currently inherent in the study of computer games. The first is a report from the Preserving Virtual Reports project, funded by the Library of Congress through the National Digital Information Infrastructure and Preservation Program (NDIIPP); the second is the expansion pack for the massively-multiplayer online game *World of Warcraft*, entitled *Cataclysm*. As to the latter: the title *Cataclysm* intentionally suggests the kind of (virtual) world-changing impact the expansion is meant to have. The quests, landscape, and even rules from *WoW* that I discussed in earlier chapters will have been made completely unavailable with the release of this expansion, at least inasmuch as one might access them through a game client. Through catastrophe, the designers plan to revamp an "old" virtual world, with its oft-repeated quests and now familiar landscapes, and in doing so will make it new. For a player, the change is likely welcome, allowing fresh perspective on what was stale content—as such, the expansion pack's radical transformation of the virtual world makes smart financial sense, updating the game to match gamers' expectations of current titles.

For a scholar interested in virtual worlds, the *Cataclysm* change brings about a strange dissonance. From one perspective, it is fascinating to watch a world in transition; from another, we have a moment in which citation of evidence can no longer match the game world itself, but instead links perhaps to the traces of that world left in fan databases, screenshots, and videos captured from a past time, unless the mapped data of the game is saved and, like a Borgesian map, rearticulated (illegally, mind you) through a private server, a dead world emulated on a private grid. While the evolution in *Cataclysm* is intentionally dramatic, these transitions happen frequently enough,

especially as games become more networked, with incremental updates from software patches with changes lost except those detailed in patch notes, fan data captures, and corporate archives.

The very concept of "capturing" virtual worlds in any capacity, of turning personalized event into collective tradition, is, like a computing environment, a multi-tiered project. Game manuals and screenshots; engines and platforms; hardware and software; screenshots and speed runs; cultural analytics and critical code studies all comprise the infrastructure allowing us to further explore narrative in new media.[193] The Preserving Virtual Worlds (PVW) report[194] offers in fine detail the numerous challenges associated with preserving software that is less than a few decades old, and the ramifications extend far beyond entertainment software, as the challenges are embedded throughout information society. Just as games (along with pornography) have advanced innovation in technology, perhaps so too can games advance preservation cyberinfrastructure or, at the very least, call attention to the broad media ecology rapidly shifting beneath our feet.

These are the challenges for humanistic inquiry in a digital age—the abundance of data, the imperatives of collection, and the roles of close and distant "reading" (and interpretation, more broadly) as part of the larger project of 21st-century cultural analytics. "Cultural analytics," as a term, I adopted from Lev Manovich, Jeremy Douglass, and others who employ it to describe large-scale data mining and pattern recognition of cultural materials, from art to comic books, novels to computer games.

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[193] The concepts guiding "Platform Studies" are discussed in the third chapter. "Software studies" (and its kinship with critical code studies) as a phrase originated with Manovich in The Language of New Media, but Kirschenbaum offers a clarifying vision: "meticulous documentary research to recover and stabilize the material traces of new media" ("Virtuality and VRML: Software Studies after Manovich").
[194] Available as a free download at https://www.ideals.illinois.edu/handle/2142/17097

Manovich and Douglass are currently building a platform to support cultural analytic work, incorporating the kind of "distant reading" articulated by Franco Moretti, who offers a literary history detailing the rise of the novel, and performed by many other scholars employing large-scale data sets, text-mining, and visualization technologies.[195] It is my hope that large data sets will allow me to supplement my methods here, which include "close playings" of various software packages and close readings of software code, with methods of distant readings of computer games over time, in line with the experimental data captures offered by the Cultural Analytic group.[196] In that combination, I believe we will gain an even clearer understanding of the relationship of games, narratives, and the materiality that binds them. Their manifested mechanisms—the interfaces and databases; scripts, loops, and code; and importantly, the range of user input and dynamics of user interaction, and development of character—are archivable, whether we take that to mean detailed descriptions, critical notations, or formal accession.

In closing, I wish to briefly return to the autotelic, a term I adopted from Brian Richardson, which he uses to describe the kind of second-person address "to a 'you' that is at times the actual reader of the text and whose story is juxtaposed to, and can merge with, the characters of the fiction" (320). Within the game loop, the autotelic is enhanced

[195] For another literary example, see the MONK project and, specifically, Tanya Clement's distant read of Gertrude Stein (detailed in *Literary and Linguistic Computing* 2008 23(3):361-381). These kinds of techniques are reaching a broader academic audience, as evidenced by the impressive response to the NEH-led "Digging into Data Challenge" (http://www.diggingintodata.org/), and Google's own growing commitment to digital humanities work and large-scale corpora (namely Google Books): http://googleblog.blogspot.com/2010/07/our-commitment-to-digital-humanities.html

[196] Douglass and Manovich, and their cultural analytics team at the University of California, San Diego now operate 'distant readings' on video games alongside manga, on artwork such as Mark Rothko's, and other cultural data. They offer grand visualizations of 20th and 21st century culture, and their work, supported in part by NEH, is moving toward building a platform to support this kind of analysis in multiple disciplines. See http://lab.softwarestudies.com/2008/09/cultural-analytics.html and, specifically, some preliminary data visualizations in their Flickr set: http://www.flickr.com/photos/culturevis/.

by user input and is, as I have argued, a significant alteration to the normal modes of narrative communication in ways that have far-reaching implications for future narrative work. With autotelic's etymological roots in the connection of "self" and "goal" in mind, I would like to call upon one final example of how such a connection born of complicity can create discordance, a step away from the frivolity of *MediEvil* or the self-indulgence of *The Sands of Time*, instead to a game where the self and the goal are uncomfortably aligned.

Natalie Bookchin's *The Intruder* is a series of mini-games that, when played successfully, operates a sound recording of Jorge Luis Borges' story of the same name.[197] Bookchin's work has received a great deal of critical attention, most notably from Mary Flanagan and N. Katherine Hayles, and my reading of the series of mini-games that accompany this story of misogynistic abuse would offer little to improve their keen interpretations of the play experience. Hayles describes Bookchin's *The Intruder* as:

> … a series of ten computer games, with Borges's text appearing in rollovers and voiceovers as rewards for "winning" the games. Borges's text, with the subtle irony typical of him, presents a misogynistic scenario in which two brothers first court, then share a woman between them. Finding that her presence leads them to quarrel, they cart her off to a whorehouse, only to discover that each brother secretly visits her there, so they haul her home again to save money. The understated climax arrives when one brother informs the other he has killed the woman, thus uniting the two brothers forever in guilt and silence, a bond cemented by the imperative to forget. In one of Bookchin's games, the object is to bounce a female figure back and forth between two paddles, thus making the user complicit in the story's plot… Because the games compel the user to enter dynamically into the production of text, they serve to connect the user in surprisingly powerful ways to the narrative. ("Open-Work")

Flanagan offers an even starker assessment, noting that "*The Intruder* narrative grows to become particularly effective and poignant because players, the once-'innocent'

[197] Also translated as "The Interloper."

(perhaps) readers of the text, now find themselves actually participating in the abuse of Juliana," where "those cute, fun games implicate the participant within what is actually a very dark narrative" (229-230). The last of the ten mini-games casts a red figure moving against a dark, pixilated, forested background. With the wop-wop of a helicopter audible in the background, the player must target and shoot the figure to move the narrative forward. While the implications are seemingly clear and deliberate, Bookchin notes in an interview: "it's not blatantly taking an obvious position in one way or another. In the end, where the female character is murdered, the very act of participating puts the player in an uncomfortable position, and making someone feel uncomfortable and a little disquiet about a situation…that's a great success" ("a minima Interview").[198] The duality within the interface and within game fiction, of both drawing a player into the immersive while distancing the player through the interface, creates a space not only for action, but for self-reflection.

If I began the previous chapter with a game—*Progress Quest*—in which you had almost no role at all, it is perhaps suitable to conclude with one in which the very act of playing the game renders you complicit in rather unspeakable acts. Each speaks to the incredible range in the expressive power of games, from redemption to recrimination, but Bookchin's work also reminds us of the exemption we often receive in consuming the supposedly non-interactive texts like Borges' original tale. In noting that Bookchin's "design invokes violence against the lone female character," Flanagan reminds us that "game players participate in the construction and evolution of narrative in different ways than in traditional textual forms" (229-230). I would suggest further that Bookchin's subtle work also might call attention to our role in all forms of media expression. As an

[198] http://aminima.net/wp/?p=765&language=en

indictment of complicity that accompanies both forms of Borges' story, Bookchin reminds us that Borges may have been making a similar point in his critique of the culture of machismo and of misogyny. The brothers are bound by their joint burial of Juliana, but so too is the player, and so too the reader.

Such work also suggests that the progressive mechanics of game fictions may continue to give rise to fictions and non-fictions alike that make users complicit in a range of actions, behaviors, and beliefs. Complicit behavior leading to disastrous results has become an increasing common trope that carries a powerful effect, seen at the very least in our partial responsibility as reader in the "brutal" (as Hayles rightly labels it) behavior in Borges' story, in the less extreme and more playful mistakes of the Prince in *The Sands of Time*, or the redemption of Dan in *MediEvil*. The fundamental joining of "self" and "goal" in these and other game fictions—such as the stark contrast of "light" and "dark" forces in *Knights of the Old Republic*, to the less distinct lines in the torture sequences required of any gamer who wishes to play the "death knight" class in *World of Warcraft*—does highlight a turn from many other kinds of fictional experience, which often operate so as to allow a comfortable distance, a denial, that becomes much more difficult as the diegetic and the mimetic edge ever closer.

It is my hope here that my discussion of game fictions as genre might generate a broader understanding of the role of narrative in telling any story interactively, whether one wishes to capture the player in an escapist act or an indictment of actions. My articulation of the various qualities of game fiction, and the subsequent exploration of interface, database, and the game loop alongside the narratological qualities of the act of narration, the role of setting and quests, and the function of character, represents but one

perspective in what is necessarily a long, engaging enterprise in game scholarship. I hoped to capture the character of game fiction within this framework, rigid enough to draw the boundary lines of genre, while flexible enough to meet the challenges of new manifestations of game fiction, under the assurances that their material structures will continue to evolve as will the stories that can be told. Understanding game fiction as a genre may move us closer towards capturing and understanding the exchange of cultural data in an information age, one action within a broader loop of investigation in how we continue, in Jack's words from *Halting State*, to "spin the cloth of reality."

Appendix: Data File for *Who Killed Harlowe Thrombey?* Visualization

```
## Graph of the CYOA9 "Who Killed Harlowe Thrombey" by Edward Packard. Graph and notations created by Jason Rhody.  Visualization software is Graphviz (graphviz.org)
## Triangle nodes are marked to represent passage of time from Day 1 to Day 2. Nodes are 17-18, 36, 37, 40
## Picture-only nodes 14, 22, 32, 38, 51, 56, 61, 69, 76, 84, 88, 91, 102, 120. 108-109 is remarkable as a dual-page picture node that also serves as a stop point.
## F (Favorable Ending), U (Unfavorable Ending), D (Death); Red box (Ending); Gray Fill (Jenny Collab, if/then); Dotted Line (Return Loop); Triangles (Time Transition to Day 2)


digraph th {
node [fontname="Arial", size="14,14"];

"2-4" -> "5-7";
"2-4" -> "17-18";
"5-7" -> "8-9";
"5-7" -> 12;
12 -> 10;
"8-9" -> 10;
10 -> "13-16";
10 -> "17-18";

"13-16" -> 19;
"13-16" -> 20;

"17-18" -> "23-25";
"17-18" -> 26;
"17-18" [shape=triangle];

19 -> 27 -> 34;
19 -> 28 -> 34;
19 -> 29 -> 34;
19 -> 30 -> 34;
19 -> 31 -> 34;

20 -> 34;

"23-25" -> 47;
"23-25" -> 48;

26 -> 41;

34 -> 33;
34 -> 35;

33 -> 37;
33 -> 40;
```

```
35 -> 36;
36 -> 39 -> 44;
36 -> "42-43";
36 -> 41;
36 [shape=triangle];

37 -> 44;
37 [shape=triangle];

40 -> 44;
40 [shape=triangle];

41 -> 45;
41 -> 46;

"42-43" -> 47;
"42-43" -> 48;
"42-43" -> 49;

44 -> 55;
44 -> 58;
44 -> 62;
44 -> 63;
44 -> 64;

45 -> 52;
46 -> "85-86";

47 -> 50;
47 -> 89;
48 -> "53-54" [label="U"];;
48 -> 57;
49 -> 79;

50 -> 65;
50 -> 66 [label="F"];


52 -> "85-86";

"53-54" [shape=box,color=red];

55 -> 59;

57 -> 67 [label="F"];
67 [shape=box,color=red];
57 -> 68 [label="U"];
68 [shape=box,color=red];

58 -> 59;
59 -> 60;
59 -> "42-43";
59 [color=grey75,style=filled];
## Gray-filled nodes that lead to future trigger related to Jenny's
help
```

```
60 -> 70 -> 89;
60 -> 71 -> 89;
60 -> 72 -> 89;
60 -> 73 -> 89;
60 [color=grey75,style=filled];
## Gray-filled nodes that lead to future trigger related to Jenny's
help

62 -> 79;
62 -> 74;
62 -> "75-78";

63 -> 79;

64 -> "85-86";

65 -> 80 [label="D"];
65 -> "81-82" [label="F"];

66 [shape=box,color=red];

74 -> "85-86";
"75-78" -> 83;
"75-78" -> 89;
"75-78" -> "103-104" [label="U"];

79 -> 74;

80 [shape=box,color=red];
"81-82" [shape=box,color=red];

83 -> 92;
83 -> 93;

"85-86" -> 89;

89 -> 87;
89 -> 90;
87 -> 94;
87 -> 95;

90 -> 121 [label=F];
92 -> 105 [label=F];
92 -> 101;
93 -> 101;
94 -> 101;

95 -> 97 [label=U];
95 -> 98;
95 -> 99;
95 -> 100;
95 -> 96;
95 [color=grey75,style=filled];
## Gray-filled nodes that lead to future trigger related to Jenny's
help
```

```
96 -> 101;

97 [shape=box,color=red];

98 -> 101;
99 -> 101;
100 -> 101;

101 -> 106;
101 -> 110;
101 -> 107;
101 -> 111;
101 -> "112-113" [label="D"];
"112-113" [shape=box,color=red];
101 -> 114;
101 -> 115 [label=F];
101 -> 116;
101 -> 117;
101 -> 118;
101 -> 119 [label=U];
101 -> 122 [label="ambiguous"];

"103-104" [shape=box,color=red];
105 [shape=box,color=red];

106 -> 101 [style=dashed];


107 -> "108-109";
"108-109" -> 121 [label=F];

110 -> 101 [style=dashed];


111 -> 101 [style=dashed];
111 -> 119;
111 -> 122;
114 -> 101 [style=dashed];
114 -> 119;
114 -> 122;

115 [shape=box,color=red];

116 -> 101 [style=dashed];
116 -> 119;
116 -> 122;

117 -> 101 [style=dashed];
118 -> 101 [style=dashed];
118 -> 119;
118 -> 122;

119 [shape=box,color=red];
122 [shape=box,color=red];
121 [shape=box,color=red];

}
```

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