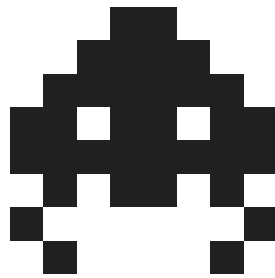


A Clash between Game and Narrative

A thesis on computer games and interactive fiction



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Introduction

This is the English translation of my master's thesis on computer games and interactive fiction. During translation, I have tried to reproduce my original thesis rather faithfully. The thesis was completed in February 1999, and today I may not completely agree with all conclusions or presuppositions in the text, but I think it continues to present a clear standpoint on the relation between games and narratives.

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Jesper Juul

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A clash between game and narrative

There's a conflict between interactivity and storytelling: Most people imagine there's a spectrum between conventional written stories on one side and total interactivity on the other. But I believe that what you really have are two safe havens separated by a pit of hell that can absorb endless amounts of time, skill, and resources.

-Walter Freitag, game designer. (Platt 1995)

Introduction

It is a disturbing quality of computer games, that they always dare you to yet another attempt at scoring more points, at reaching the next *level*. You oblige, but from a literary point of view, it is not at all obvious why you would want to. Computer games seem senseless pastimes, devoid of any point or reason. It then follows that they can hardly be described as art in any common sense of the word, since a meaningful phenomenon is assumed to contain something that can be read *from* the work. Computer games seem not to provide any feeling of having decoded the meaning of the game.

As a reaction to these meaningless games, *interactive fiction* is claimed to create games with meaning, games that *tell a good story*. The obvious example of the 1990's is the game *Myst* (Cyan 1993).

And it does sound like an obvious enterprise: To combine the two giant human activities of stories and games. Add to this that the computer games of today are largely catalogues of popular culture: fast cars, aliens, herds of monsters from hell. But this is possibly because the computer game for all practicality *can not* tell stories - the computer game is simply not a narrative medium. In actuality we are facing a conflict between game and narrative: They are two separate phenomena that in many cases rule each other out.

The main claim of this thesis is that the computer game and the narrative share some traits - both are temporal, for example - but apart from that are radically different: It may be reasonable to claim that the weight of the narrative comes from a sequence of *past* events, that *have to* follow, and that the end of every story gets its power from, if not destiny, then at least some causal logic and inevitability. Interactivity and games, on the other hand, are defined by that the reader/player can *influence* the events *now*. Additionally, the lack of a narrator in the computer game makes it impossible to use the novel's interesting devices in the tension between narrator and the narrated. Computer games are interesting for different reasons.

The idea of an interactive narrative has its problems. As the starting quote suggests, I am not the first person to draw this conclusion. I can not claim any originality in this; the value of this thesis is rather that I undertake a detailed examination of the relationship between game and narrative, an examination of *how* and *why* they are hard to combine. This also entails an examination of the computer game as a phenomenon on its own.

Theory on computer games

From a literary standpoint in the late 1990's, the study of the computer game is mostly related to the study of non-linear stories and hypertexts. By *non-linear*, I mean texts and phenomena that on a material level do not follow the same sequence every time; for example texts, where you do not read the same *words* every time. Related to this is the term *hypertext*, coined by Theodor Nelson in the mid-1960's:

As popularly conceived, this is a series of text chunks connected by links which offer the reader different pathways. (Nelson 1993, p.0/2)

The techniques of the hypertexts and computer games, combining parts to create something new, have a long history, and do not presuppose computers. I will be discussing both the canonical precursors such as Jorge Luís Borges and *I Ching* as well as introducing works by the Danish author Svend Åge Madsen.

The utopia of Interactive Fiction

The term "interactive fiction" was first used in the magazine *Byte* in 1981. (Aarseth 1997, p.48). It is a loosely defined term, usually understood in the sense that "you play the title role", or that "you are inside the story", which again implies that there is some kind of story at all. The term is notorious of its unclearness, but the same lack of clearness makes it worth studying as a utopian idea: A combination of the world of narratives with the world of games, where readers/players deeply concentrated participate in a story, continually unfolding and changing in ever more fascinating patterns. This thesis attempts to capture the rhetoric of interactive fiction by examining the paratexts of the computer game: The advertisements, the manual, the packaging. An old ad for the software company Infocom displays the main points of interactive fiction:

[...] as hard as we work at perfecting our stories, we always leave out one essential element - the main character. And that's where you enter in. Once you've got Infocom's interactive fiction in your computer, you experience something akin to waking up inside a novel. [...] Find out what it's like to get inside a story. (Infocom 1984b)

Interactive fiction is described as the addition of literary virtues to the computer game, but paradoxically this will at the very least break with the principles of a classical normative text, the *Poetics* of Aristotle:

As therefore, in the other imitative arts, the imitation is one when the object imitated is one, so the plot, being an imitation of an action, must imitate one action and that a whole, the structural union of the parts being such that, if any one of them is displaced or removed, the whole will be disjointed and disturbed. (Aristotle Poetics, 1 VIII)

A combination of games and narratives risk ruining both.

The conflict between game and narrative

Computer games do not seem to be based on narratives: Classical action based games like *Space Invaders* (Taito 1977) or *Donkey Kong* (Nintendo 1981) do contain a framing narrative about, respectively, a space station attacked by aliens and a girl kidnapped by an evil ape. It is then the responsibility of the player to right this wrong - chase away the aliens, rescue the girl. This is the structure of a simple narrative: A good situation threatened, the hero has to restore order. But unlike narratives, where a part of the reader's incentive is the desire to know the ending, the ending of an action-based game is *known* from the start; it is the goal of the player to actualise this good, well-known ending. Additionally the narrative frames are not especially tied to the games; it takes only few graphical modifications to turn *Space Invaders* (space game) into *Centipede* (game where you fight spiders and centipede, Atari 1980). A traditional game like chess also has a similar narrative frame, one of two societies at war. But that is hardly the point of chess: Playing a game, one gradually ignores the story and graphics to focus exclusively on the *structure* of the game, i.e. what manoeuvres it takes to complete the game - no matter what the game "is about". *Tetris* (Pazhitnov 1985) with the falling squares that have to be fitted contains no frame story or any indication of what you are "really" doing: The squares on the screen seem to be nothing but squares on the screen: You can have a computer game without any narrative elements.

There seems to be a conflict between the temporalities of the game and the narrative: When something is interactive - like a game - the interactivity has to be *now*, when the player makes a choice. But the narrative has a basic trait of being about something *past*. Similarly, space is treated differently: Computer games always create *space*, where the player can move around, but narratives are very focused on skipping uninteresting spaces; a journey is only described when something actually happens. It is essential for the narrative that narration does not happen with constant speed, but that we shift between resume, cuts, and scene. The computer action game is based on real time, on the constant control of the player.

It is a constituting trait of the narrative as such, and of the novel in particular, that the time of the narrator and the time of narrated are distanced in time. And that any novel raises questions of the identity and knowledge of the narrator. This relation between the narrated and the narrator is an

important device of the novel. But the computer game does not share this temporal split between the time of the narrated, of the narrator and of the reading: In the computer game, these three times are imploded to a single *now*. This means that the computer game does not *allow* for the interesting variations in the relation between narrator and narrated.

Interactive fiction in practice

Narrativity and interactivity can not take place at the same *time*: Narration presupposes a jumping and compressed time, interactivity requires real time. Interactive fiction tries to work around this in different ways: *Myst* contains a story that the player gradually uncovers during the game. 99% of the game takes place *after the event*, outside the story. In this way *Myst* escapes some of the inherent conflicts in interactive narratives.

Interaction is a constant problem in interactive fiction: Where the text-based games sometime end in frustrated search of the right command, the graphical games foster irritation that you mechanically have to search the screen with the mouse for the exact spot you can click¹. In such cases the illusion of the game as a complete, different world breaks down because the interface gets in the way - it's all about mouse and keyboard.

The lure of the game

There can be no doubt that computer games are very attractive to many people, but with theory from the narrative media, it is not all obvious why. In his book *Moving Pictures* (Grodal 1997), Torben Kragh Grodal argues that movies and other narratives need human or anthropomorphic entities for the viewer to retain interest. And this holds true for a classic computer game like *Donkey Kong* (Nintendo 1981), which has an active actor (Mario). Most computer games do share this trait, but not all games have such an actor. In the previously mentioned *Tetris*, the player controls the movement of some basic shapes, but you are not associated with a specific character or actor. In *Lemmings* (Psygnosis 1989), the player must guide a number of autonomous lemmings from an entrance to an exit - in this game you are not represented on screen either; you simply give orders to the lemmings. Accordingly, these games should be marginal and not very popular. But both games were big hits, which leads me to the argument that computer games can be much more abstract than narratives, because they will always involve an active subject - *the player*. So the fascination of the computer game is not necessarily connected to identifying with a character on screen, but related to the task you have undertaken as a real-life subject.

¹ Hence the phrase "hunt the pixel".

In *Reading for the Plot* (Brooks 1984), Peter Brooks defines *narrative* desire: Narratives tend to be both about desire and to stir the reader's desire for knowing the ending. The continuing delaying of Scherazade's execution in *Thousand and one nights* is a good example of this. In the computer game, on the other hand, the ending is often well known, but it is one you try to *actualise* by your playing.

The desire to understand and play the game is different from that of the narrative: The average player plays more games of *Tetris* than the average reader reads *Ulysses* or watches *Gone with the Wind*. This seems to be connected to interactivity, which means that there is no fixed story that the reader/player must wait for the ending of. From this follows, that the more story you attempt to add to a game, the fewer times will the player play it.

To read a computer game

In this thesis I will make the argument that the computer game should be seen as a combination of a formally defined level, *the program*, and a sign-based level, *the material*. In a simple game like the aforementioned *Space Invaders*, the graphics (spaceships & aliens) and the narrative frame (Earth attacked) can easily be exchanged with other graphics or another story - the program remains unchanged. The material obviously means a lot to the player's experience, but it is the program that the player has to master. To examine a specific computer game is then best done by looking at the relation between program and material. For example to see if the material makes claims (such as possibilities of interaction) that are not implemented in the program.

I have to add that I am writing this partly from a position as practitioner. I have developed several computer games, of which some will be discussed here: The two related games *Puls in Space* and *Euro-Space* are briefly discussed.

This has three implications: 1) Many of the arguments put forth here have their root in an actual aesthetic and technical complex; I am basically approving the utopia I am criticising. 2) I have a general technical and detailed knowledge of computer games that the normal player will not have. 3) I am attempting to replace the common sociological and even pathological question "Why do they play computer games?" with an aesthetic and phenomenological question; "What is a computer game?"; what are the limits and possibilities of the computer game?

Method

The theoretical bias is in several directions. In general questions of non-linear texts, the central book is Espen Aarseth's *Cybertext* (1997). But my project is primarily a combination of the computer game and the traditional narrative media: Gérard Genette's *Narrative Discourse* (1980) is

used for discussions in narratology, especially regarding questions of time, I use Peter Brook's *Reading for the plot* (1984) to discuss the question of motivation, and finally *Moving Pictures* by Torben Kragh Grodal (1997) is used for questions of identification. These theories are applied to the computer game to distil general similarities and differences between the traditional medium and the computer game, and these results will be used in specific readings of games.

Space Invaders (Taito 1977) is used to represent the classical action game. As further developments, *Tetris* (Pazhitnov 1985) and *Doom* (ID Software 1993) are added. The discussion of interactive fiction is focused primarily at *Witness* (Infocom 1980), *Myst* (Cyan 1992), and *Last Express* (Mechner 1997). With the possible exception *Last Express*, all of these games can be described as milestones in the history of the computer game. *Last Express* is used as example of a game that tries to work around some of the inherent contradictions of interactive fiction.

This thesis does *not* claim that computer games really are great literature - they are not literature at all. Neither do I claim that computer games are simply trashy popular culture - I consider games like *Doom* and *Tetris* to be *quality*. The merits of the computer game are simply different than highly praised literary virtues like character, existential themes, and virtuoso language.

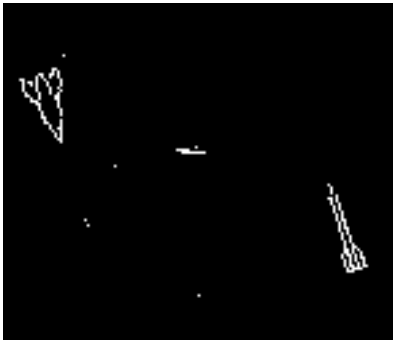
The structure of this text

This thesis is in five parts:

- *The history of the computer game* is a brief history of the computer game and the rhetoric of interactive fiction.
- *Theoretical introduction* introduces previous research on non-linear texts.
- *A theory of the computer game* is the central piece of this thesis, and examines the computer game from two angles: *The structure of the game* describes the structural properties of the computer game with a special emphasis on time. *The player and the game* is an examination of the relationship between game and player; a more reader-oriented angle. This leads to a theory of the computer game as phenomenon and a list of parameters for the examination of computer games.
- *Readings* uses the theory developed to examine five different games to shed light on the construction of the games and how they construct their game worlds.
- *Conclusions* is a summation of the results of the thesis, as well as some historical and theoretical perspectives.

A history of the computer game

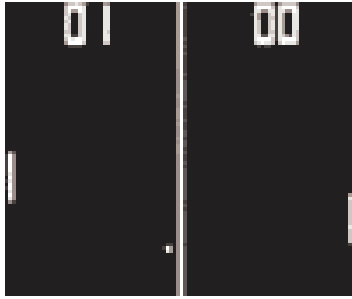
The history of the computer game is, in parts, a history of technology. The computer game requires technology capable of handling large amounts of data and of representing this data. The relationship between a technological phenomenon such as the computer and the less formally based culture is not a simple one: some theories will claim that technology determines culture, some will claim that culture determines technology. It may be most reasonable to see this as a history of mutual influences, where technology can inspire (or enable) cultural developments, and cultural developments can inspire new technology. To quote an obvious example, the computer game was originally developed on equipment designed for military and academic purposes. But today the computer game is the driving force in the development of much hardware such as 3d graphics accelerators.



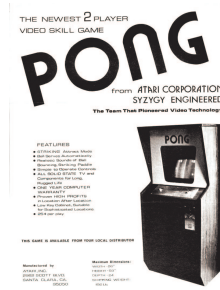
Spacewar!, the first computer game. (1962)

The first computer game is generally assumed to be the game *Spacewar!*, developed in 1962 at MIT (Stephen Russell a.o.)². *Spacewar!* originally ran on a PDP-1 computer the size of a large car. By today's standards, the graphics are rather primitive, although less primitive than many games from the 1980's. The game as such is not bad: Two players each control a spaceship circling a planet. The players can shoot each other, turn their ships, and accelerate. The goal is - naturally - to hit the other player before being hit yourself.

² It should be noted that Willy Higinbotham, employed at the Brookhaven National Laboratory, in 1958 developed a simple tennis game, played on an oscilloscope. (Hunter 1998)



Pong. (Atari 1973)



Advertisement for *Pong*.

The first commercially available video game, *Pong* (Atari 1973), was introduced 11 years after *Spacewar!* *Pong* is a simple concept that has turned out to be surprisingly durable³ even though the graphics are simply white rectangles on a black background. In the beginning, *Pong* was placed at entertainment venues, markets, and fun fairs, next to mechanical pastimes and as a supplement to these. This is the same kind of place where the game *Space Invaders* (Taito 1977) was also introduced. *Space Invaders* defines most of the basic parameters of what I call the classical action game: A player controls an object/an actor against some enemies; a score is kept; the game is real-time and requires fast reflexes; the player has a fixed amount of lives (typically three); the game is based on successive levels of increasing difficulty; the game (or just the title) places the player's action as part of a minimal narrative.

As should become clear, there are many types of computer games. In the classical action game you can almost never *win*, the game just gradually becomes harder, and the highest honour achievable is to enter the high score list. The most general thing to say of the evolution of the computer game is probably that it has become gradually more based on genres. Almost all of the early computer games introduced new gameplay elements; later games tend to be examples of specific genres, borrowing traits from earlier games. (The computer game has become more *intertextual*, if one so desires.)

About the term *computer game*: This term is in sharp competition with *video games*, *console games*, and *arcade games*. Video games and console games usually means games connected to a TV, whereas arcade games means games placed in public spaces (and individual cabinets). Computer games are occasionally taken to mean games played on a PC. Since all of these areas have been developed in close parallel (and because all of these games are played on *computers*), I am using the term *computer game* to denominate all of these areas as a whole.

³ I have recently developed a modern web-based version of *Pong*. (Jul 1999).

But it is an important development in this context that the computer game has changed from being primarily played at an arcade to be primarily played in the home. This has made it possible to develop games of longer duration, to have games not focused on the simple goal of having as many players insert coins as quickly as possible.



Atari VCS 2600, the first popular home computer game system. (1977)

Many developments in the history of the computer game are not technological but purely conceptual. Whereas *Spacewar!* and *Pong* are games for more than one player, the time from approximately 1977 to 1993 is completely dominated by games for single players. The multi player game becomes widely popular when *Doom* (ID Software 1993) allows for connecting several PCs, for being several people present in the same game world. *Doom* is on the whole an incredibly influential game. It has been criticised for being violent, but it's one of the most popular computer games ever and it has led to a whole genre of games, the *3d-shooter* or *first-person-shoot'em'up*⁴.

In retrospect, there was no technological reason why the multi player game did not become popular in the mid-1980's. It would have been perfectly possible to network home computers like the Commodore 64, only nobody did. And this must be explained culturally: The first computers (like the aforementioned PDP-1) were giant machines priced at millions of dollars, and were thus shared by many users. In the mid-seventies, the idea of the personal computer emerges; a computer becomes something one person places on a desk. In the beginning of the 1990's the Internet takes off outside academic circles, and the computer starts to be seen as connected to other computers, part of a network. The single-player computer game is dominant during the reigning years of the isolated, personal computer.

Interactive fiction: Utopia and genre

The first "text adventure", *Adventure* (Crowther & Woods 1977) was created 15 years after *Spacewar!*. Unlike the action game, an adventure is not based on fast reflexes; the time of the adventure game is on pause when the player does not do anything. In the text adventure, the player communicates with the computer textually - movement is initiated by typing the direction one wants to move in. A typical start of *Adventure* looks like this (">" marks what the player types.)

⁴ The history of the genre is traced in (Saltzman 1997).

Welcome to Adventure!

[...]

At End Of Road

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.

>enter building

Inside Building

You are inside a building, a well house for a large spring.

There are some keys on the ground here.

There is tasty food here.

There is a shiny brass lamp nearby.

There is an empty bottle here.

>get lamp

Taken.

The traditional adventure game is mostly based on a loose interpretation of the books of J.R.R. Tolkien: elves, trolls, dragons, caves, and treasures. A typical game involves travelling through a system of caves to find a treasure. Adventures revolve very much around puzzles; how to open the gate, how to catch the bird, etc.

The rhetoric of interactive fiction

In the early 1980's, the adventure genre was renamed *interactive fiction*, a very controversial and slightly ideological term. Interactive fiction was never defined theoretically, and the theorist Espen Aarseth rejects it completely as pure connotation without any real meaning. (Aarseth 1997, p.48) I think this is basically correct: We lack a theoretical definition, the term is basically used to claim literary qualities for a game. But the basic image of interactive fiction is as simple as it sounds: It is the image of a fictive world (fiction taken to mean "narrative"), a world to interact with, to participate in. Interactive fiction has from the very beginning been defined in opposition to other types of computer games, but later on many games have been promoted as more true "interactive fictions" than other games with the same label. In actuality, the products labelled interactive fiction have not developed much on a structural level; they haven't become more complex or dynamic. The primary development has rather been a move from text-based games to games based on graphics. Interactive fiction is then two things: A utopian idea and a genre continually claiming to have created this utopia.

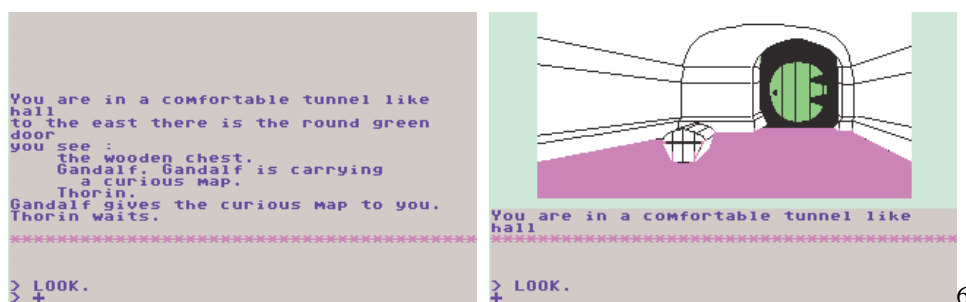
The rhetoric of interactive fiction is interesting partly because it has been constant for the past 15 years: Many text adventure classics were developed by the company *Infocom*. Their trilogy *Zork* (1981a, 1981b, 1982) is based on the blueprint of *Adventure*, with the addition of better textual de-

scriptions and an intelligent sense of humour. The advertisements of Infocom at the time presented their games as the thinking person's alternative to the demented (and graphical) action game:

We unleash the world's most powerful graphics technology. You'll never see Infocom's graphics on any computer screen. [...] We draw our graphics from the limitless imagery of your imagination - a technology so powerful, it makes any picture that's ever come out of a screen look like graffiti by comparison. [...] Through our prose, your imagination makes you part of our stories, in control of what you do and where you go - yet unable to predict or control the course of events. (Infocom 1983b)

According to the advert quoted in the introduction, the player allegedly becomes part of story. The same advert claims credible characters. The games of Infocom claim to possess qualities closer to those of the novel than those of the action game.

In the mid-1980's, interactive fiction began to become gradually more graphical. In the early hybrid *The Hobbit* (Melbourne's house 1984), all interaction still is done by typing, and all game elements are described textually, but some locations are also represented graphically:



The Hobbit: Textual and graphical representation.

Among early players of text-based interactive fiction, a certain amount of nostalgia is directed to the old games and newer, graphical games are viewed with scepticism. In Steven Egmond's FAQ for the USENET newsgroup rec.games.int-fiction, the age of Infocom is described a golden age, followed by the more superficial games of today:

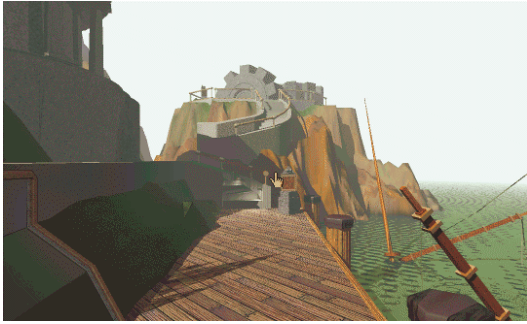
[...] Zork was written by MIT grad students; these students were the nucleus of a 1980 start-up company called Infocom, which produced a version of Zork for the TRS-80 Model I and other machines. This led to widespread popularity of interactive fiction games, and was later referred to as the Golden Age of the genre; for several years, Infocom's products were the top-selling games on the market.

Later events, however, led to the decline of the IF genre. As the educational level of the average computer user decreased and the features and capabilities of the average computer increased, the trend in computer games went to 'arcade' games instead of text. (Egmond 1997)

The last purely text-based interactive fictions were published in the late 1980's⁵, and with the arrival of the mouse, textual interaction was replaced by graphical interfaces.

⁵ There is, however, a large non-commercial subculture devoted to textual games. This can be found, for example, at <http://www.xyzyzynews.com/>, games can be downloaded from <ftp://ftp.gmd.de/if-archive/>.

In recent years, interactive fiction has had a giant comeback with the game *Myst* (Cyan 1993).



Myst

Structurally, *Myst* is quite close to *Adventure*. The player explores a world and solves a variety of puzzles. The most notable thing about *Myst* is probably the slightly literary frame story, explaining how the player arrived in the game world:

You have just stumbled upon a most intriguing book, a book titled *Myst*. You have no idea where it came from, who wrote it, or how old it is. Reading through its pages provides you with only a superbly crafted description of an island world. But it's just a book, isn't it? As you reach the end of the book, you lay your hand on a page. Suddenly your own world dissolves into blackness, replaced with the island world the pages described. Now you're here, wherever here is, with no option but to explore... (The *Myst* manual.)

The image of the player entering the story was used in the ads of Infocom, in *Myst* the “enter a story” figure is the part of the frame story. *Myst* also tries to differentiate itself from the action game with its excessive use of violence and death:

Myst is real. And like real life, you don't die every five minutes. In fact you probably won't die at all. [...] The key to *Myst* is to lose yourself in this fantastic virtual exploration and act and react as if you were really there. (Ibid.)

We can compare this with a 1984 interview: The software designer Byron Preiss from Trillium Software designed game based on novels like Arthur C. Clarke's *Rendezvous with Rama* and Ray Bradbury's *Fahrenheit 451*. Byron Preiss says of his mission:

We're trying to make a game that is based on plot and characterisation, not puzzles - the way a book is. If you read *Fahrenheit 451*, you don't get stuck on page 50. And if you play the game, you don't get stuck on frame 50, because the whole idea is that you're interested in the game because of the characters and the plot and what's happening. (Darling 1984, p.52)

Interactive fiction is then a utopian idea that has been constant for the past 15 years. A utopia that new games continually claim to have created, while denouncing earlier games making the same claim.

Brenda Laurel and Janet Murray

The idea of stories to interact with and take part in has been extended in a more theoretical way by the American dramaturgist and computer theorist Brenda Laurel. (Laurel 1985 and Laurel 1991aa,

p.135-142.) Where the brief rhetorical examination above focuses on *games*, Laurel proposes a system for generating well-formed plots as defined by Aristotle in his *Poetics*. In this proposed system, the computer program must take on the role as author while the game progresses. Any action by the player must lead to the system adapting the fictive world so as to make sure every story is well formed.

A later but parallel work has been done by the MIT researcher Janet H. Murray. She has developed the utopia of Laurel in her own direction: To import the qualities of the Victorian Novel into the digital age. (Murray 1997, p.1-10). Following Laurel, Murray says that such work has to move from simple structures of forking paths to more flexible systems, capable of adapting to the actions of the player. The problem is that this presupposes that it is at all possible to teach a computer rules for the generation of stories, which again presupposes that one is aware of what a story is in the first place. Aristotle has provided a static and normative framework for this in the *Poetics*, but in narratology, nothing suggests that the work is done in any way. In the actual work with computer-generated stories, an often-used tactic is to code basic knowledge of the needs and interactions of humans, their goals, and then make them act in this fictive world. But this is not easy, as the following generated story indicates:

Joe Bear was hungry. He asked Irving Bird where some honey was. Irving refused to tell him, so Joe offered to bring him a worm if he'd tell him where some honey was. Irving agreed. But Joe didn't know where any worms were, so he asked Irving, who refused to say. So Joe offered to bring him a worm if he'd tell him where a worm was. Irving agreed. But Joe didn't know where any worms were, so he asked Irving, who refused to say. So Joe offered to bring him a worm if he'd tell him where a worm was... (Murray 1997, p.200)

The story repeats because the computer-controlled character Joe Bear does not know how to convince Irving using anything else than worms: Joe Bear has no worms, wants Irving to help him and so on... The program is incapable of creating a proper story because it lacks sufficient knowledge of the world. And even if the program knew how to avoid absurdities as this, it would still lack a way of creating *good* stories. And after this the actions of the players would still need to be integrated. There is a long way to go.⁶

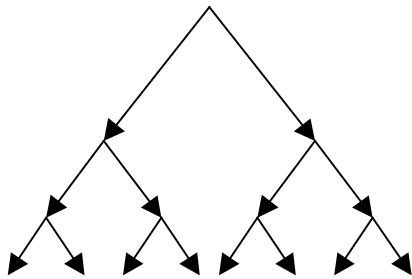
Laurel and Murray share two things: That they describe and extend the idea of something interactive, better than the action game, something that adds literary qualities to the computer game. And that their ideas have not led to any actual attempts at fulfilling these visions.

⁶ In the essay *The possibility of literature ("Litteraturens mulighet")*, the Norwegian author Jan Kjørstad completely denounces these experiments: "I do not think that any of the experiments conducted so far are of any value." (Kjørstad 1997, p.252).

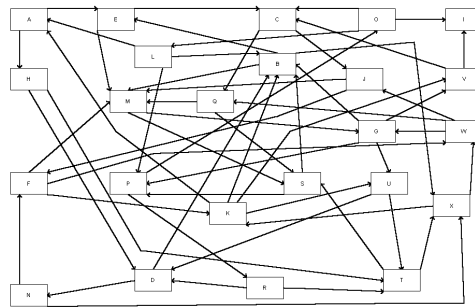
Theoretical introduction

Today, no general theory of the computer game is available, but as texts and as objects of study, they most obviously fit in with the study of non-linear texts and hypertexts (like the World Wide Web). In both games and hypertext, the reader/players efforts are assigned a role in relationship to the game, but it is not quite the same relationship: Hypertext theory focuses on verbally based texts consisting of small pieces of text, the reader must move between. Unlike this, the computer game is mostly graphical and based on the continuous combination of elements.

It is basically *possible* to plot the structure of a hypertext. The simplest model is that of the tree structure which continuously forks:



A simple forking hypertext.



A more complex hypertext: The short story *Spor*. (Madsen 1982)

More complex hypertexts are usually not based on forking at regular intervals, but are better described as any number of nodes connected by any number of links.⁷ A computer game is a more complex phenomenon since it is usually a simultaneous *combination* of elements, which can then not be represented as nodes with connections. In a computer game, the reader/player is not at a single "location" as the reader is in hypertext, but one could rather see the game as a complex system in a given "state" at any time: the spaceship of the player at a specific position, the enemies heading at a specific position; every object with a velocity in a specific direction; the player has a score and a number of lives left. But both hypertext and computer games carry limitations and rules for movement between nodes of text or states of the game system.

Computer games

According to the game designer Chris Crawford, computer games have four basic characteristics (Crawford 1982):

1. *Representation*: A game is a closed formal system that subjectively represents a subset of reality. (By subjective, Crawford means that a game is not necessarily trying to represent reality.)

2. *Interaction*: The game acknowledges and reacts to the player. (Unlike a puzzle, which simply lies still.)
3. *Conflict*: A game presupposes a conflict. This can be either between several players or between the players' goal and whatever prevents the player from reaching that goal.
4. *Safety*. The player is safe (in a literal sense) from the events in the game. (Gambling presents a special case, where the outcome of the game is designed to have impact in the real world.)

The most problematic point of Crawford's definition is probably the first one, *representation*, since it does suggest that games have a mimetic relationship to the world. This is certainly not true for a game like Tetris. Starting from these four points, this is the definition of computer games I'll be using in this text:

The computer game is an activity taking place on the basis of formally defined rules and containing an evaluation of the efforts of the player. When playing a game, the rest of the world is ignored.

This definition explains the difference between game and laws of traffic (traffic does not ignore the rest of the world), between computer games and children's play (children's play is not based on formally defined rules, rather the rules are under constant renegotiation, and play does not necessarily entail an evaluation of the player), between game and stories (a story does not evaluate the efforts of the reader, and stories can hardly be described as formally defined⁸).

Though gambling basically doesn't evaluate the player, it is general of obsessive gamblers that they think themselves capable of feeling when luck is coming their way; they *think* that the outcome is an evaluation of their skills.

In this thesis I'll be assessing the quality of many computer games. As with other cultural phenomena, there is no simple procedure for such assessments, but the computer game does differ from things like novels and movies in that there is no apparent conflict between "high" and "low" computer games; the game reviewers generally seem to enjoy the games that are also widely popular. Still there are constant discussions of what a quality computer game really is. In the professional magazine *Game Developer*, Tzvi Freeman has put forward an attemptive list of traits of good and bad games, the first three points being these:

1. A good game empowers your imagination. A bad game gets in the way.

⁷ For an overview of different constructions of narrative hypertexts (and their graphical representations), see (Ryan 1997).

⁸ Though this has been attempted in the Structuralist tradition, for example (Greimas 1969), these attempts appear unsuccessful.

- | | |
|---|--|
| 2. A good game makes you feel in charge. | A bad game restricts you with artificial restrictions. |
| 3. A good game is transparent. You only feel your own mind, the other players, the ideas. | A bad game keeps reminding you that a game is there. |

(Freeman 1997, p.30)

Many similar lists have been created, but this one does give us a hint that *freedom* ranks high, and that limitations should be motivated.

Interactivity

Games and hypertexts share the trait of interactivity. I do not consider this an impossible-to-define term, but interactivity has been blindly and widely used to cover both phenomena that are necessarily interactive ("interactive games"), phenomena where the term is meaningless ("interactive discussions"), and as a general selling point for anything with the slightest relation to computers ("interactive education", "interactive exhibition"). This is a fate also shared by the terms hypertext, non-linear, virtual, cyberspace and multimedia: Excessive and uncritical use in both advertising and theory.

The Danish theorist Jens F. Jensen has compiled a detailed historical description of different definitions of interactivity, some clearly too specific (the number of laser disc players in a system), some lost in fruitless discussion of whether email or solitaire card games are *the most* interactive. (Jensen 1998). In most cases the term - that originally was supposed to signify what is *new* about information technology - is hopelessly inflated and unusable. Some definitions describe interactivity as a social phenomenon between people, and Brenda Laurel claims it to equal the *feeling* of being present in a world (*agency*)⁹. For my purposes, it would be more useful to describe the structural properties of an interactive work. The fairly purist definition of Peter Bøgh Andersen states this:

An interactive work is a work where the reader can change the discourse in a way that can be interpreted and makes sense within the discourse itself. An interactive work is a work where the interaction of the reader is an integrated part of the work's signification, meaning that the interaction functions as an object-sign that refers to the same subject as the other signs, not as a meta-sign referring to the signs of the discourse. (Andersen 1992b, p.89)

So it is not enough to be able to stop or start a movie, since it has no meaning within the movie itself. The same goes for switching channels on a TV. In this definition of interactivity, there has to

⁹ Brenda Laurel tells the following anecdote on the 1988 conference INtertainment:

Over the course of the two days, a debate about the meaning of the word "interactive" raged through every session, disrupting carefully planned panels and presentations. People seemed to regard "interactivity" as the unique cultural discovery of the electronic age, and they demanded a coherent definition. Several speakers tried to oblige, but no one succeeded in presenting a definition that achieved general acceptance. Many participants departed angry and dissatisfied. (Laurel 1991, p.20)

be some kind of signifying processing of the user's input¹⁰. An on/off button is thus not interactive. Hypertext is interactive when the choices in reading are meaningful in the world of the text, for example when the context plane of the text is different according to the choices made by the reader. Computer games are interactive because the actions of the player play a part in determining the events in the game.

In my experience, many people will protest if I say that the World Wide Web or an electronic encyclopaedia are not really interactive, though the same people would not describe a paper-based encyclopaedia as interactive. The above definition can therefore be extended to distinguish between interactivity on the level of the discourse, and interactivity on the level of the story. A hypertext (such as an encyclopaedia) where you can read about a subject in different levels of detail can be described as interactive on the discourse level. But this is neither as new or as interesting as interactivity on the level of the story. (Andersen 1997). I will only use *interactivity* for interactivity on the story level.

George P. Landow

An interactive text gives their reader a kind of freedom that the reader of a traditional text doesn't have. This has been described as a situation where the reader assumes the position of the author, since the reader now determines the text. This idea of hypertext as a liberating form has for a long time been the dominant way of describing the domain: The most influential theory so far comes from George P. Landow's book *Hypertext: The Convergence of Contemporary Critical Theory and Technology* (1992, revised 1997). Where the humanities have hitherto seen the computer as connected to a rational, centralist, modern project, Landow now claims hypertext to be a liberating wholesale confirmation of Derrida's deconstruction and all of poststructuralism:

[...] hypertext has much in common with some major points of contemporary literary and semiological theory; particularly with Derrida's emphasis on de-centering and with Barthes's conception of the readerly versus the writerly text. In fact, *hypertext creates an almost embarrassingly literal embodiment* of both concepts [...] (Landow 1997, p.33-34, emphasis added.)

This means that Landow reasons by way of analogies that assume deep connections between phenomena that could well be claimed to have only superficial similarities: Derrida's theory on decentering is about the collapse of hierarchies in *all texts*, not in hypertexts. And Roland Barthes' distinction between *lisible* (readerly) and *scriptible* (writerly) texts is a distinction between different

¹⁰ It should be note that *interactivity* is only meaningful when the work is an independent entity, a *text*, if you will. So a blank piece of paper or a piece of clay are not interactive. Objects are interactive when they contain a structure, but a structure that can be influenced - what Peter Bøgh Andersen denotes *elasticity* (ibid.)

literary texts. Landow replaces the objects described by Derrida and Barthes with a new one, which he then claims to fit their theories even better:

Derrida *properly acknowledges (in advance, one might say)* that a new, freer, richer form of text, one truer to our potential experience, perhaps to our actual if unrecognized experience, depends on discrete reading units. (Ibid. p.8, emphasis added.)

Unfortunately, this is a quite unconvincing interpretation of Derrida. If one were to briefly sketch the method of Derrida, he is very critical of western metaphysics, that is, the metaphysics of presence and logocentrism: Derrida claims that western thought has privileged certain things above others. It has privileged the spoken word is assumed to be a direct reflection of a prior intention. (In speech, thought is present.) Contrary to this, Derrida notes that speech is also a form of *writing*, and that writing is always characterised by displacements in time and meaning (*differance*). Accordingly, philosophy has repressed that it is also writing; philosophy has been assumed to be a series of thoughts that were afterwards expressed in clear and transparent language. But philosophy is also determined by the language it tries to speak (and it's lack of stability). It is subject to discussion whether Derrida denies the existence of something outside language.¹¹ But no matter, the philosophy of Derrida does not contain an idea of *actual*, language-independent experiences, so hypertext obviously cannot correspond to them. Hypertext is clearly also *writing*, but Landow tries to assign hypertext a status as present to the thought, a status that is remarkably close to the privileging of speech critiqued by Derrida.

The merit of George P. Landow is rather that he has pointed to hypertext and technology as something that is not in radical opposition to "culture" or "the book", but is something that can be studied by the humanities. He has made it clear that many of the characteristics of hypertext can be found, in actuality or prophesied, in earlier theory and in literature. He has collected the canon of texts, that are now considered central: Theoretically, Vannevar Bush's 1945 article *As we May Think* (Bush 1945), where the *concept* of hypertext is introduced as a mechanical desk full of microfilm. Theodor Nelson's essays from the 1960's, where the term *hypertext* is introduced. On the literary level it is the electronic text *Afternoon* by Michael Joyce (1989), where the reader can click

¹¹ The Danish theorist Peter Bornedal describes the method of Derrida as a phenomenological *epoché*, meaning that Derrida examines the object (writing) by putting the rest of the world "in brackets", so to speak. Not that he denies the existence of an external world, but "All assumptions about connections between the text and a world of facts, or being (a material, historical, social, psychological, subject structure or similar) is suspended in the examination of the text." (Bornedal 1985, p.10-11, my translation). The same ambiguity, whether the existence of the world is denied or not, can be traced in *literary* deconstruction, where literature is examined as a closed system. Both can be criticised for a tendency towards the tautological, where text (with varying levels of consequence) is examined as an isolated phenomenon, after which it is claimed (with varying consequence) that the text is an isolated phenomenon.

through a story using a mouse, and the Jorge Luís Borges short story *The Garden of Forking Paths* (1941, 1962)

Landow states that forking texts and stories assign new power to the reader, and in the most extreme cases makes the reader a new author. But this is not entirely true: A work has still been produced by one or more people. On the World Wide Web, the reader can only change his/her own text. And in a game or a story with many endings, the reader cannot make a new text, but only choose between the possibilities created by the writer/programmer. The story can be new every time, but only new within some predefined constraints. The reader has a new kind of influence, but is not *in power*.

Espen Aarseth

A newer and more practically useful description of the subject can be found in Espen Aarseth's book *Cybertext: Perspectives on Ergodic Literature* (Aarseth 1997). Where Landow has a tendency towards the general, Aarseth is closer to specific texts and tries to differentiate between different types of texts. His main concept is that of *cybertext*:

The concept of cybertext focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange. However, it also centers attention on the consumer, or user, of the text, as a more integrated figure than even reader-response theorists would claim. (p.1)

A cybertext is a machine for the production of a variety of expressions. (p.3)

A cybertext is both an ordinary text and something more, a machine capable of generating several manifestations of the same material. In relation to the cybertext, there is the *ergodic*:

During the cybertextual process, the user will have effectuated a semiotic sequence, and this selective movement is a work of physical construction that the various concepts of "reading" do not account for. This phenomenon I call *ergodic*, using a term appropriated from physics that derives from the Greek words *ergon* and *hodos*, meaning "work" and "path". In ergodic literature, nontrivial effort is required to allow the reader to traverse the text. (p.1)

A cybertext is defined by that the text can be combined (or can combine itself) in new configurations. The ergodic is characterised by that the effort of the reader is greater than that of interpretation; an ergodic text presupposes activity from the reader. These two terms are fairly broad in scope, including a long list of different phenomena from hypertext to computer games. Hypertext is simply a subcategory of the larger cybertext.

The starting point of Aarseth is to some extent the opposite of Landow's. Where Landow argues in analogies, with rhetorical similarities between technology and literary theory, with hypertext as a radical break with earlier forms of text, Aarseth experiences this kind of reasoning as a large didactic problem:

Whenever I have had the opportunity to present the perspective of ergodic literature and cybertext to a fresh audience of literary critics and theorists, I have almost invariably been challenged on the same issues: that these texts (hypertexts, adventure games, etc.) aren't essentially different from other literary text, because (1) all literature is to some extent indeterminate, non-linear, and different for every reading, (2) the reader has to make choices in order to make sense of the text, and finally (3) a text cannot really be non-linear because the reader can read it only one sequence at a time, anyway. (p.2)

The ideological project of Aarseth is primarily that we should not assume that there are radical differences between print and electronic texts. There can be greater similarities between an electronic and a print text than between two print texts.

The problems in terminology also apply to a word like "labyrinthine". Many hypertexts and games are labyrinths in a literal sense; as a reader you much search for the exit. At the same time it is not uncommon to use the term as description for "difficult" texts like *Ulysses* or just large novels like *In search of Time Lost*. In the literary sense, "labyrinthine" is a metaphor, in hypertext it is literal¹². As a way out of this problem, Aarseth suggests the terms *unicursal/multicursal*. A unicursal labyrinth is characterised by having only one route from entrance to exit; the multicursal labyrinth contains several possible paths. When Ulysses is characterised as labyrinthine, it is in the unicursal sense. Hypertexts or games are basically multicursal.

A theory like this, based on textual phenomena, inevitably faces some problems in relationship to the more visual and plastic form of the computer game. The unicursal/multicursal pair carries the assumption that the player always is in one specific "place" in the "text". But computer games are unfortunately not fixed sequence, but combinations of different materials. Accordingly, Aarseth makes a distinction between *textons* (the pieces of text in the text) and *scriptons* (the pieces of text presented to the user/reader). In a more advanced hypertext (like the game *Adventure*), the user is introduced to scriptons that are combinations of the implicit textons of the game. On top of this are the traversal functions of the text: the mechanisms determining what scriptons the user is introduced to and how they are combined of the textons in the text.

In an attempt to create an overall strategy for the categorisation of texts, Aarseth then tries to categorise *all* texts according to seven parameters for their traversal functions:

1. *Dynamics*: In a static text, the number of scriptons is constant. In some texts, the contents of the scriptons change (the text is then intratextonic dynamic). In other texts, both content and number of scriptons change (the text is textonic dynamic).

¹² This leads to Landow's view of hypertext as "an almost embarrassingly literal embodiment" of some theoretical terms.

2. *Determinability*: Whether the text develops according to fixed causality; with the same event always leading a specific other event. I.e. if there is chance involved.
3. *Transiency*: Whether the text develops regardless of user activity; if time is a factor.
4. *Perspective*: Whether the user is set as playing a role in the world of the text (*personal*) or not (*impersonal*).
5. *Access*: Whether access to different pieces of text is controlled; if the reader has immediate access to all pieces of text. (Which you have in print text, but often not in an electronic text.)
6. *Linking*: If there are links between different scriptons, if this link is explicit, if the linking is conditional (requiring, for example that you've read specific other pieces of text).
7. *User functions*: If the user/reader does more than interpret. In an *explorative* text, the user chooses a path. In a *configurative* text, the user explicitly chooses between scriptons. In a *textonic* text, the reader can add new textons or functions.

The 7 parameters lead to a total of 576 different types of text ($3 \times 2 \times 2 \times 2 \times 2 \times 3 \times 4$). This gives us the hope of being able to sketch some clear genres. Aarseth attempts this by categorising a total of 21 texts, such as *Moby Dick*, *Afternoon*, and *Adventure*. The problem with this attempt is that most texts do not fit neatly into one category or the other. The game *Witness* (Infocom 1983) has an identical introduction every time (static), but much of the game is intratextonic dynamic. In regards to time, a modern action game like *Doom II* (ID Software 1994) is transient (time matters) when you are faced with opponents, but intransient once these opponents are defeated. Regarding access, a game is always a balance between controlled access and random access. Otherwise it's not a game. (This is connected to the previously mentioned definition of Chris Crawford, that a game has to have a conflict.)¹³

It is my opinion that Aarseth's text categories do not work as a general categorisation of texts. But the model is useful as a list of seven possible *perspectives* on texts. I do think that Aarseth is right in describing these seven parameters as interesting and central to texts, they are just not either/or questions. I have chosen to use them as qualitative characteristics.

Literary precursors

Even if this thesis has the computer game as its central field of study, it must be said that many of the techniques in the computer game; non-linearity, combinatorics have been utilised long before the advent of the computer. The most popular example is the short story *The Garden of Forking*

¹³ Espen Aarseth defends his categories by saying that they should be seen as the *dominant* trait of a specific text. (Personal conversation.)

Paths by Jorge Luís Borges (In Borges 1941, 1962). During World War I, the main character Yu Tsun visits the Sinologist Stephen Albert. Albert tells Tu Tsun about his grandfather Ts'ui Pên: Ts'ui Pên had once declared that he wanted to 1) write a book and 2) build a labyrinth. Nobody every found the labyrinth, just a book that seems a mess of contradictions. Stephen Albert then tells Yu Tsun that the book and the labyrinth are the same thing. In the book, every chapter is followed by "every" possible continuation:

In all fiction, when a man is faced with alternatives he chooses one at the expense of the others. In the almost unfathomable Ts'ui Pên, he chooses - simultaneously - all of them. (p.98)

This is connected to a discussion of time as such, described as a plethora of parallel and possible futures in simultaneous existence. Regardless of this story's fame, it is still just a *description* of a non-linear text.¹⁴

Another story by Borges, *An Examination of the Work of Herbert Quain* (In Borges 1941, 1962) is not as famous but quite relevant: The narrator tells us of the newly deceased author Herbert Quain and his work. The most interesting work by Quain in this context is the novel *April March*, which is split in 3 levels and 13 parts. Each part is followed by 3 other parts. The novel can be read in a total of 9 ways, each written from a unique viewpoint: Psychological, communist, anti-Communist etc.:

I do not know if I should mention that once *April March* was published, Quain regretted the ternary order and predicted that whoever would imitate him would choose a binary arrangement [...] And that demiurges and gods would choose an infinite scheme: infinite stories, infinitely divided. (p.76)

In the 1960's many of these ideas were realised by the French OuLiPo-group (Ouvroir de Littérature Potentielle). The group (counting famous members like Raymond Queneau, Georges Perec and Italo Calvino) worked by creating mathematical, logical or language systems that were used in the writing process. This lead to Raymond Queneau's classic *Cent Mille Milliard de Poèmes* (1961), where 10 sonnets can be combined on a line-by-line basis to form a total of 10^{14} formally correct sonnets. Another story, *Un conte á votre façon*, begins with the question: "Would you like to hear the story of the three alert peas?" (OuLiPo 1973, p.273). The text continues according to the reader's choice, and we can choose whether the peas should dream, what colour their gloves should have. So this text is a staging of a situation with a slightly dishonest narrator and an audience.

There is no easy way to demark this area; large amount of marginal phenomena do something similar in slightly different ways. Among movies I'd like to mention Aki Kurosawa's *Rashomon* (1950), where the same story is told three times from different points of view; Kieslowski's *Blind*

Chance (1982) where the same situation – a young man trying to catch a train – is continued in three different ways. In Harold Ramis' popular movie *Groundhog Day* (1993) the main character relives the same day countless of times until he finds true love (and inner peace). In Peter Howitt's *Sliding Doors* (1997), a woman tries to catch a train, which leads to two different parallel continuations.¹⁵

In literature, *The French Lieutenant's Woman* by John Fowles (1969) has three different endings, even they are presented in a fixed sequence (unicursally, like *Blind Chance*). Julio Cortázar's *Hopscotch* (1963, 1966) consists of number paragraphs and describes itself as two novels: One from paragraph 1 to 56, the second is a sequence of paragraphs in a quite complex sequence. Nabokov's *Pale Fire* (1962) is an introduction, a poem, and footnotes to that poem – and can thus be considered a borderline case between the unicursal and the multicursal: You *can* read it from beginning to end, but it's unlikely that anybody would do this.

A Danish angle

There is a small Danish tradition in this area. Inger Christensen's *Azorno* (1967) does approximately what *Rashomon* does - In *Azorno* several voices claim to be the narrator of a story. *6512* by Per Højholt (1969) is a novel where the pages have been torn out and rearranged, meaning the order of reading in principle can be chosen freely. But the primary Danish practitioner is surely Svend Åge Madsen. *Tilføjelser* ("Additions", 1967) consists of 5 folders in a box, meaning that the order of reading is free. These folders are hardly about anything, but mostly comment each other from specific ideological standpoints. In the short story *Den slette fortæller* ("The evil narrator", 1970) a story is told where the protagonist Borg both stays on and leaves a public square:

He looks around. He stays and he goes home. It is hard, but he actually goes home, and he actually stays. How can he choose just one of the possibilities? He engages both possibilities and predicts a continuing split.

Borg stands alone on the square. And nothing happens. The loneliness echoes from the houses around him.

Borg is standing on the square. Suddenly a woman has appeared by his side. Her hair is long, it is dark, it is wavy.

When Borg is on his way home, he feels very alone, abandoned by everyone. He looks enviously towards every lit window. Every now and then he sees a happy couple holding each other and smiling, he sees a mother playing with her child.

Having walked a few steps from the square, towards his home, a gentle hand suddenly lands on

¹⁴ This is part of a general strategy in Borges' writings, that of writing short stories about the (fictive) creators of colossal literary experiments rather than actually performing them.

¹⁵ *Sliding Doors* seems like a cheap rip-off of *Blind Chance*, but in interviews Peter Howitt claimed never to have seen *Blind Chance*; that he had been inspired by personal events. At the same time *Groundhog Day* is surprisingly close to the Danish author Svend Åge Madsen's novel *Lad Tiden Gå* (1986).

his shoulder. A girl with a smile so warm, his heart nearly melts. He touches his breast and sighs in pain.

(My translation.)

Both paths are taken, and this is continued in 6 levels. (Meaning that the last level has 64 pieces of text.) The story forks, and it might reasonably be described as non-linear. Typographically, however, the text is set up for being read from top to bottom, *unicursally*. In the novel *Dage med Diam* ("Days with Diam", 1972), the forks are mapped on page 1, and each of the possible continuations have a separate chapter. So the text more openly invites the reader to make choices. In the short story *Spor* ("Tracks/traces") in *Af sporet er du kommet* ("You have come from tracks/traces", 1984) the choices have more of a game character; things can go well or less well for the protagonist. So Svend Åge Madsen initially uses the forks as a multitude of possible and parallel futures. Gradually, the role of the reader becomes more important, and the texts become more game-like. *Spor* does seem influenced by the *Choose your own adventure* series, where the reader has to make choices of the kind "Do you want to attack the dragon?" (This series was first published in 1979.)

Astrology and cut-up

Mathematical principles (such as chance) have been used in the writing process by writers such as William Burroughs in his cut-up strategies (I refer to his essays *Les Voleurs* and *The Fall of Art* (1986)). Espen Aarseth has noted that such techniques go much further back, as a minimum to the 3000-year-old Chinese oracle system *I Ching*, where a 6-line text is constructed by means of chance. It could be added that this is characteristic of most divination: the use of chance interpreted as signs from Divine Providence or similar. The cut-up methods, often interpreted as loss of meaning or coherence in the world, have parallels in some practices with the exact opposite worldview. Today, the by far the most popular religious combinatory technique is clearly astrology, where a number of pieces of text are combined according to mathematical principles with the time and place of birth as sole input. Astrology is not interactive, but I find it surprising that astrology shares the techniques with Raymond Queneau, William Burroughs and computer games like *Quake* or *Myst*.

On the other hand, this surprise builds on a common, but questionable opposition between the "sensitive" and "technical"¹⁶. For example, the Danish poet Inger Christensen has written both a long poem based on the mathematical Fibonacci series (Christensen 1981) and a sonnet (1991). The sonnet is in no way less of a system than the Fibonacci series, but the sonnet is not counted as a technical experiment since it is part of the literary tradition. Raymond Queneau is not oblivious to

¹⁶ I know by experience that proponents of astrology object to being reminded that astrology is a mathematical system.

this connection, and in his essay *Potential Literature* (Motte, p.51-64), he examines the sonnet as one system among historical and disused systems like the sestina and the triolet along with newer inventions like S+7 (exchanging every substantive in a text with the seventh following in a dictionary) and the lipogram (texts where specific characters are forbidden).

This does not mean that multicursality and combinatorics can be used for any possible purpose. They do seem to lend themselves to many viewpoints and modes of thinking - it is hard to describe their ideology as such. They are fixed on more specific and technical levels.

A theory of the computer game

This chapter has a single purpose: To describe the computer game as a subject for theoretical study, with a special focus on its relationship to narratives. I am not the first person to make such a connection between an aesthetic domain to the computer: Brenda Laurel has tried to describe the computer with terms from dramaturgy (1991), Theodor Nelson has proposed we should examine computers like we'd examine movies (1990), Peter Bøgh Andersen has tried to apply semiotics (1990), George P. Landow has used poststructuralist literary theory (1992, 1997). All of these initially *assume* a correspondence between their theory and the new field of study. Espen Aarseth has described this as *theoretical imperialism* (1997, p.16). In all modesty, my starting point is different in that I take literary theory as a starting point to examine *where* and *why* the computer game differs from the domain of literature. I am looking for similarities *and* differences.

This work leads to a theory of computer games, a theory that tries to account for the primary qualities of the computer game, the primary conflicts, and the areas of the greatest variation between different games.

Most examples in the theoretical chapter are action games. This is because interactive fiction is presented as an opposition to the action game, why it is interesting to examine what it is that is being rejected. Interactive fiction is an attempt at a hybrid, and to understand this we must shed light on its undescribed part, the computer game. Furthermore the action game is the most popular type of computer game, and, is my claim, the computer game in its purest form.

I examine the computer game from two theoretical angles:

- *The structure of the game* is a structurally oriented examination of the narrative traits (and the temporal situations) of the computer game.
- *The game and the player* more directly includes the role of the player in the computer game.

This contains a cognitive discussion of the player's identification with the game-world, which leads to a discussion of the player's reasons to play a game several times.

The structure of the game

This structural examination of the computer game is first and foremost a discussion of the relationship between computer games and narrativity as such. In specific question, my focus is primarily on the novel. The novel is central, because it is the literary genre, whose characteristics regarding time and narrator have been most thoroughly examined. This happens in three parts:

- A comparison of the temporal traits in novels and computer games.
- A text model for computer games and non-linear texts - a model better suited for capturing the specifics of non-linear texts than the story/discourse distinction in narratology.
- A discussion of the frame narrative in the games *Space Invaders*, *Puls in Space* and *Euro-Space*:
A more general discussion on how elements of narration are often built in to computer games.

A narrative medium?

The basic problem of *the narrative* is that fact that the narrative as phenomenon can not be viewed independently, *an sich*, but only through another medium like oral storytelling, novels, and movies. The classical argument for the existence of the narrative is the fact that a story can be translated from one medium to another:

This transposability of the story is the strongest reason for arguing that narratives are indeed structures independent of any medium. (Chatman 1978, p.20)

Correspondingly, Peter Brooks says:

Narrative may be a special ability or competence that [...] when mastered, allows us to summarise and retransmit narratives in other words and other languages, to transfer them into other media, while remaining recognisably faithful to the original narrative structure and message. (Brooks 1984, p.3-4)

In a newer and more cognitively oriented version of the same thought (narratives/meaning as something mental, independent of the medium), Torben Fledelius Knap describes *texts* as phenomena creating the same mental spaces regardless of the medium:

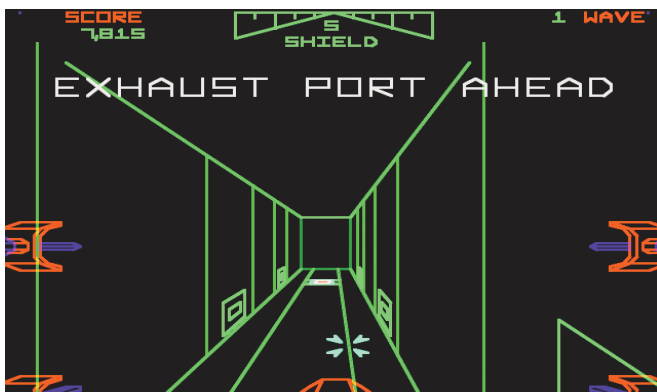
That a text can be translated between media points to the situation that a text is more than just the empirical material object presenting it. [...] A mental space that arises and appears so a human can fix it as stable and refer to it despite of the fact that the world passes by, is a text. (Knap 1998, p.40, my translation.)

It does seem fairly unproblematic to move a story between traditional narrative media like the novel, the movie, and the theatre. Computer games are a bit harder to place in the above definition of a text, since they do "pass by", and are not identical every time they are played. On a higher level of abstraction, computer games are stable and can be referred to; level 15 in *Doom* is identical (or variable within fixed limits) no matter where or when you play the game. This gets more complex in the multi player game, but you can still describe a specific computer game as a stable system, variable within fixed limits.

These arguments for the existence of the narrative as something media-independent, can be used the other way, as a test of whether the computer game is a narrative medium: If the computer game is a narrative medium, stories from other media must be retellable in computer games, and computer games can be retold in other media. We can start by examining a game based on a movie.

From movie to game: Star Wars

The arcade game *Star Wars* (Atari 1983) is based on the George Lucas movie of the same name. In *the movie* *Star Wars*, an army of rebels fight a heroic battle against the evil galactic empire. The dramatic peak of the movie is when the rebel army and the story's protagonist *Luke Skywalker* must attack the evil empire's new weapon *the death star*. The game *Star Wars* is in three phases, in all of which you control a spaceship from the inside, presumably as Luke Skywalker. The first phase takes place in space, where you fight hostile spacecraft. The second phase is on the death star, fighting different towers and square object on the death star surface. In the third phase you fly through a tunnel in the death star, where you must attack the exhaust port at the end. This makes the death star explode. First and third phase are immediately recognisable from the movie. First phase corresponds to an in-movie battle before Luke flies to the death star - except that the rebel fleet is absent. Second phase has no clear correlate in the movie. The third phase corresponds to a scene in the movie - again with the rebel fleet being absent. If you complete your mission, the death star explodes. So the game copies a small part of the movie. We can also note that the other rebels are absent, at that you for no apparent reason can keep on blowing up the death star, at greater and greater difficulty.



Star Wars (Atari 1983)

There *is* one thing that encourages the player to connect game and movie: The title "Star Wars" on the machine and on screen. But it is basic literary knowledge that we should not assume the title or the foreword to be correct. If we imagine the title removed from the game, the connection would not be at all obvious. It would be a game where one should hit an "exhaust port" (or simply a square), and the player may note a similarity with a scene in *Star Wars*, but you would not be able to reconstruct the events in the movie from the game. The prehistory is missing, the rest of the movie, all personal relations. Possibly we are even missing the understanding that we are fighting a death star. Finally the most obvious: If you do not complete the mission, this is unlike the movie; if

you complete the mission, another death star appears - which is also unlike the movie. Thus, Star Wars the game does not contain a narrative that can be recognised from Star Wars the movie.

Time, game and narrative

Narrative is a ... double temporal sequence ... : There is the time of the thing told and the time of the narrative (the time of the signified and the time of the signifier). This duality not only renders possible all the temporal distortions that are commonplace in narratives (three years of the hero's life summed up in two sentences of a novel or in a few shots of a "frequentative" montage in film, etc.). More basically, it invites us to consider that one of the functions of narrative is to invent one time scheme in terms of another time scheme. (Christian Metz, quoted from Genette 1980, p.33)

A narrative is characterised by a fundamental distance between the events told and the discourse describing these events. In the classical narratological framework (as put forward by the Russian formalists), a narrative consists of two distinct levels, the chronological sequence of events and the sequence this is being told with:

- *Story*, denoting the events told, in the order they were described as happened in. This is called *fabula* in the Russian terminology.
- *Discourse*, denoting the telling of events, in the order in which they are told. This is the narrative as a sequence of signs, be it words or scenes in a movie. This is also called *sjuzet*.

To read a novel or watch a movie is to a large extent about reconstructing a story on the basis of the discourse presented. It is safe to say that the central texts in narratology have focused on the first part, the *story*. This goes for Propp, Greimas and Barthes. A large amount of work has been put into finding a grammar of stories, a basic structure in all narratives. There has been less focus on the *discourse*, and even less on what can be called the time of the reading¹⁷. In *Narrative Discourse* (Genette 1980), Gérard Genette performs a structural reading of the temporal qualities of the novel, with special regard to Proust's *In Search of Lost Time*. The starting point of Genette is basically the opposite of the structuralists', with special focus on the discourse and the time of the discourse.

Genette assigns great importance to reading:

The narrative text, like every other text, has no other temporality than what it borrows, metonymically, from its own reading. (Genette, p.34)

In this way, he introduces a third time, the time of the reading. My examination of the computer game is at first about the relationship between these three times: The story time, the narrative time, the reading time, and to what extent they can be found in the computer game.

¹⁷ This suppression of the temporal aspects has also been one of the traits of structuralism that has been critiqued by poststructuralist (like Jacques Derrida, Stanley Fish, and Peter Brooks).

Story time, narrative time, and reading time

Verbally based narratives must necessarily mark the time of its events in relationship to the narrative time:

By a dissymmetry whose underlying reasons escape us [...] I can very well tell a story without specifying the place where it happens, and whether this place is more or less distant from the place where I am telling it; nevertheless, it is almost impossible for me not to locate the story in time with respect to my narrating act, since I must necessarily tell the story in a present, past, or future sense. (Genette, p.215)

The most common temporal mode in narratives is past tense, where the narrator places him/herself at a later time than the events told. (There are also texts in future tense - prophetic texts, as well texts in present tense which I'll get back to later). This pastness is inscribed in the "once upon a time" of the fairy tale. And even a radical, modernist work like *Ulysses* begins in the past tense:

Stately, plump Buck Mulligan came from the stairhead, bearing a bowl of lather on which a mirror and a razor lay crossed. (Joyce, p.1)

This temporal distance is part of the novel as a genre, and it is a strong device that can be used in many ways. We only need to think of Lawrence Sterne's *Tristram Shandy*, where the protagonist tries to tell of his past, but the act of writing this down takes more time than the time he describes; using a year to tell of the first day in his life.

Time in the computer game



Doom II, level 2. The player is cornered.

If we then proceed to an action-based computer game like *Doom II* (ID Software 1994), it is hard to see a temporal distance between story time, narrative time, and reading time. We can talk of a representation of some events, and as a player you try to reconstruct some events from this presentation: The blocky graphics can be interpreted so far as the player controls a character, whose facial expression is represented in the bottom centre. On the illustration this person has been cornered by a large pink monster, whose hostile intents are clearly identifiable. The player is attacked by monsters he/she must defend against; puzzles must be solved to get to the next level.

Unlike the verbal narrative, there is no grammatical time to explain the temporal relations. And unlike narratives as such, it is clear that the events represented cannot be *past*, since we as

players can influence them. By pressing the CTRL key, we fire the current weapon, which influences the game world. In this way, the game constructs the story time as *synchronous* with the narrative time and the reading time; the story time is *now*. As a consequence of this being an interactive medium, the events of the game are constantly influenced by the player's actions (or lack thereof). The moment the events can be influenced by the player, there is necessarily an implosion between the three times. This means that it is *not possible* to use the novel's interesting relations between story time and narrator.

In a game where the user watches video clips and occasionally makes choices, the three times will move apart, but when the user can act, they must necessarily implode: it is impossible to influence something that has already happened. This means that *you cannot have interactivity and narrativity at the same time*. And this means in practice that games almost never perform basic narrative operations like flashback and flash forward. Story and discourse follow instead.

A parallel perspective is the question of duration. It is straightforward to discuss the duration of a movie: its duration is inscribed in the material it is stored on and in the machinery for displaying it. In the written narrative, this is more complex, since the duration of the reading will vary with reading speed. What we *can* examine is variations in the number of pages used to describe a specific amount of time. Gérard Genette identifies four basic tempi (Genette 1980, p.95): *Pause*, where the events are stopped during the narration; *scene*, where the narration relatively takes as long as the action; *summary*, where the events (again relatively) pass faster than the narrative; *ellipsis*, where some of the events are skipped¹⁸. In the context of these terms, an action-based computer game always passes with the speed of a *scene*: One minute in the time of the game corresponds to one minute of playing. This does not mean that every game takes equally long time; there are probably no two games of *Space Invaders* or two games of *Doom II*, equally long. In this way the computer game is closer to the novel than to movies or theatre. But computer games differ from the narrative media in that they are "told" with constant speed: Moving the space ship from the left to right side of the screen will always take the same amount of time. This is unlike Genette's basic description of the narrative:

[...] it is hard to imagine the existence of a narrative that would admit of no variation in speed - and even this banal observation is somewhat important: a narrative can do without anachronies, but not without *anisochronies*, or, if one prefers (as one probably does), effects of rhythm. (Genette, p.88)

¹⁸ The terms of Genette are based on the novel. He mentions the possibility of slow motion, where the events have shorter duration than their representation, but denies its existence in the novel. In movies, one might add, slow motion clearly exists.

We may conclude that the temporality of the computer game is fundamentally different from that of narratives.

Is happening: The *now* of literature

When this has been said of the game's basic *now* as a radical difference from narratives, it should be added that Genette's terms are about the novel as such, with special focus on pointing to general characteristics of the genre. (Event if this is primarily based on reading Proust's experimental *In Search of Lost Time*.) But literature also has a *now*. During the creation of *Naked Lunch*, William Burroughs writes the follow explanation to Allen Ginsberg:

[...] the usual novel *has happened*. This novel *is happening*. (Burroughs 1993, p. 375)

And the same thought can be found in a completely different context, in Roland Barthes' *The Death of the Author* (Barthes 1977). Barthes creates a partially normative description of "modern" texts as texts that do not describe things past, but happen in the *now* of the reading:

[in the modern text] there is no other time than that of the enunciation and every text is eternally written *here and now*. The fact is (or, it follows) that *writing* can no longer designate an operation of recording, notation, representation, 'depiction' [...] (p.145)

If we take this at face value, it tells us that the absence of temporal distance between story time and narrative time can be seen in two places: In fragmented (post-) modern literature and in computer games. We can compare this with a stream-of-consciousness part in *Ulysses*:

I think I'll get a bit of fish tomorrow or today it is Friday yes I will with some blancmange with black currant jam like long ago not those ... (Joyce, p.907)

This text tries to establish equivalence between story time and narrative time. Or perhaps the events and the description of the events are the same thing? Where Burroughs and Barthes claim that the *now* leads to a dismantling of the story/discourse distinction and a focus on the discourse, Genette argues:

A present-tense narrative which is 'behaviorist' in type and strictly of the moment can seem like the height of objectivity, since the last trace of enunciating that still subsisted in Hemingway-style narrative (the mark of temporal interval between story and narrating, which the use of the preterite unavoidably comprises) now disappears in a total transparency of the narrative, which finally fades away in favor of the story. That is how the works that come under the heading of the French 'new novel', and especially Robbe-Grillet's early novels, have generally been received [...] But inversely, if the emphasis rest on the narrating itself, as in narratives of interior monologue, the simultaneousness operates in favor of the discourse; and then it is the actions that seems reduced to the condition of simple pretext, and ultimately abolished. (Genette, p.218-219)

So Genette distils two types of present tense texts. One is the collapsed fragmented text practised by Burroughs and described by Barthes, the other is an "objective" style, where the events are described without comment, without a narrator. It does not seem possible to place computer games in one category or the other. On one hand, they do not have a represented narrator, and their relation-

ship to the events narrated seem quite "objective". On the other hand, it is hard to see what *other* events they might refer to. The pink monster in the earlier illustration hardly exists outside *Doom II* (and does not seem to claim so). The same goes for the space ships in *Space Invaders* (Taito 1977) or the monkey in *Donkey Kong* (Nintendo 1981): They do refer to a large amount of cultural texts and thoughts, but computer games carry a basic artificial quality that makes it hard to see them as signs of *something else*. This is partly a temporal question; the *now* of the game prevents it from being a representation of something happening *another* time. From this point of view, the computer game is only what happens on screen; it is pure discourse. It appears central to the computer game, that it is hard to decide whether it is "objective" or "fictive"; it simply does not fit these categories.

It may be obvious that the more open a text is to interpretation, the more emphasis will be on the reader's interpretation *now*. Some theories will claim that this is always so, that interpretation always happens in the *now* of the reading. This is true, but it is the open (post-)modern texts that have been characterised with the *now* because the story world disappears behind the artificiality of the discourse: The more the events of the text are covered by indicators of fictionality and explicit contradictions, there harder it is to reconstruct a story from the discourse, the more focus goes to the interpretational efforts of the reader *now*. The difference between the *now* in literature and in games is that *now* in literature is about texts where the reader's effort interpreting obscures the text's possible reference to another time. The *now* of the game means that story time and narrative time are identical with reading (playing) time.

The temporal difference

Movies and verbal narratives are characterised by what Genette calls variations in *speed*. In the movies this is immediately clear, in the verbal narrative it is more complex. There are basically no movies - especially popular movies - without variation in speed. We may think of Andy Warhol's 6-hour movie *Sleep* (1963), where a camera simply registers a sleeping man¹⁹. But in the (action) computer game, this absence of variation in speed is a general trait: Computer games move in constant speed, and do not skip time. There can be intermezzos between different levels, but time passes with constant speed during play. So time in the computer game is less sophisticated than canonical narratives; closer to *Sleep* than *Gone with the Wind*.

We can view the variable temporalities in narratives as consequence of two phenomena: One that our impression of time is associated with the events happening in a period of time - an active period is remembered as longer than one where nothing happened. The other is that the

reader/viewer should not be bored, so inactive periods are skipped. The computer game solves the same problem not by skipping time, but by orchestrating the game world for non-stop action. This kind of technique would appear extremely unrealistic in a movie - possibly because interesting human actions appear too infrequently for a two hour story to fill a two hour discourse²⁰. Computer games often lack the association with something we have already experienced we need to see it as unrealistic - we do not know much about space battles. So computer games can contain sufficient action to work in real time.

Sequence

The most frequently commented trait of the computer game is that a game session does not follow a fixed sequence. This is of course because the computer game is interactive and thereby non-linear or multicursal. According to Peter Brooks, narratives are to a large extent based on repetition:

Narrative always makes the implicit claim to be in a state of repetition, as a going over again of a ground already covered: a *sjuzet* repeating the *fabula* [...] (Brooks 1984, p.97)

The computer game differs in that it has to be a non-fixed sequence; it cannot claim to repeat something that has already happened. (Otherwise there would be no game!)

The linearity in a normal text is, one could claim, central to the way we interpret them. When *Moby Dick* finally defeats captain Ahab, it seems an inevitability, something that *had to* happen due to his manic obsession with the whale. In *Introduction to the Structural Analysis of Narratives*, Roland Barthes claims that his connection is a mainspring for narratives:

Everything suggests, indeed, that the mainspring of narrative is precisely the confusion of consecution and consequence, what comes *after* being read in narrative as what is *caused* by; in which case narrative would be a systematic application of the logical fallacy denounced by Scholasticism in the formula *post hoc, ergo propter hoc* - a good motto for Destiny, of which narrative all things considered is no more than the 'language'. (Barthes 1977, p.94, emphasis added.)

This means that the nonlinearity of a computer game stops this central part of narratives from working. If Captain Ahab can choose a premature escape and settle down as tobacconist in Nantucket, the story ceases to work. This is especially true on a psychological level, because Ahab has been described as having a certain psychological profile. If this description is to make sense, he can only act in one way when faced a choice. But the same feeling of necessity also applies to events where the text has not provided any information or indication of what should happen. This applies, for example, to large parts of Paul Auster's work. In *Moon Palace* (1989) the protagonist, by way of

¹⁹ The only mainstream real-time movie I know of is John Badham's *Nick of Time* (1995) starring Johnny Depp.

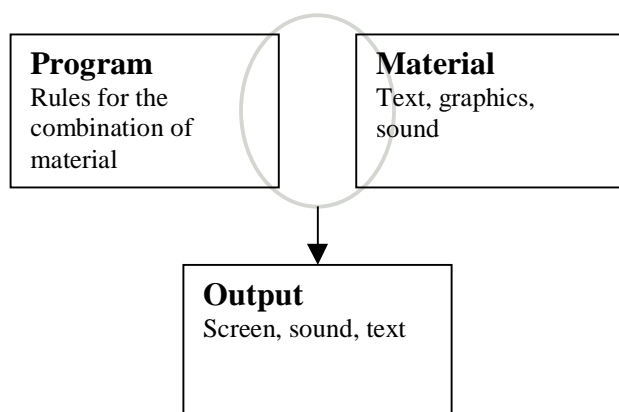
²⁰ John Badham's 1995 movie *Nick of Time* is actually set in real time - but clearly "cheats" by making people move faster than is physically possible.

an extraordinary coincidence, meets his hitherto unknown father. This is an explicitly random and unmotivated event, and yet it has a character of inevitability and destiny.

The fixed status of a sequence of events is what identifies a story - and it what makes it translatable between media. The variable sequence of a computer game breaks with the narrative in this way; an interactive sequence can not be translated to a non-interactive and fixed sequence. Conversely, the chronology of the computer game is very inflexible: If an interactive story was told in a discourse that did not follow the story chronologically, it would quickly lead to paradox; with the player's choices preventing an already presented scene from happening. This is a classical time machine paradox from science fiction: How can you travel back in time and influence something, if this changes the grounds of your leaving at all? So story and discourse have to follow in an interactive work²¹.

A model of non-linear texts

When reading a novel, we assume that we must read from the beginning to the end. A non-linear *text* presents explicit directions as to the order of reading. A computer game is similarly composed of some programming and some material. The program and the reading directions work to combine the material to the representation received by the reader/player. In Aarseth's terms, this is *ergodic*: A computer game contains a number of functions that control the reader's access to some material or combines material. On a higher level, any text/game contains a set of rules for, *when* to present an ergodic function to the reader (if at all). These rules can fittingly be described as a *program*. This program upholds the rules for combination of the material. A model of non-linear texts and the computer game can thus be presented like this:



A model of non-linear texts

²¹ I should note that flashbacks present less of a problem than flash forwards; it is possible to flash back to an event that has already happened.

This model is universal for non-linear texts. What I am saying is that the interesting dichotomy in a computer game is between material and program²². The interesting focus in a system like this regards the relationship between the represented and the rules for the combinations of material.

The program and the material belong to two distinct traditions. The material: graphics, sound, text belong to the traditional media, and are of the type that we know how to handle in an aesthetic tradition. The program is new in this context: It is formal, works causally on an electrical level. A dualism like this between an underlying (immanent) level and an interpretable and visible (manifest) level is largely what the structuralist narratology tried to create for narratives. While I believe that this does not hold in narratives, the distinction is actually present in the computer game: The material and the program *can* be taken apart.

The question of sequence is very important in the computer game. It just doesn't focus on the relationship between story and discourse like a narrative does. The interesting part in the computer game is the relationship between the material and the program, how the material is combined to what is seen on the screen, and if there is something that relates a specific program to a specific material. From the point of view of the skilled player, the material in an action game is subordinated the program. What interests the player is the program's rules for gameplay. In the same way that Kasparov does not think of the shapes or name of the chess pieces in a game of chess²³.

The narrative frame in a computer game

In this description of the computer game I have first and foremost focused on the temporal characteristics and the sequence of the game. But most games have a story on the package, in the manual, or somewhere else, placing the game in a larger story:

The narrative frame in Space Invaders



²² In Aarseth's terms, the corresponds to *textons*, the program to *traversal functions*.

When *Space Invaders* (Taito 1977) encourages to "Play *Space Invaders*", the player is presented with an ideal story that he/she has to realise using skill. A prehistory is suggested in *Invaders*: An invasion presupposes a situation before the invasion. We can't tell what should happen once the invasion has been prevented, it is just implicit in science fiction mythology that these aliens are evil. The title suggests a simple structure with a positive state broken by an external evil force. It is the role of the player to recreate this original positive state. You do this by controlling a space ship at the bottom of the screen. This space ship is protected by some bunkers that can be destroyed. The enemies enter from the top part of the screen. Having shot all enemies, you proceed to the next level. The next level brings new enemies, and the bunkers are rebuilt.

In the narrative model of Greimas (1969), a narrative is seen as moving between two positions. His example is a princess that has been abducted from her home to a new position by a villain, and is subsequently rescued by a hero. It is thus a sequence of a good state that is threatened, after which there is a struggle to restore the original state. Vladímir Propp adds that the initial state often contains some kind of lack: The prince is lacking a princess, that king has grown too old, the princess has gone cold. Even narratives beginning in medias res (perhaps with a person at the top of his/her career) typically have an implicit lack such as a dark and poor past, a sad home, a long lost love. I will start with the following structure:

1. Stable state [with a lack] is overturned by an evil force.
2. Battle for the restoration of the original state.
3. Original state restored, lack resolved.

In the article *Adventures in Computerville* (Jensen 1988), Jens F. Jensen works from a parallel narrative model in three parts. He compares this model to "computer games" (meaning action games) and concludes that: 1) Computer games are narratives since they move from lack→lack restored. And 2) that the main deviation from Propp is that computer games have two endings: The good: that the original state is restored; the bad: that it isn't. Point one is not entirely clear: I have previously argued that the temporal characteristics of the computer game are quite different from narratives. The other problem is that computer games only move from lack→lack restored if the player wins. So Jensen's definition would imply that *Space Invaders* is only narrative if you succeed in fighting off the invasion.

²³ A chess program obviously does not consider the shapes and names of the chess pieces either: The existence of a formal and well-defined level, the program, is exactly what makes it possible to create a chess program. You can create

But you can *not* complete Space Invaders: Having shot all the attackers, you are simply faced with a new attack, and the green bunkers protecting you have been repaired or replaced. So this suggests that some time has been skipped (ellipsis). It is a question of interpretation whether every wave of enemies is part of the same attack, or if a new invasion has occurred. It *can* mean that the initial state has been restored, but then threatened again, only this happens without any indication from the game. So the narrative frame does respond to the three-part model above, but *the game* only happens in point 2, *battle*.

Compared to the three-part model we should also note that there hardly is any *lack* in the initial state. Lacks are generally absent in computer games, perhaps because they do not contain the existential dimension that the protagonists' lack adds. As a player, you are probably not interested in adopting *another* person's existential lack, and it can be a problem to communicate such immaterial things to the player²⁴.

So the narrative frame provides an explanation of what the player should do. In a less abstract way: It is possibly obvious, that whatever object you control, it should be defended against other objects moving towards it. (At least until you know otherwise.) This is why that narrative frame can add meaning without changing the game. It is thus evident that the narrative frame is not necessary to play the game, and that it can be replaced with another narrative: *Space Invaders* can quickly be changed to – for example – a game where you are attacked by insects and centipede instead. This is the game *Centipede* (Atari 1980).

The meaning of the frame

You are the good guy, freedom fighter and renowned star pilot. The bad guys, an alien race from a distant solar system have invaded Neoclyps, one of your colonial planets.
(The package of *Neoclyps*, Cymbal software 1983.)

We use narratives for many different things in many different contexts, both fictive and real. The history of the computer game is fairly short and begins in the 1960's with very primitive graphics. The computer game can, especially early, hardly be taken for a representation of something real. Up to the middle of the 1980's it was possible to *buy* games where you, for example, controlled an exclamation point (a warrior) and fought #'s (monsters). This is the reason why the narrative frames from the outset have been considered irrelevant, arbitrary. And this is why a game already in 1983

a chess program because the program does not require cultural knowledge to work.

²⁴ It is possible to claim that as a player you will initially always lack proficiency in a game, and that the story of the game is about the player's getting better. But it is clear that such a movement happens outside the game, or on another level.

could have an ironic narrative frame. The narrative frame has always seemed forced, irrelevant to what really matters: The game.

This point is slightly controversial since many people will claim that their action games really to tell stories: It seems that inexperienced players take the narrative frame at face value, "I am fighting an evil samurai", while the experienced player determines the genre; "It is a 3d shooter". When various commentators (for example Jensen 1988, Grodal 1998, Wenz 1997) describe the computer game as narrative, they are assuming that the narrative frame or the game commercials *are right*. It is my point that the narrative frame is purely metaphoric assignment of meaning to the game.

This point corresponds more or less to Theodor Nelson's critique of the Macintosh user interface (Nelson 1990): The Macintosh (and modern Windows) are based on the concept of *metaphoric design*²⁵, where you create an interface by mimicking things already known to the user. The modern user interface is built on a desktop metaphor. According to Theodor Nelson, this doesn't work very well because you have to *explain* most users why this is like a desk. If you click on a document, it is suddenly above other documents. If you pull a disk to the trash can, it is not thrown away but ejected (on MacOS). In the computer game, the titles, intro sequences and cut scenes work in the same way: Their purpose is to *explain* to the player, why this platform game is at all related to the movie *The Lion King*, why this 3D flying game is related to *Top Gun*. Because it is not clear from the game itself.

Modern pinball games are another, and perhaps clearer example of this assignment of meaning to a game. You still shoot the ball around to hit the flashing lights, but now a display claims that you are part of a story. On the Star Trek machine (Williams 1993), you are sent on different mission: avoid an asteroid, rescue the crew from a planet. Or more precisely: You still have to hit the flashing lights with the ball, but now a display tells you that the hitting a special lamp rescued a crew member for the planet and so on. There is an abundance of pinball games based on popular movies. Even *Thousand and One Nights* has been created as pinball - open the gate, fly on the carpet etc.

Not everything that claims to tell a story actually does so. But there seems to be a tendency for humanities researchers to take every description of something technological at face value - even if it comes from the manufacturer. When creating a game "based on" a movie, there is a clear interest in having the buying public assume a deep connection between game and movie - it sells the

product. But movie-based games are known as low quality products, that simply seek to exploit this connection - they are seldom innovative or even especially focused on relating to the movie. When movies for a young audience are converted to games, it is almost inevitably as *platform games*; games where you have to control a main character jumping over obstacles, collecting small objects. And this is clearly the discount strategy in computer games: Simply pick a well-known game genre and add some graphics and sound from a movie. Disney's *The Lion King* (Disney 1995) or the Tintin game *Tintin: Prisoners of the Sun* (Infogrames 1997) are good examples of this.

Interactive fiction often downplays the game in relation to the frame. Rather than trying to achieve some kind of correspondence between frame and game, the complexity of the game is reduced. Narrative parts are added and interactivity is removed. This does not make the relation between program and material any less arbitrary; it simply shifts the emphasis.

The narrator

I have argued that in the computer game we find an implosion between story time, narrative time, and reading time. This is a consequence of the fact that a game is not a fixed sequence that the game *has* not happened yet but *is* happening. The interactivity demands that the game happens *now*, unlike narratives which are basically told *afterwards*. A narrative can also be characterised by the fact that there is narration. If the narrator is not characterised as such, at least there is some kind of *selection* of what to tell and emphasise. This selection is related to the temporal situation and variations in narrative speed. In a game like *Space Invaders*, there is no such variation *during* the game, but the game has a narrative frame, and there are omissions (ellipsis) in time when the game ends: When the player doesn't play, there are some operations going on that may remind us of the narrator's role. But no narrator is indicated.

Is this your doing?

Let us then turn to the novel and consider the detective story. The detective story needs a criminal. The criminal is not a narrator, but shares some traits with the narrator in that the criminal is responsible for the existence of the detective story at all. The criminal is the source of the story, and it is the job of the detective to find this source. So the detective's question to the criminal is this, "*Is this your doing?*"

²⁵ On metaphoric design, see (K.H. Madsen 1994).



The crook in Doom II?

In Doom II, as in any game, there is a corresponding implicit question of why the game world looks like this. *Who* created it so that aliens are attacking me? Doom II is inhabited by evil monsters that have to be killed to get on. But where do they come from? The last level (32) provides a possible answer, as you are faced with a giant monster that shoots monsters from a hole in its forehead²⁶. This is the source of the game.

Myst has a corresponding figure, only explicit. According to the narrative frame of *Myst*, "you" (the reader) are reading a book but suddenly get sucked into it. It turns out that the book has been written by *Atrus*, who has the gift of being able to *write* worlds into existence. Atrus is trapped in book inside the primary book/world, and the task of the player is to rescue him from this other book. Atrus is a kind of explicit narrator, except that he only tells the world as a structure, but does not control the subsequent actions. Such a story of words creating worlds has clear Jewish/Christian roots. The story in the story (*mise en abîme*) is also quite classical (Hamlet, Thousand and One Nights), the same goes for the story of the creator that loses control of his creation (Frankenstein). The computer game has a considerable ability to use elements from other cultural contexts.

The explicit narrator in *Myst* is slightly atypical, but end-of-level monsters are a common occurrence in the action game - to progress you have to defeat an especially large and hard opponent. Such variations, with changes in the size, number, and abilities of an opponent enhance the computer game with variations in intensity, variations that *are somewhat like the* variations in speed found in narratives.

²⁶ Clearly a reference to Zeus, and possible also to Minotaurus, found in the middle of the labyrinth.

The player and the game

I will now proceed to examining the relation between player and game. Computer games are *interactive*, and I have previously presented a definition of this. To describe the relation between an interactive work and the reader/player leads to the curious problem that Espen Aarseth described, that a large part of literary theory uses words like labyrinthine and claim that the reader *creates the text*. This means that any description of the player's part in a game, such as "*the unique thing about games is that the player's action determines the events in the game*", can be answered with "*but in any text the reader shapes the text through his/her interpretational work – it is exactly the same thing!*" So the computer game is a literalisation of many of the terms used metaphorically in literary theory.

Different schools of theory put varying emphasis on the reader's investment in the text, possibly the least in New Criticism, and the most in reader-response theories. Reader-response is in itself a large field, covering both Wolfgang Iser's view, that the text contains certain well-defined *Leerstellen* (Iser 1978) and the more radical claim by Stanley Fish, that the reader (or the reader's interpretative community) creates the entire text (Fish 1980).²⁷ The hypertext theorist David Bolter claims that:

When Wolfgang Iser and Stanley Fish argue that the reader constitutes the text in the act of reading, they are describing hypertext. (Bolter 1992, p.24)

This is problematic since Fish and Iser do not say the same thing, and because the two descriptions of the player's and the reader's involvement in the game/text *sound* much alike but *mean* entirely different things. The player is active in his/her influence on the game world, and this is a conscious act, that he/she tries to get better at. The reader does not influence the text *as text*, but performs an interpretation/actualisation that (it could be claimed) basically works according to sub-conscious principles. The reader seldomly tries to get *better* at reading a specific text (which would be futile anyway if the text didn't exist), the non-professional reader certainly does not try to consciously interpret the text as to produce a happy ending.

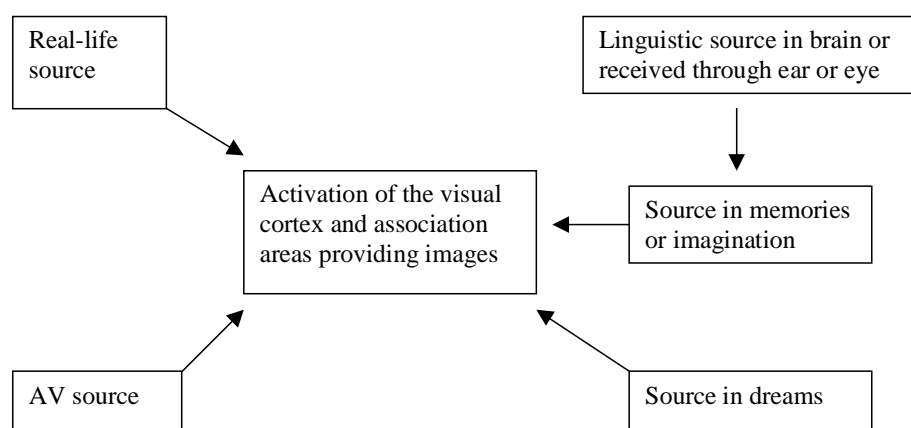
This terminological chaos between terms used metaphorically and literally tells that the computer game also differs from the novel or the movie in this context as well. This chapter examines the player's relation to the game; the player's role in relation to the structure of the game. This is in four parts:

²⁷ Jonathan Culler discusses the conflict between Iser and Fish in *On Deconstruction* (Culler 1981, p.75).

- *Empathy and identification*: An examination of the player's relation to the character he/she controls, primarily by means of Torben Kragh Grodal's cognitive theory of movies.
- *Desire*: A discussion of how the player's desire to play related to Peter Brooks' theory of narrative desire.
- *Death*: A discussion of how death in the computer game is connected to the acquiring of knowledge.
- *Repeatability*: A discussion of the phenomenon that the player plays a game many times, compared to the idea of the inexhaustible work.

Empathy and identification

In *Moving Pictures* (Grodal 1997), Torben Kragh Grodal presents that he describes as a "holistic" or evolutionary-cognitive theory of how movies and movie genres affect the viewer. Grodal's theory is in opposition to both structuralist film theory (like Roland Barthes') and psychoanalytically inspired theory (like Christian Metz). According to Grodal (and the cognitive science that he builds on), humans are characterised by that fact that we are constantly creating mental models of ourselves and others. When looking at another human (or a representation of another human) we inevitably create a mental model of that person's bodily being, of his/her goals and wishes. This is related to our basic capability of thinking about absent things, and that we can run through a situation "as a test"; without really being in that situation. This means that the image of a cup and reading the word "cup" activate the same brain centres that are activated when we see a cup in the physical world. Different sources result in the activation of the same mental image:



(Grodal 1997, p. 32)

Grodal distances himself from the ideology-critical film theory that often tries to assert that the movie/text hides the devices that construct the meaning of the text. This kind of theory has tried to identify - for example - linear narratives as the product of a specific time & ideology, often of capi-

talist society. Grodal claims the opposite, that the canonical narrative and (its advancing, coherent time) has an ahistoric base in a mental model:

[...] it is very probable that a story that has linear and progressive time and is centred on the experience of a single being is a mental base-model [...] (p.88)

Grodal does not claim that this kind of narrative is more "right" than forms like the exploded time of avant-garde-movies, rather that the canonical narrative form corresponds to some basic cognitive phenomena. There are other forms, but they get their meaning as sophistications from the canonical form.

The actant

According to Grodal, it is a major part of fiction that the view/reader creates a cognitive identification with one or more characters or actants, meaning that we create mental models for the situation of these characters/actants:

When the viewer's attention has been caught, the application of a set of cognitive procedures follows. These will be labeled *cognitive identification*: the viewer will try to simulate the subject-actant's perceptions. He will try, for example, to construct the field of vision of the actant by generalizing his/her own perceptual experiences into an objective and transformational model: what would I have seen if I had been in the same place as the actant? This activity presupposes the construction of abstract models for the world. [...] the viewer will try to construct the subject-actant's emotions, affects. (p.89)

This does not mean that we attempt a complete identification, that we believe ourselves to "be" that person, just that we evaluate the relevant goals, wishes and threats. This is not exclusively connected to people, but also works in relation to animals or anything anthropomorphic. And this is essential for the experience of a movie:

When watching a visual representation of phenomena without any centring anthropomorphic actants, we often 'lose interest' owing to lack of emotional motivation for the cognitive analysis of the perceived, a fact which many makers of experimental films have discovered when presenting their films to a mass audience. (Grodal 1997, p.89)

It might then be reasonable to expect that something similar was true of computer games, that computer games were centred on one or more actants with human traits. But this turns out not to be the case. Possibly half of all games do not contain people at all, and an even larger part do not focus on human relations at all. (See "The invisible actor" where I discuss games without possible points of identification.)

In a game like *Space Invaders*, it does not make sense to claim that you cognitively identify with the small green spaceship: A technological object is not something you generally identify with (unless anthropomorphic), and since a space ship is presumably neither intelligent or capable of emotions or perception, we do not try to create a mental model for it. The two-dimensional space in *Space Invaders* is not created to call on mental models of human action in the world, and we can

generally assume that the player does not have previous experience space ship experience. It is clearly not a question of *being* the space ship. The answer is, of course, that you *control* the ship, but at the same time make a mental investment in the safety of this ship. In common sense terms it would be that you *undertake a job*, and the game evaluates your performance. In cognitive terms you activate something that seems both more abstract and more basic than creating mental models for a person: You deem an object (the space ship) important, deem some other objects (the enemies) disposable and evil. You then protect the important object as long as possible. This seems to be a common tendency to protect oneself against enemies, why the game feels more important than what one would expect. Loosing a space ship is referred to as "dying".

Since Space Invaders is a game, there is another connection between the player and the game: Games are as such characterised by an evaluation of the player, and to play Space Invaders means that you are subjecting yourself to an evaluation. The reader of a story can *hope* for a good ending, but is after all not evaluated depending on how *Moby Dick* ends²⁸. The ending of a game can have consequences for the player's self esteem and socially. Being good at a computer game is basically a positive thing socially.

The problem faced by of a more thorough discussion of identification in computer games is that computer games have very different protagonists/actants, and that some games do not even have a central character to control. To make a brief list of games with protagonists: *Space Invaders* (space ship), *Battle Zone* (tank), *Pac Man* (yellow "mouth"), *Elite* (offscreen person changing between space ships), *Missile Command* (offscreen, controlling three rocket batteries to protect some cities), *Frogger* (frog), *Centipede* (space ship? in a garden), *Donkey Kong* (small man - Mario), *Zork* (the main character - "you", in textual representation), *Qix* (small square drawing lines), *Journey* (all members of the rock band Journey), *Pengo* (penguin), *Jungle King* (Tarzan), *Marble Madness* (marble), *Pole Position* (car seen from the outside), *Daytona* (car / driver), *1942* (aeroplane), *Star Wars* (Luke Skywalker - view from the space ship), *Bomb Jack* (small man that can fly), *Robotron* (robot), *Track'n'Field* (athlete), *Rampage* (monster), *Burger Time* (chef making burgers), *Descent* (space ship from the inside), *Doom* (man, inside view, face represented on the bottom of the screen), *Tomb Raider* (woman - outside view), *Myst* (the reader of a book - "you" - inside view). From this list follows that the relationship between player and protagonist varies between games. Generally the protagonist seems to be a character that would normally have positive value. But the

²⁸ A student at a literary education risks that his/her ability to *interpret* Moby Dick is evaluated with social consequences, but this is not part of the story itself - it is a trait of the educational system.

drawing square in Qix does not have a special predefined value, and the monsters in Rampage destroy buildings and eat humans - hardly positive. The *human* actors on the above list are clearly heroes fighting against evil. It would seem that the protagonist is usually a positive character, but this is not *always* the case.

The eye of the actant

Computer games are almost exclusively set in a *space*. This space is almost exclusively in two or three dimensions²⁹. Games are usually about navigation in this space. The space need not be graphically represented, but can be a textual construct like in *Adventure*. Most often you control an actant in this space, but this comes in many different variations. The classical action game has a visible character moving in a two-dimensional space. This space can be seen sideways (*Space Invaders*, *Donkey Kong*) or from the top (*1941*, *Frogger*). In this relationship between player and actor, the player has information of the game world that the actor physically can not have. We might assume that this lessens the identification with the actor. In narratological terms we would say that such a game is *unfocalised*; the world is not seen from the viewpoint of a specific person or with the knowledge of a specific person (Genette 1980, p.189-194). In the newer three-dimensional games, the viewpoint is a central perspective, always placed within or just besides the actor. This means that the player has the same amount of knowledge that the actor has - which gives us focalisation. To see from inside a set of "eyes" seems to increase identification with the actor; you "are" to large extent identical to this actor. But this effect seems to work contrary to the way it works in movies. Grodal is critical of Montgomery's movie *Lady in the Lake*:

The whole film, except the narrator sequences, is shot using 'subjective camera'; the effect, however, is not an intense 'subjective' identification with the protagonist but, on the contrary, a feeling of alienation, because there is no objective model, a body, on whom to anchor feelings of identification (and there are not - as in real life - any body-sensations to anchor the objective model of the self). The 'subjective' camera view cannot therefore be experienced with complete cognitive and emphatic identification by the viewer: it is experienced as the view of an alien. (p.115)

Nevertheless there seems to be agreement that the view-from-within in 3d games increases identification.³⁰ This is possibly because a view panning autonomously is an unknown (and uncomfortable) experience, but to look out from a set of eyes and be able to control the direction of your gaze is a well-known cognitive-physical experience. It simply corresponds to a basic experience of the world. But there *is* a problem with computer games where you see through some eyes: That the body is not

²⁹ In the mid-1980's I did try a one-dimensional game of golf where the strength of the shot and the distance to the hole were the only parameters in the game.

³⁰ "Before you were even out of the first level, you felt as if you WERE in those halls, battling those demons." (ogr.com 1997).

represented, and that you miss the feeling of its extent in the game world. (The utopia of virtual reality is partly an answer to this problem.) But the feeling of controlling the view is sufficient to make up for this. In some games like *Daytona* or *Tomb Raider* you can choose between an inner and an outer view, and this choice seems to be a weighing of the identification emphasised by the inner view and the extra information acquired by the outer view - to see the extent of the body in the game world. In narratological terms this can be compared to the difference between a story focalised on the main character and an unfocalised text with a (more or less) omniscient narrator. Some games shift effortlessly between these two states.

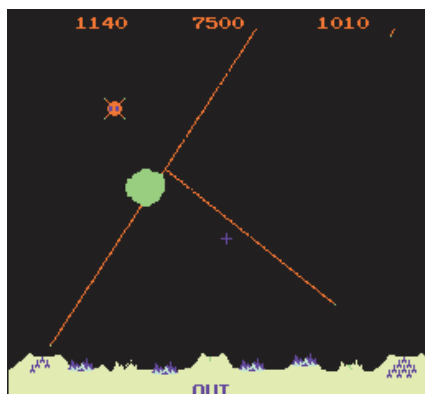
Tomb Raider (Eidos Interactive 1997) is famous for having introduced the outer view in the 3d-shooter genre. From the assumption that computer games are primarily played by men, it is interesting that the protagonist of *Tomb Raider* is a woman. We might also assume that there are some aesthetic question at stake - that a watching female body is connected to libidinous joy for men - but female protagonists are much rarer in games than in stories. So there seems a logical connection between the outer view and the female protagonist - as a player you "are" not the main character to a very large extent. The relation between player and heroine is characterised by a certain "being" Lara Croft, but also by a more distanced identification. Lara Croft is a character you presumably care for *as somebody else*, but at the same someone you *are*, and this kind of play with gender and identity is presumably a source of pleasure.

In interactive fiction, the graphical games construct space with graphics, other games will use both text and graphics. In text-based games there can only be textual markers of space. This does not necessarily have that deep implications for the game - the same mental space can be built using different sources. In just about all textual interactive fiction, the game proceeds as a dialogue with a not easily identifiable narrator that addresses the player. The level of knowledge basically corresponds to games with inner viewpoints; you only register what the actant would register.

The invisible actor and the abstract game

Movies and other stories are largely about humans (or anthropomorphic things) that the viewer/reader identifies with cognitively. As Grodal pointed out previously, it basically is boring to view/read fictions without anthropomorphic actors. This is not true for computer games. Games with no actors represented on screen have appeared throughout the history of the computer game. Many of these have been extremely popular. An early example is *Missile Command* (Atari 1980), where a number of cities are attacked by missiles that you then have to destroy using rockets from three missile batteries. The player is the not represented on screen as an entity or actor, but only

sees the results of his/her actions. It would be possible to create a "job description" for the player - a soldier controlling missiles; a typical hero. It is harder to understand *Tetris*, where you must combine a series of falling bricks.



Missile Command (Atari 1980)



Tetris (Atari's 1986 version.)

Tetris does not have a visible actor either, and it does not seem possible to construct any actor controlling the falling bricks. We are clearly dealing with non-anthropomorphic material, only a few falling bricks. According to Grodal's previous remarks about movies, this would be radically uninteresting. But Tetris is incredibly popular, and nobody is disputing its status as a computer game. In the less abstract *Lemmings* (Psygnosis 1989), a number of small men walk blindly ahead, facing obstacles and dangers. It is the role of the player to guide them to an exit so that none (or as few as possible) are lost. But is not clear why this is so nor who the protagonist is.

But how can computer games be abstract and without points of identification, and yet be interesting? - No matter how variable or even absent the protagonist in computer games, there is always one constant: The player. It is probably true that the reader/viewer need an emotional motivation for investing energy in the movie or book; that we need a human actant to identify with. This is probably also true for the computer game, only this actant is always present - it is the player. The player is motivated to perform a cognitive analysis of the game's situation because the game is a task that the player has undertaken as a real-world person. And this is why a computer game can be much more abstract than a movie or a novel.

The body and the motor skills

While a movie does activate different motor schemas in the viewer as part of the viewer's cognitive work with analysing the characters, the viewer still remain passive in their seats. As Grodal points out, the voluntary nervous system is suppressed, but the involuntary nervous system is still active - causing tears, sweat, raised pulse etc. in the viewer.

As we know, computer games are based on the influence of the player on the game world, and this happens through keyboards, mice and so on. This means that the player presumably constructs mental models for the actants in the games, and at the same time actually is forced to *act* motorically. In games with non-anthropomorphic actants or two-dimensional games, these mental models are created from data less complex than in movies; the graphics in games are basically less detailed than the images in movies. (Text based games do have the possibility of describing with the same level of detail as the novel.) In game like Tomb Raider, with a visible human actant in a three-dimensional world, the modelling is for a more full bodily presence than when moving the space ship in Space Invaders. But on the keyboard you can only control the movement of Lara Craft using very simple parameters: four directions, jump, duck, fire. So there is a difference between the mental model of the actant's body and the limited possibilities actually given to the player. From this follows - and this is the interesting part - that the player first generates a model of the actant's presence, then uses this as a basis for a choice of motorical action which must be executed with much simpler options than the mental model prescribes, and finally actually acts motorically using the interface.

There is a variable degree of connection between the supposed possibilities of the actant and the actual possibilities given to the player. In a driving game like *Daytona* (the arcade game) the game is controlled with a steering wheel, meaning that the player ideally performs the correct motorical actions.³¹ In Tomb Raider the possibilities of control are very limited compared to what a body can normally do. The same thing goes for *Doom*, except that the game is deliberately run in a pace sufficiently high that the more advanced motorical capabilities of the player are suppressed in favour of basic patterns of escape and attack. In Space Invaders the problem is perhaps minimal - it seems plausible to have a space ship / cannon that can only move left and right, and the player doesn't have a mental model for space ships. The largest discrepancy is in a game like *Myst*, where you supposedly *are present* in the game world, but where all the possible interactions in practice are done by pointing and clicking with the mouse.

It seems that any wish of movement that cannot be executed through the interface results in that the player moves physically: It is common to see players unable to escape a shot in *Doom* duck physically. The physical body acts as a receiver of "overflowing" motorical impulses, even though

³¹ To drive a car is really also a question of mapping a model of the world so that a wish of moving left does not result in movement *in* the car, but rather that the wheel is turned.

trained players tend to be able to suppress this and focus exclusively on the possibilities offered by the interface.

Game and cognition

These observations show us that games vary radically, and that they are very different from the narrative media. Computer games can be very abstract and still have mass appeal, because the player has reasons for playing that differ from why the reader reads a novel. This also tells us that the creation of a computer game involves thoughts and insights regarding all cognitive capabilities and preferences of humans. There is, we might say, nothing outside the program. By this I mean that game design is an art that demands the combination of all technical possibilities with knowledge of how humans perceive the world, as well as experience from all aesthetic fields.

Desire

In *Reading for the Plot* (Brooks 1984), Peter Brooks claims that plot is as such connected to desire, both in the sense that plots are often *about* desire, and in the sense that desire is central in the plot's production of meaning. The reader has a desire: narrative desire to reach the ending, to finish and consume a work. A desire to relieve the tension created by the beginning of a story:

Desire is always there at the start of a narrative, often in a state of initial arousal, often having reached a state of intensity such that movement must be created, action undertaken, change begun. (p.38)

Brooks is heavily inspired by the Freudian understanding of desire as a tension looking for its resolution. The desire of the text is in constant danger of a premature ending. Meaning: There is a constant danger that the protagonist reaches his/her goal too soon or is definitively prevented from reaching that goal, thus ending the story.

If we refocus on computer games, the most obvious point is probably that the player faces two premature endings: one of losing your lives too early, one that the game is actually too easy. Books have only one ending and they are - generally - physical objects. This allows the reader to know the size of the book; you do not fear a premature ending in that sense. Unlike this, computer games are immaterial, and as reader you do not know how much is left (unless this is explicitly marked by the game).³²

It is clear that games contain something that makes people play them. This is a desire that takes place within a narrative frame that is often only hinted at. But in the game this tends to work with an inverse logic compared to the novel. In the novel, the ending is yet unknown and you read

to find out more about it. In the action game, the good ending is already known: You have to save the Earth, the princess, yourself. The bad ending is failing to do so. As a player you desire to *actualise* this good and well-known ending. You wish to understand the structure of the game, the mechanics by which the game world develops. And you desire the agility needed to use your understanding of the game structure to actualise the good ending.

So the driving desire of computer games does therefore not seem to be the narrative desire that Brooks discussed, but to other kinds of desire³³ that often work in relation to a narrative frame but doesn't presuppose it: One is the *desire for structural understanding*, the desire to know the relations and mechanisms that make one specific action have a specific consequence. The other is the *desire for performance*, the desire to reach the agility and motor skills to use the understanding of the game structure to reach a perfect performance.

Death: Hierarchies of knowledge

When a game ends, it always involves that the player steps *out* of character, and ceases to identify with the protagonist (if there is a protagonist). In the traditional computer game, this is accompanied by information on the score of the player. So the player leaves his/her role *as a player* and assumes an exterior, evaluation viewpoint on the game that has passed.

When introduced, *Doom* was famed for two things: The revolutionary 3D graphics and the explicit violence. Less acknowledged was the new development that the game was not based on points, and the player thus not evaluated on an absolute scale. *Doom* also introduced that after the moment of death, the screen continued to display the view from the eyes of the dead body. In a classical game, the world "GAME OVER" is displayed, after which one is sent back to the title screen. In *Doom*, the view from the dead body is kept until you click to play again - automatically directed towards the opponent that killed you. So death gives you information, both on how you died and what happened afterwards. Again you step out of character and acquire another view on the events, and again you gain additional knowledge.

The novel has a corresponding hierarchy of knowledge, where the protagonist in principle has the least knowledge, the explicit narrator more (if this is not identical with the protagonist); the implicit narrator has the most knowledge. To receive a story where a fictive person dies always in-

³² When the Danish computer magazine *Alt om Data* reviewed the game *Ghostbusters* in the mid-1980's, the reviewer wrote that he had not advanced past the big marshmallow man, but that he was absolutely certain that there would be much game to play afterwards. This was unfortunately not correct, he had in fact reach the much too early game ending.

³³ Desire, understood in a pragmatic rather than Freudian sense.

volves a kind of bonus: additional knowledge on death. So death in the computer game and death in stories share a link to the gaining of knowledge.

There are many variations on this in the computer game. In the classical action game, the player controls an object seen from the outside in two-dimensional graphics. Death does not change the viewpoint, but the object disappears. When the last life has been lost, the game disappears from the screen. In *Doom* you keep your view, but in a dead body. In the game *Descent*, the view is moved out of your spaceship to watch it explode; in *Unreal*, the view moves out and you see the protagonist fall dead. In interactive fiction, you are similarly notified the reason of your death. "You have been eaten by a grue.", says *Zork*. To my knowledge, in no games is the view moved *in* when you die.

Death in the computer game is the other death, the death of fiction. The death you survive and learn from.³⁴

Repeatability

Computer games have a bad reputation for many reasons, one of them being the large amount of time that you can spend on them. This is logical - we should not waste our time. But we also live under a cultural idea of the endless work, of books you can read and read and never tire of.

The endless text can be a religious work like the Bible - obviously common in the Christian world. The same idea also works for many canonical works like those of Homer, Dante, or Ovid, or even modernist works like *Ulysses* or *The Wasteland*. Contrast this with the term trash novel, implying that a book is disposable once read (since you read for the plot). The works that you supposedly can keep on reading are also the ones that you "can be good at": *Ulysses*, the Bible; texts where your ability to remember and interpret them is often evaluated.

The surprising part is that the notoriously "low" computer game lives up to this much more than novels tend to. The dominant mode of receptions of narratives is one-shot, but games are inherently something you play again, something you can get better at. It is slightly surprising that games are actually critiqued for this. The theatre-inspired critic and software designer Brenda Laurel doesn't like games that you can keep on playing:

[...] In Parker Brothers' "*The Empire Strikes Back*", the objective is to destroy as many of the Imperial Walkers as possible before they reach the power plant and blow up the planet. However, as science fiction author Harlan Ellison observed in an unpublished review of the game, it is not possible to meet that goal because the bad guys just keep getting better - an affliction shared by many video games.

³⁴ The abundance of death in the computer game is one of the reasons why it is seen as immoral. A game like *Myst* explicitly tries to distance itself from the amount of death in the computer game. In actuality, narratives are also a way of surviving death, only there it is the death of somebody else.

"The lesson", moans Ellison, "is the lesson of Sisyphus. You cannot win. You can only waste your life struggling and struggling, getting as good as you can be, with no hope of triumph." One might speculate that this incredibly frustrating feature of game design contributed to the decline of the video-game genre in 1983 and 1984. (Laurel 1991a, p.107)

Brenda Laurel's main goal is that of creating software that fit Aristotelian ideals, so her point is understandable. However, unfinishable computer games are still very popular (witness multi-player games), and the 1980's crisis in the video game industry (where Mattel and Coleco left the market) must be attributed other factors (Calica 1998). There is a clear commercial interest in games that are finished in 4-5 hours - the player will need a new game more frequently.

It then appears that trying to add a significant *story* to a computer game invariably reduces the number of times you're likely to play the game. Literary qualities, usually associated with depth and contemplation, actually makes computer games less repeatable, and more "trashy" in the sense that you won't play *Myst* again once you've completed it. There's no point. This does not mean that *Tetris* is an endless work that can always be reread and always sheds new light on the world - for we usually do not see computer games as statements *about something else*. But it seems paradoxical that introducing a narrative reduces the number of times you play the game.

In the way it is used, the computer game is closest to the mythical narrative. In a discussion of *Superman*, Umberto Eco (1979, p.107-124) describes the mythical as characterised by repeatability: The audience of the Greek tragedy already knows the story. The modern novel or movie is only received once, since the primary aesthetic device is the relative unpredictability of the events. One important difference between computer games and the mythical narrative is that the mythical narrative can be repeated because it is assumed to shed new light on the world - the mythical represents a universal law. The computer game is repeatable because it shows more of itself every time, because the player gains experience and gets better at the game. But unlike the mythical, games are *not* seen as saying something about the world.

Readings: Five versions of a conflict

The main goal of this analytical part is to show how the previous theoretical work can be used to say something more detailed about specific games. At the same time, the text performs a simple movement from games exhibiting the classical problems of interactive fiction, to games that can be seen as a re-interpretation of the utopia of interactive fiction.

Firstly, I'll be studying *Myst* to identify where the combination of game and narrative fails or succeeds. Then I'll examine the action games *Doom* and *Unreal*, as well as what happens when these games are used as multi player games. Finally I will re-evaluate the utopia of interactive fiction and examine *Witness* and *Last Express*. I think that these two final games point not to an interactive *narrative* but towards a computer game that is thematically closer to the movie or the novel.

Reading a computer game

To read a computer game is not the same as reading a poem, a movie, or a novel. In the traditional media, the object read is (still) assumed to contain a meaning that can be interpreted from the object. (No matter what claims have been made to the contrary.) Conversely, there is no tradition for seeing computer games as works of substance or meaning; there are no publications about the interpretation of computer games, no faculties, no tradition for this.

According to my model of non-linear texts, a computer game has a program level and a level of material. The material is traditionally interpretable elements such as text, graphics, and sound. Computer science does have (many) procedures for analysing programs, but this is not oriented towards interpretation. What is possible is to interpret the *combination* of program and material. In the simulation game *Sim City* (Wright 1989), the player is the mayor in a city and has to control such parameters as tax, buildings etc.. *Sim City* claims to be (and is often taken as) a realistic model of a city. But any simulation is obviously based on assumptions, and in *Sim City* crime comes from nowhere and can only be countered with police stations. And this is a clear ideological statement. The formula for crime in *Sim City* is not directly available to the player. (Even if explicitly created by the programmer.) The output of this formula could alternatively be calculated as a product of industrialisation and presented as pollution. (An environmentalist version.) The same material (the term "crime" and the graphical representation of the city) could easily be controlled by the reverse formula, where crime develops as a product of the number of police stations. (A combination that sees humans as fundamentally good, but corruptable.)

As a user it is hard to describe the program independently of its representation on screen - you do not have access to it. But there *is* a program, typically developed in a programming language like C++. As in the example above, it is hardly possible to perform sensible interpretations of an independent formula, independent of its context - in casu the material³⁵. The interesting part is the combination of program and material.

Method

So far I have tried to describe the computer game as phenomenon and to sketch interesting ways of looking at his. I have presented a theoretical description of the game, but the final goal can't be just to confirm this theory. I will rather be using the theory to examine a number of things:

- The game's relation to interactive fiction. If the game has explicitly been presented in relation to interactive fiction.
- Game type and interface.
- Narrative frame.
- Narration and temporality. If the game contains narrative sequences, and if so what this means temporally.
- Identification. The relation between the player and the protagonist (if there is a protagonist).
- Program and material. The overall relation between the program (the game as abstract structure) and the material, including graphics and narrative frame.

I will be making a distinction between game passages and narrative passages. The latter means 1) that the player cannot do anything 2) that time is compressed and that the time narrated is shorter than the time of reading. (In an earlier Christian Metz quote, the narrative was characterised by creating one kind of time using another kind of time. (p.29)) Game passages are interactive and happen *now*. The narrative is linear and has a non-correspondence between time of reading and time of the narrated.

Myst

When the computer game is counted as empty of content, it is usually because it is being measured by the same standards as used for traditional media. *Myst* (Cyan 1993) is undoubtedly the recent

³⁵ The interpretation of mathematical formulae and physical principles has been attempted by such thinkers as Baudrillard, Virillio, and Gilles Deleuze. The results are not that convincing to me, simply because the method is that of thinking by analogies: If A has similarities to B, there must be a deep connection between them. The Alan Sokal parody *Transgressing the boundaries* is a fairly realistic version of this mode of thinking. (Sokal & Bricmont 1998, p.199-240).

computer game that has been most accepted in cultural circles. For example, The Danish newspaper *Weekendavisen* chose to review *Myst* in the book section, concluding that:

Myst [...] the only CD-ROM that can compete with the fictional universes of the novel, with the images of art, with the soundscapes of music. (Schmidt & Frost-Olsen 1995, my translation.)

Rigmor Kappel Schmidt and Peter Frost-Olsen praise the beautiful graphics and ambient sound. *The game* is not very well described. If we were to look at it more analytically, we might say that *Myst* is a very traditional game - the classical hunt for things to interact with, puzzles to solve. Graphically and thematically it was possible one of the first games to utilise the large amount of storage offered by a CD-ROM. At the same time *Myst* quite handily navigates the most obvious pitfalls of the genre.

In *Myst* you have to click around a small island world. According to the manual, "you" have been reading a book which you have suddenly been sucked into. You then gradually discover that this world has been created by *Atrus*, but that he and his two sons have been trapped in separate books. You hardly ever meet these characters during your playing; you get to see them in a book, but apart from a brief meeting with *Atrus* you do not interact with them directly.

The player and the interface

Myst is real. And like real life, you don't die every five minutes. In fact you probably won't die at all. [...] The key to *Myst* is to lose yourself in this fantastic virtual exploration and act and react as if you were really there. (The *Myst* manual.)

In *Myst*, the player is never described. You see from your own eyes and are not represented on screen. According to the manual, you are "yourself". Thus you do not have to identify with another person, but act as you would. "[...] *lose yourself in this fantastic virtual exploration and act and react as if you were really there.*" So the manual asks the player to create models for how he/she would react if he/she were actually in the fictive world. Obviously you are not "yourself", but play as a projection of yourself in the game world. That you do not have to identify makes some things easier: the game doesn't have to characterise the main character, and the player's possible reluctance to accept another personality is avoided.

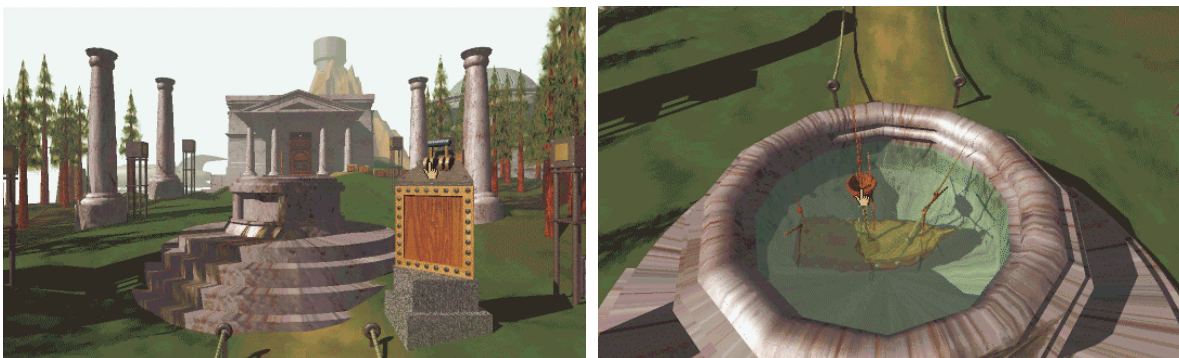
The interface is the most problematic part of *Myst*. The frame narrative claims that you are inside a book, present in another world. But the interface does not represent any bodily presence in this world; no possibility of movement using the cursor keys. The mouse is the only option:

Some locations are not accessible. Clicking in those locations will have no effect, and indicate that the location is not important. (Ibid.)

The graphics give the impression that all visible objects can be manipulated and that you can move in all directions. And many objects *can* be manipulated: meaning that they are present in both pro-

gram and material. Other objects are only in the material. This is the same problem as in text-based interactive fiction, where the ambient description often contains objects that can not be manipulated. This problem is obviously not present in narratives, where the narrator decides what needs to be examined more closely, what is foreground and what is background. If a minor character only has two lines relevant for the plot, we only hear two lines. In a game, there is a risk that the player will want to ask more detailed questions, and that the minor character ends up repeating the same lines. And this of course breaks the illusion of a free game world that you can navigate.

As an example the player early on gets to a switch next to a fountain, You can turn the switch on and off, but you cannot pick up the ship model in the fountain:



The player can manipulate the switch, but not the ship model.

So while the introduction claims that you *really* are there, the interface posits very strict limits to what you can actually do. It would seem logical according to the game world (the material) that you could pick up the ship, but you can't (the program).

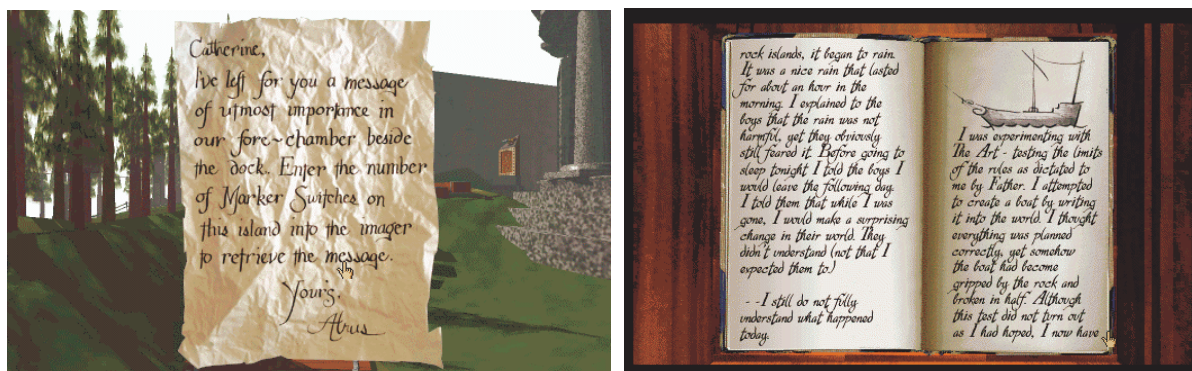
This means that the focus ends up on the two-dimensional picture. The effort needed to move the mouse pointer is not related to the distance between these two objects in the game world; the interface only relates to the two-dimensional representation.

Narration and time

In *Myst*, time stands still when the player doesn't act. There is never any urgency, no demands on the reaction time of the player. This is in some ways similar to the temporal freedom granted to the reader of a novel.

I have pointed out that you basically can't have interaction and narration at the same time. If a computer game is to have both interaction and narration, it has to alternate between the two. The top selling *Myst* confirms this, albeit in an intriguing way. On a concrete level, the player's actions in *Myst* are quite uninteresting. The player moves around collecting hints on how this switch must be flipped, how this wheel must be turned etc... All of this to collect the missing pieces of the books,

Atrus and his two sons SIRRUS and Achenar are captured in. Hints are found primarily through artefacts in the game world, like the two following.



Two artefacts with a story.

The paper has a double function of helping the player get further in the game, and of indicating a sender and receiver of the message (a man and a woman). Knowledge is presented and a part of story is told. We do not need the story of Atrus and Catherine to complete the game, but it adds some atmosphere. The book on the right is pure narration about the prehistory of Myst, but does directly give anything needed for the playing of the game.

Playing Myst, you meet many things that tell of Myst's prehistory. This narration is done through artefacts in the game world, but is always about what happened before the player started playing. The player can always leave a text and do something else. So a direct confrontation between the temporal logics of game and narration is avoided: It is not the time of the player that is compressed, but the time that is told.

There is one obvious contradiction in the time of Myst, since Myst contains a time machine. It ought to be possible to get to a point in time where the inhabitants of Myst were still around, but this is not possible. Myst is always empty. This abandonment and this displacement between the prehistory and the time of the game are always active in Myst.

Program and material

The challenge given to the player by Myst is primarily in discovering how different mechanical devices in the game must be manipulated to gain further access to the game world. The program contains some logical conditions where a given "object" (represented in some material) must be manipulated in a certain way to give access to more material. Logical puzzles work well in a game context because they are purely causal. There is no doubt that the reason that you arrive at the end sequence is because you've entered the correct code. So it is possible for the player to discover the structure of the game, and this means that the player has reason to play. Puzzles work because they

connect the program and material. One obvious criticism of this kind of game is that they are *always* about turning handles and finding keys - as they have been since *Adventure*. The real strength of *Myst* is the extent that this solving of puzzles also uncovers a prehistory.

There are both temporal and technological reasons for the game world being abandoned: It is very hard to create satisfying and convincing interactions between a player and computer-controlled characters. The most obvious reason being that computers do not understand natural language. The narrative frame does seem slightly forced and determined by technological and temporal possibilities.

To reconstruct a story during the playing of the game gives a feeling of connection between the story and the actions of the player. At the same time it would be quite easy to change the material of the game without changing the program. *Myst* could be made into a game where you - for example - live on a planet threatened by an asteroid and have to connect machines to defend the planet. Or the book theme could be replaced by a video cassette theme (which would be more logical since the books contain video anyway), but then *Myst* would probably not have been reviewed in the book section... But perhaps that is not the point. Instead I will say that *Myst* works well since the fairly inflexible program (*Myst* could more or less be made to work on two slide show projectors) is matched by a narrative frame that explains why the game world is abandoned. This can unfortunately seem slightly forced. As a game, *Myst* is a traditional puzzle-based interactive fiction, but one with high production values, and a narrative frame that concerns writing and fiction. And this makes *Myst* highly valued by traditional cultural criteria.

Intermezzo: The placement of the player

A large part of narratology has focused on the placement of the narrator in the universe of the text.³⁶ That is, what grammatical traits are attached to the enunciation, what does the narrator know about the people and the world that is being told? In interactive phenomena it may be useful to focus on the placement of the player. The reader/player of an interactive work is necessarily placed; the player has certain possibilities of influence, and thus an interactive work sets the player as a part of the text world. In the same way that a narrator can be placed unclearly in a novel, so can the player in a game.

The Danish author Svend Åge Madsen's novel *Af Sporet er du kommet* ("You have come from traces/tracks") (Madsen 1984) contains a short story called *Spor* ("Traces/Tracks"). *Spor* is claimed

³⁶ For example Seymour Chatman, who uses two out of five chapters in *Story and Discourse* (1978) on the question of the narrator.

to be a short story written by the computer *Datam 18* to create a life story for the fictitious character Rikkard Duebo Vem. *Spor* consists of 24 pieces of text, labelled A-X. The 23 of these refer to two or more of the remaining pieces, and the reader has to make choices as to what should be read the next time. The protagonist is an undefined "he". It is possible to discuss what kind of text, *Spor* is. There *is* a game element not only since it is clearly influenced by forking stories such as the *Choose your own adventure* series. It is also explicitly marked as such in the novel when the characters read *Spor*:

He [Alfreud] was the last to complete the obstacle course. Fegge, who knew the program had quickly found a method of getting through, Hélen had found the exit by chance, and Vagn had (Fegge guessed) cheated. (p.94)

They all have been aware of the existence of an "exit" - meaning a good ending. And it has been possible to cheat. So *Spor* is at least described as being a game. According to what we might term the "contract" of games, the player has a fixed degree of influence in the text/game universe. Most pieces in *Spor* do live up to this, for example D:

D. Everything becomes black, and when the light returns, everything has become white. He is not sure how long time has passed since the accident, and he only gradually realises that he is in a hospital. But tender care, not least from one of the nurses, quickly gets him well again. But after what he has been through, he is not sure what to do. (Should he consider his situation: B; or be impulsive, N?) (p.84-84)

So the reader makes a choice that corresponds to the choice of the protagonist. But in other pieces, the reader's choice is about what should happen *as a consequence* of the protagonist's actions:

A. It is the next day. He is walking down the road, wondering what life can offer him. A good night's sleep has put him in a light mood, and he believes that he has succeeded in erasing all impressions from the day before. But he does not get very far before his attention is caught by something on the opposite pavement. Without hesitation he walks on to the road. (Should he reach the other side, go to E; shouldn't he, go to H?) (p.82-83).

And finally, the choice "Choose to act on his own" in piece E leads to the protagonist raping a woman against his will. So in E you do not even control the protagonist's actions, where in D you controlled the world. So the reader is placed in three different positions: As the protagonist, as an omnipotent God/writer, and as something controlled by the animal lusts of the main character.

The interesting part is that Svend Åge Madsens two other forking texts, *Den slette fortæller* ("The evil narrator", 1970) and the novel *Dage med Diam* ("Days with Diam", 1972) also *claim* to fork according to the choices of the protagonist, but that their forks also place the reader in several different position. I have to admit that I find it difficult to explain why this is so. But all three texts are perhaps not as much games as they *borrow* game structures. We might say that the narrativity wins over the game elements. But the primary point must be that we should not take the self-description of the text at face value, and that the placement of the reader is worth studying.

Doom

Unquestionably, the most appealing aspect of Doom was its sheer fun factor; each of the editors had to admit to spending countless hours roaming about its virtual halls. But what was so fun about it? What made this so much more fun than anything else? [...] it's because these graphics did more to suspend disbelief - crucial to a compelling gameplay experience - than any game to come before it (and some would say, than any game to come after it). Before you were even out of the first level, you felt as if you WERE in those halls, battling those demons.

-The justification for picking Doom as #1 in the *Top 50 Games of All-Time* (ogr.com 1997).

Temporality

Historically, most action games for home use followed the arcade game principle where the player is never allowed to take a break. I am not going to claim that Doom introduced pauses to the action game, but it has been massively influential. In Doom, the player is not constantly followed by a threat. Rather, Doom begins with the player being safe. When you enter a room, all monsters suddenly begin moving and attacking you. When these monsters have been killed, you can once again take a break. Doom is still real-time, but the game world has been created so it is possible to take a break in that real time. It is an open question whether it is realistic that the monsters do not try to find the player when he/she stands still. Shouldn't they be running from room to room? On the other hand we don't know much about these monsters - and that is one of the advantages of placing a game in a not very well known setting.

Identification

Doom was received ecstatically by game players, but in other circles it has been declared extremely dangerous. On a nominal level, this is understandable since Doom is a very violent game, and has spawned a whole genre of equally violent games. There is something uncomfortable about the psychology of the genre, where the player kills thousands of monsters to get further in the game. It may remind us of the egoism of a small child before the child begins to see itself as placed in a social context. And it is a bit like the lack of understanding other people found in autism. Doom does seem to have been built exclusively for the player.

Program and material

The different elements of Doom fit together extremely well. The interface is very simple: You can move forwards and backwards, turn, strafe, change weapons, open doors, and shoot. There is no possibility of using signs or at all communicating with the enemies. And that is the point: The opponents you meet in Doom are clearly marked as purely evil, unthinking beings that evidently have to be exterminated. This means that the simplicity of the interface is not a problem, because you do

not wish to try to communicate. The minimal (and basically ignored) narrative frame of Doom is no literary masterpiece, but it serves the purpose of presenting the monsters as evil:

As you walk through the main entrance of the base, you hear animal-like growls echoing throughout the distant corridors. They know you're here. There's no turning back now.
(Doom. accompanying file, last paragraph.)

These opponents are not very intelligent. They are mainly occupied with attacking the player, but occasionally attack each other as well. There is also an element of randomness in their behaviour. This means that they, despite of their following well-defined rules, can act differently every time you meet them. This is a bottom-up construction, meaning that rather than describe an overall structure and choreographing every element to match that structure, you construct a number of small elements that interact.³⁷

Unreal

The newer game *Unreal* (Epic Megagames 1998) is a 3d-shooter like Doom, and is also real-time. But Unreal adds some new tricks, as in the following pseudo-narrative passage:



1. Entering a hallway.



2. A body flies through the air.

³⁷ An example of a corresponding bottom-up construction is the Lars von Trier exhibition *Verdensuret* (world clock) in the autumn of 1996 at *Kunstforeningen* in Copenhagen. The basic personality traits and relations of 50 characters had been previously described, and 50 actors played these characters with the overall rule that each had four moods that were controlled by coloured lamps, which again were controlled by the video signal of some ants in New Mexico, USA. In this set-up the actors improvised a number of main and subplots that developed during the two months that the exhibition lasted. It would have been a Herculean task to generate the same amount of material according to an overall story.



3. The attacking monster steps forward

In the first image we are entering a hallway. To get this far may have taken a long or a short time. But whenever you reach the hallway, you always hear a scream and see this body flying through the air (and the monster coming towards you). It is not possible to construct any causal reason why this should be so. But the player's presence starts the scene, and as a player you are guaranteed to witness this scene, no matter when you arrive.

I call this pseudo-narrative because there is no variation in speed and no distance between the time of the narrated and the time of the reading: It is the temporality of the game; that time is not modified and that the perspective is fixed. But here some predefined sequences are triggered by the player's arrival. This gives the action some of the economy found in narratives: The player will always experience this interesting event.

From a non-technical point of view there is no reasonable explanation why the monster should wait attacking till the player arrives. The problem with this technique is that it makes the game world less credible. By playing many times, you get to understand that this coincidence is a construction.

So Unreal has a double temporality. Most of the game events are real time, other are on hold in a kind of pseudo real time, to get suddenly activated (and happen in real time) when the player arrives.

Multi player games: Doom

I have mentioned, but not yet discussed, that Doom and Doom II have a playing mode where the game is not specifically for one player, but is constructed for the simultaneous playing of several people:



Doom II: Two players watching each other (on different computers).

Multiplayer Doom requires several computers in a network. It does not presuppose physical proximity, even if playing over large distances can be unsatisfying due to delay between the computers (*lag*). All 3d-shooters that I am aware of have a multiplayer mode. A multiplayer game changes three basic things in relation to the games previously discussed:

- *Perspective.* There are several views on and representations of the same game world. This means that there isn't just one reader, and that to discuss multiplayer games demands that you understand the double totality of the individual perspectives and the entire game as one large system.
- *The stability of the text.* Even if the previous games have been non-linear and interactive in different ways, they have been constant. You can play *Myst*, *Space Invaders* or another game, and the game will always be the same; a specific action will make the game react in a certain way or within a set of possibilities. A multiplayer game places more than one person in the equation, so the game can react very differently each time. From the viewpoint of one player, a multiplayer game can not be characterised as a *stable* text since the game world contains factors that are not constant: the other players. But even though, it is possible to refer to multiplayer Doom as a *stable* unit, only this requires a kind of collective view of the game. You may prefer one multiplayer game over others due to the interactions and operations allowed by the game. Multiplayer Doom is not known by the reactions caused by a specific action but by the *types* of reactions caused by interplay between many players.
- *Time:* That many players are active simultaneously creates some new demands: Some games contain a narration that alternates with the game sequences. These games have variations in their temporality. Multiplayer games need the players to be present at the same point in the game time. This means that the temporal variations found in other games do not really work in multiplayer games (or only work if everybody experiences them at the same time) - if a player skipped some time in a narrative passage, he/she would be at a point further along in the game

time. So multiplayer games presupposes a basic real time, a time that does displace the players in relation to each other.

These three factors make the computer game a complication, theoretically and practically. The evaluation of the player becomes more of a social function. The goal of the player is not just to acquire a structural understanding and performance in relation to *the game*, but also to understand and master the interaction between the game and the other players. The individual player is still at a specific screen and keyboard, but the situation now contains other sentient beings, that also create mental models of the game world. This makes lying, cheating, and faking relevant, and recursive situations arise where A considers B's mental model of A's mental model etc..

The most popular type of multiplayer game at the time of writing (1998) is the 3d shooter, where the players are free to play indefinitely on a single level (according to how the game it set up). The historical precursor of the modern multiplayer games is the original *MUD* (Bartle & Trubshaw) from 1980: MUD, often taken for "*Multi user dungeon*" is a multiplayer version of *Adventure*: A game world built (textually) from a number of rooms that you can move between using textual commands.³⁸ MUD continues to be a large underground phenomenon on the Internet with thousands of MUDs with different themes and structures. The revolutionary part in this context is that most MUDs are continuously active. This means that the game goes on 24 hours a day, with no interruptions. MUDs usually contain characters controlled by the program (non-playing characters or NPCs), which means that a MUD can be active even when nobody is watching. (The programs internal representation of the game world is updated without it being represented visually). The persistence of such a game world leads to an absolute abolishment of temporal variations.

Program and material

The multiplayer game posits steep demands on the temporal relations and equally sharp steep demands on the program construction. I am not aware of any multiplayer games built on narrative passages - this is since the multiplayer game works much against temporal variation, and also because games constructed according to an fixed sequence are much to inflexible to accommodate several simultaneous players.

³⁸ A historical discussion of MUDs can be found in (Aarseth 1997, chapter 7.) Aarseth says of the MUD abbreviation: [...] social scientists doing research on the MUD phenomena often refer to MUDs disingenuously as multiuser domain, multiuser dialogues, or even, incongruously, multiuser dimensions, to avoid association with the embarrassing term *dungeon*, which might remind their readers (and tenure committees) of the Mud's puerile origin as a game. (p.143)

The structure of Doom allows for variation and flexibility: In a way, the whole point of the action game and of most games as such is that they consist of a number of small components that can be combined in large number of ways. On top of this we typically find an ending principle influenced by these small elements. In Doom the energy of the player runs out by getting hit by opponents - accordingly each monster is connected to an amount of tension. In a board game like *Monopoly* it is the financial status of each player that risks going to zero. This kind of bottom-up design makes the game world infinitely more flexible than if designed according to a plot or a fixed sequence.

Intermezzo: Towards and interactive fiction

Hypertext is inherently non-linear, so the traditional narrative is wholly inappropriate to hypertext work. [...] if hypertext fiction ever becomes artistically successful (nothing I've read is), it will be through the creation of a new narrative form, something that we will be hard-pressed to call "story."
(Costikyan 1994)

The temporal aspects are not the only things that distinguishes a computer game from a novel, there are other basic differences: The narrative basically works with fixed sequences, human relations, but computer games are almost always about physical movements in space. In Space Invaders you move a small spaceship, in Myst you move "yourself" around an island. With a sweeping generalisation we might say that narratives are about time, but that computer games are about space, or at least about space on a level of detail that is not relevant in narratives.

When the computer game is not capable of telling stories, but is yet often seen as to dry, abstract, or emotionless, these elements have to be introduced by other methods than that of narration. We have to acknowledge that the computer game has a variety of devices that work very well, and that there is no specific reason to work against these. So we have to make a distinction between narratives and the *themes* found in narratives. Most narratives are about things like human relations, ambition, and desire. Since these themes can not be introduced as simple additional symbolisation (narrative or not) of a simple game, the game structure has to be extended to contain models of the human relations presented. The themes have to be implemented in the program, be more than postulates on the packaging.

We need to get to a situation where the player can interact with a world that develops no matter whether the player acts or not. And the player has to be able to act without the game loosing its progression - the player still needs something to play for. I think some games point towards this utopia, but to describe this I will start by going back 15 years:

Witness

The taxi has just dropped you off at the entrance to the Linders' driveway. The driver didn't seem to like venturing into this maze of twisty streets³⁹ any more than you did. But the house windows are full of light, and radio music drifts toward you. Your favorite pistol, a snub-nosed Colt .32, is snug in its holster. You just picked up a match book off the curb. It might come in handy. Good thing you looked up the police file on Mrs. Linder's death. Her suicide note and the newspaper story told you all you know about the family. The long week is finished, except for this appointment. But why does an ominous feeling grip you? (The beginning of *Witness*.)

Witness (Infocom 1983) is from the golden age of the text adventure. *Witness* is text-based; the game world is represented textually and the player acts textually. *Witness* is the oldest game to get analysed here, but it also contains some fairly modern traits, traits I believe could be part of a future for interactive fiction. The main thing is the relative autonomy of the game world, i.e. not everything revolves around the player.

Game type, interface

Witness works as a dialogue between "the game" and the player. "The game" describes the scenario, and the player can react. (">" Marks the writings of the player.) The illusion is occasionally broken since there is no direct connection between the vocabulary used in the description and the vocabulary that the player can use:

```
>wait
The rain is falling heavily now.

>drink rain
(Sorry, but the program doesn't recognize the word "rain".)
```

Witness suffers from the recurring problem of interactive fiction, that not all the information in the description (textual or graphical as in *Myst*) can be interacted with.⁴⁰

Witness is a detective story with the player as the detective that has to examine the circumstances surrounding the death of a Mrs. Linder. Using the textual interface you have to examine things, collect evidence, interrogate suspects (to the degree that this is possible). You can then arrest a suspect when you feel certain, and the verdict of the court depends on having collected sufficient evidence. (No matter if you have arrested the right person or not.)

Espen Aarseth has made an analysis of the predecessor of *Witness*, *Deadline* (Aarseth 1997, p.115-128), where he describes *Deadline* as an autistic game (lack of relation to pain etc.), and con-

³⁹ This is a reference to a famous part in *Adventure* (Crowther & Woods 1976), where you arrive at "A maze of twisty passages, all alike".

⁴⁰ Brenda Laurel has a parallel critique (Laurel 1991b, p.59), even if she curiously seems to believe that the problem would not arise in a graphical system, and some archaically describes the problem as conflict between language and thought.

cludes that the voice of the game is hard to place since it both describes the scenario, comments its own abilities (as in the above quote), and ask overall questions about the game flow ("This case has ended. Would you like to start your investigation from scratch? (Y/N)").

The question is then how to explain this unreliable not-really-narrator that the player interacts with. I think the inspiration is from the computer itself. The original *Adventure* was created at a time when almost all operating systems were based on command lines. If a command is typed correctly, it is executed and the results are displayed. Mistyping results in an error message. This dialogue between user and computer works on many different levels; failure to understand the user's command; failure to execute the user's command; the result of the user's command. Another possible inspiration is Joseph Weizenbaum's classical program *Eliza* (1966), where a program works as a therapist, answering answer or question with a new question. (This connection has been suggested by Niesz & Holland 1984).

Narration and time

Where the time of *Adventure* is rather abstract, with a "move" as the unit, time in *Witness* is measured in minutes. The game starts at 8:00. Every action performed takes a minute in the game time. It is possible to wait for a person ("wait for Monica") or to wait to a certain point ("wait to 8:59"). If something happens in the meantime, you are asked if you want to go on waiting. This allows the player to skip dull periods.

The really interesting part about *Witness* is the way in which the player's actions interact with some fixed events that take place with or without the player being present. To show this, we can look at a passage early in the game. You have arrived at the Linder family, have greeted everyone and followed Mr. Linder into his office:

[...]

This is obviously the office of Mr. Linder's company, Pacific Trade Associates. At the west end of the office, a massive desk of teak and mahogany faces toward the window. It has no drawers, but the top is covered with piles of letters, some newspapers, a telephone, and various souvenirs from the Far East.

Behind it is a large ornately-carved chair, like a cruiser escorting a battle ship. A simple wooden chair, polished smooth by visitors, flanks the desk on the other side. On the north wall is a lounge, upholstered in green velvet and a bit lumpy, with a framed wood-block picture hanging over it. On the outside wall, next to a door and window, stands a grandfather clock, ticking relentlessly. A file cabinet stands in the corner.

The door to the interior hallway is open.

A cat is sleeping in the corner.

Linder sits down in the carved chair.

"If you'll just take a chair, I'll explain what this is all about."
The rain outside is falling heavily now.

>sit on wooden chair

You are now sitting on the wooden chair.

Linder begins his story. "My late wife, may she rest in peace, got involved with a young man named Stiles. Naturally I tried to stop this affair, but without much success. Since my wife passed away, this Stiles fellow has gone off the deep end, I'm afraid, and blamed me for her death. I tried my best to ignore him, but he seems to have lost his senses. This morning I received this note and decided to ask your help." He hands the note to you.

[...]

>wait

Time passes...

The clock chimes 9 times to mark the hour.

You hear the door bell ring.

Linder looks toward the window and says, "I don't think Phong has answered the door bell yet." He reaches toward the butler's button and at the same instant shouts "Stiles!" You turn around and dimly see a figure outside. Suddenly there is a flash of light and an explosion, and the window falls into dozens of shiny shards. The cat bolts and disappears somewhere. The figure outside turns and runs before you can see the face. When you turn back around, you see Linder slumping down in his chair, with a bloody stain spreading across his silk shirt. He teeters on the edge of the seat, then falls onto the floor, quite dead.
It's now 9:04 p.m.

If you don't accept the chair, the following happens:

>wait

Time passes...

You hear the door bell ring.

Linder looks toward the window and says, "I don't think Phong has answered the door bell yet." He reaches toward the butler's button and at the same instant shouts "Stiles!" You turn around and dimly see a figure outside. Suddenly there is a flash of light and an explosion, and mortal pain radiates from your heart. As blood fills your lungs and a scream fills your brain, you feel sure of only one thing: you should have taken a chair when Linder asked you to.

There are other possibilities: You can choose not to keep your appointment and rather go to the backyard to see Stiles sneak towards the window.

Program and material

Stiles always sneaks into the backyard just before 9:00. Correspondingly, Linder's daughter Monica always goes to the movies just after the game has begun, and she always returns at a certain time.

Where *Myst* or *Unreal* openly feature video or events that only happen when the player arrives, the events in *Witness* have an autonomy that makes the game world more credible and lifelike.

In *Reading for the Plot* (1984) Peter Brooks makes the claim (using Todorov) that the detective novel is a meta-novel in the sense that it is about a person that using clues (discourse) reconstructs a story - a description of the crime. (Brooks p.29). This means that the detective and the

reader perform the same movement, and that the detective novel gets much strength from this parallel between reader and detective. A computer game based on a criminal case works well since the player also uncovers a story that is earlier in time than the game events. The detective novel is obviously not just the uncovering of a story, but a story in itself. In *Witness*, the uncovering is a game, which is not entirely the same thing. But it is a detective game, and it carries a minimal ideal story - the detective finds and arrests the culprit. You then play to discover *how* to actualise this ideal story.⁴¹ The uncovering of the structure of the game also leads to an uncovering of the prehistory. *Myst* is not a detective story, but follows the same strategy - through your movements in the game you uncover a prehistory. In both cases the uncovering of the past has some relevance for the game: It may for example tell us who would have motive to kill Mr. Linder (or the player).

The world of *Witness* does not - unlike that of *Doom* or *Unreal* - seem created just for the benefit of the player. *Witness* gives the impression of working independently of the player. Furthermore it succeeds in building dramatical tension based on human relations. And this happens without locking the player in non-interactive sequences. The weak point of *Witness* is primarily the mode of interaction: You try to communicate using normal sentences, but the program turns out to be incapable of understanding anything but the most basic constructs. Correspondingly it turns out to be quite difficult to interrogate the game characters, since they understand very little and can only answer with a few canned phrases. Again this is a conflict between the promises of the material - the characters are textually presented as characters - and what the program can deliver - a few pre-defined responses.

Witness is an early example of a game about human relations, but one that works without locking the player in an inflexible duality between narration and interaction.

⁴¹ We might theoretically consider the possibility of a game based on a failed detective story like Paul Auster's *City of Glass* (Auster 1985), a detective story where the detective is caught by greater forces and never really solves anything. In practice, computer games are just about always faithful to the ideal story they put forwards. Probably because the player would feel cheated by having invested a large amount of energy in a project that disappears into nothing. A detective story can fail because it is the detective, not the reader, that fights in vain.

Last Express



Last Express: Miss Wolff, the protagonist Robert Cath, and a conductor.

The Last Express (Brøderbund 1997) is a newer and more advanced attempt at creating an interactive fiction that does not trap the player within a few pre-defined choices. It is not a perfect game, neither does it match the utopia I have described. But it is a good example of how the themes of narratives can be added in a context that is more *game* and less of an inflexible tree structure. In some respects, *Last Express* is a lot like *Witness* - it is partly a detective story, and you uncover a prehistory while playing.

Graphics, narrative frame and dialogue are of unusually high quality.⁴² But the most interesting element is the use of meaningful events that take place in the real-time of the game (rather than being *told* in the same time). You can witness discussions and events that are meaningful in the overall game, but without being locked in time or without interactivity. This solves some problems, since the games I have previously discussed (with *Witness* as an exception) only introduce interesting material by adding artefacts or having straight narrative passages, where the player can't do anything. *Last Express* including interesting events in the real time of the game.

Game type

The biggest challenge for us all along has been what we call the character logic. Creating this illusion of life that you have as you move through this 3D journey. Each character - and there are around 35 substantial characters - has this set of routines that they go through. They're interacting with each other and there are all these substories winding back and forth. But the fact that the player is there causes events happen earlier than they would have, causes them to happen in different sequence, or causes completely new events. (Mark Moran, programmer/technical designer of *Last Express* - accompanying video.)

The interesting element of *Last Express* is that it is a game world built around a number of fairly autonomous characters that interact with each other and with the player. The player can move around six train carriages, talk to the characters and listen to conversations.

⁴² Spoiler: This is also one of the very few games *not* to have a happy ending. Till the very last moment, you tend to believe that things will turn out right, but they don't. (The war gets in the way.)

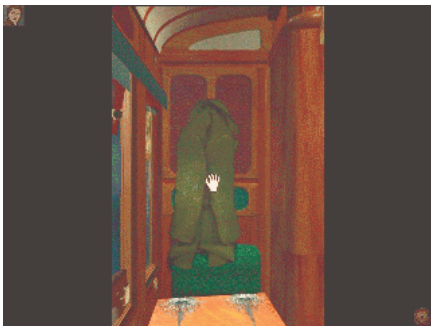
Narrative frame

During this thesis I have described the computer game as a structure with an arbitrary narrative frame, but in this case I have to acknowledge that the Last Express has an excellent frame - conflicts on the last Orient Express before the breakout of World War I. The game contains many different nationalities - British, French, German, Russian, Serbs. They all speak their own language (the game is subtitled). There are various discussions of the political situation, the young Russian anarchist's declaring his belief in the class-less society etc.

Interface

According to the manual, Last Express has a context-dependent interface. This basically means that it works like in Myst: You can only activate certain things and perform certain actions, and this is indicated through the shape of the mouse pointer. Dialogue works by simply clicking on a person, which makes the protagonist say something that the player cannot actually control. A single click may result in a long or short conversation. On some occasions, the protagonist becomes part of a longer and clearly narrative passage.

Some things are not entirely logical: When you first enter your compartment and find the body of Cath's friend Tyler, your clothes get bloodstains all over. Tyler's jacket hangs on the wall, but you can only put it on once you have hidden the body.



At first you can't pick up the jacket, later you can.

Within the game world there is no reason for this - it is of course a limitation within the program, and a limitation according to the flow of the game. It is not an open world to interact with.

If you make a mistake or wish to redo some action, it works in a pretty unique way. Using a clock you can rewind time to the point you wish to start from:



Using a clock you can turn back time.

In some cases you do not have the option of being present at a specific time since the game is locked in a narrative passage, and the clock will only let you jump to a point in time where the player can interact.

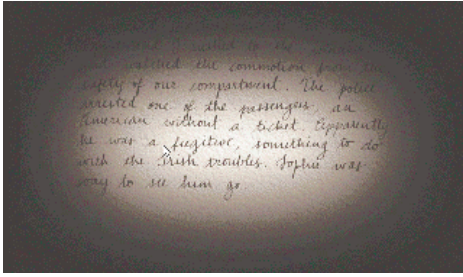
Identification

You assume the role of the young American Robert Cath, boarding the Orient Express only to find that his friend Tyler has been murdered. Cath then decides to pretend being Tyler. This is a sensible construction: As described, there are problems in getting the player to *identify* with another person - to *act* in a situation is very different from simply *understanding* why another person would act in a certain way. There is a symbolic difference between identifying with a character and actually performing that character's actions - even if it is just a game. Last Express does not blindly seek this problem - the protagonist is a blonde hero - but at the same time, an extra effort is made to evade the identification problem. Firstly by letting the protagonist be an American on a European train, leading to a slightly distanced view on the game world. Secondly by letting the protagonist assume another person's identity, thus minimising the potential conflict between the identities of the player and the protagonist.

But Last Express is also about uncovering what happened *before* the game began. This goes for the other character's relation to each other, and it is also relevant to the question of what the protagonist has done previously. On the first night you are introduced to Miss Wolff - still under a false name - and our protagonist tells her "*I believe we've met before.*" But this is never uncovered. The "I" of the protagonist possesses knowledge that is not communicated to the "I" of the player.

Point of view and placement of the player

The game uses a variety of filmic devices: You basically move about watching the world in first-person perspective. When you are in a dialogue with the game characters, you change to an outside view. If killed by an opponent, the game stops. If arrested (you are a fugitive from the law), the game is also stopped, and a female voice reads from a diary describing the events:



A diary explains what has happened to the protagonist.

The diary belongs to a fellow passenger. In this game, death is clearly also connecting to increased knowledge *for the player*.

The placement of the player in *Last Express* is ambiguous. On one hand most of the game is about moving around the train and watching with the eyes of the main character. Accordingly the player is staged as the protagonist. When interacting with other people, you simply click on them, which leads to a narrative passage. In such a narrative passage, Cath says (and does) a number of things not specified by the player, so the player is rather set as a counsellor that can push Cath in different directions.

Program and material

Of the games discussed here, *Last Express* is the game to most successfully combine narrative material and interactivity. Structurally, it is due both to the (more or less) bottom-up construction with interacting characters, but as a game it is in a way closer to the action game than *Myst* is: You often die in *Last Express*. As in *Witness*, the action game, and most interactive fictions, the narrative frame has one positive ending and a plethora of negative endings: Getting caught by the police, killed by opponents, blown up by a bomb. In every case, the game ends and you restart before you committed the last error. So basically it is a simple structure with an ideal line to follow. The point is that within this you can explore the game world, discover the same thing in different ways, listen to a number of conversations.

Placing the game in a setting with strong spatial and temporal limits - a train - makes it easier to create a flexible game world. At the same time, time is (so to speak) meaningful, since the train moves through different countries in a Europe on the brink of war.



Finally, there is good reason for creating the graphics in the style of the 1910's, Art Nouveau - since Art Nouveau has large monochrome areas, the images are easily compressible and take up very little space on the CD-ROM. So this *style* has a technological advantage over photography.

Last Express does unfortunately contain much of the non-repeatability of the narrative. Having completed the game, there is not that much reason to play again, even if there is some attraction in trying to complete the game in a different way. I consider Last Express the most successful attempt in creating a game that uses the themes of the novel or the movie, but *at the same time* evades the worst conflicts between narrativity and interactivity.

Conclusions

Interactive fiction is a Utopian idea for many reasons. There are two phenomena, each well proven: Narratives, linear and fixed sequences, a chain of events that are claimed to necessarily follow each other; variable speed, skips, and a distance between the time narrated and the time of the reading. The computer game, interactive and non-linear, with smaller elements that can be combined again and again, an interactivity that presupposes a *now* where the user has influence, and where the time narrated and the time of the reading are identical.

These two are too different to be simply combined. The interactive narrative is not impossible, that is, works can be created that are alternating narrative and interactive. But it does not create something new, something just equal to the sum of its parts. Which means that the critics are partially right: The computer game cannot create the experiences that a good book or movie can create. And they do seem to lack something based more on traditional story themes and less on motor skills and reaction time.

This conclusion is an elaboration of an alternative utopia of interactive fiction, and an elaboration the main points of the thesis.

An alternative Utopia

The dream of interactive fiction is partly - as discussed in the historical chapter - about games with content close to that of the novel, less focused on violence and action (and physical movement). According to my claim that narration combined with interaction is always unsatisfactory, the question is then whether the same dream can be fulfilled without using narration. Meaning: You refrain from controlling an overall sequence or plot, and rather create a game that takes place in a constant now or present tense. Instead of constructing a number of developments with a number of endings, you construct a number of elements capable of interacting, and thus capable of creating interesting patterns.

Such a hypothetical & utopian game should have the following characteristics:

1. It must be about human relations, about the themes of the novel or the movie.
2. It must not perform narration: Everything should happen in the now of the playing; there should be no jumps in time.
3. It must be possible to interact with everything presented on screen.
4. The game must develop not just on principles postulated; all rules of development must be implemented.

These four points are not especially characteristic of new games, rather most of the development in the first half of the 1990's gradually decreased the player's options in favour of a less and less flexible program and some poor quality video clips. It seems that the technological possibility of creating *images* that satisfied traditional aesthetic criteria was emphasised over the things that these aesthetics do not understand: the program, the interactivity, the game. The urge to make the computer game a *story*, has been so strong that the experience of the user/player was forgotten.

In the alternative utopia we can turn our back to the narrative and rather focus on flexibility and possibilities. But this is not without problems either: When we are dealing with people and their relations, the complexity is much larger than what can be readily simulated. It is at all not possible to make the computer perform human reasoning. The problem is, says Marie-Laure Ryan, that computers lack sufficient cognitive skills, and do not have a body:

The creation of intelligent and believable characters with whom the user can engage in a meaningful dialogue is therefore one of the major design problems facing Interactive Drama. [...] In a system allowing a reasonably large choice of action, this task presupposes extensive situation-analyzing, language-understanding, and language-generation capabilities. Computers have made significant advances in this domain, but they are still a long way from the human level of linguistic and pragmatic competence. The ability to communicate verbally presupposes a vast amount of world-knowledge, which computers cannot acquire on their own since their lack of body deprives them of the proper interface to the world. (Ryan 1997, p.692-694)

There are several ways to get around this. The first possibility is often called the *Eliza effect*, after Joseph Weizenbaum's therapist program *Eliza*. (Murray 1997 p. 68-74, Hofstadter 1997 p.87-89). The program was to some extent created as a parody of the kind of therapist that answers everything with a new question:

ELIZA: Hello. I am ELIZA. How can I help you?

ME: I'm worried about the future

ELIZA: How long have you been worried about the future?

ME: Since I was a teenager & I heard about the greenhouse effect & the ozone layer.

(Beaton 1997)

Eliza does very few things and understands even less. The program simply looks for a number of known phrases such as "I am", and then turns the sentence into a question. So "I am X" is typically answered by "How long have you been X" or "Did you come to me because you are X", etc... But this is often sufficient to give humans the impression of intelligence:

I was startled to see how very deeply people conversing with [the program] became emotionally involved with the computer and how unequivocally they anthropomorphised it. (Which means - projected human qualities onto it.) Once my secretary, who had watched me work on the program for many months and therefore surely knew it to be merely a computer program, started conversing with it. After only a few interchanges, she asked me to leave the room.

(Weizenbaum 1976, p.76, quoted from Beaton 1997)

You shouldn't overestimate the abilities of Eliza. It takes very little for the program to exhibit its lack of understanding; it only works within the basic question-answer format, and only with very few already defined markers.

Another possibility is to adjust the player's expectations of the character's intelligence, making it fit that the program can actually deliver. Computers are better at some things than at others: It is much easier to make a computer seem mentally ill than sane.⁴³ This shouldn't mean that every game from now on should take place among the mentally ill, but that what is *possible* should be part of the design process. There is no point in fantastic ethereal ideas that cannot be satisfyingly implemented.

A third possibility is alienation: The less the player knows of the game environment, the less expectations of what is possible in the game world. That most action games take place in either science fiction- or fantasy worlds is an example of the same thing - the player is unlikely to have extensive experiences with spaceships or demons. The language problem, that the computer is incapable of understanding natural language has been circumvented in a similar way: In part of *The Edifice* (Smith 1998), the player has to communicate with the inhabitants of the game world using the fictive language *nalian*. Accordingly the player is not inclined to create complex sentences, and this also explains the character's failure to understand the player.

All these techniques are in a danger being used too frequently, and of leading to narrative frames that are made too openly to cover over a weak program. This alternative utopia is thus not a universal solution. It introduces new problems, but avoids mixing games and narratives directly.

The narrative and the game

On the other hand, both novels and movies suffer from some basic problems: From where does the narrator get his/her knowledge? But they do seem somehow adjusted to the problem. Some narratives have an explicitly described narrator with potential possibility of actually knowing what is being told. In some cases, the narrator is not described at all. In impressionist literature, the position of the narrator often changes, what is accepted in that genre. On other occasions, texts make unacceptable inconsistencies in the placement of the narrator. The question is then if we might imagine

⁴³ In 1950, the British researcher Alan Turing proposed what is now known as the *Turing test*. A computer and a human have to communicate in writing with a test person. The computer and the person must both try to convince the test person that they are the human. To construct a program capable of normal conversation seems impossible - even the most basic conversation contains vast amounts of world knowledge. The more successful conversational programs are either very confused or act within a very limited area. (Hofstadter 1997, p.71-74). I have attempted the same thing with the installation *Receptionsmaskinen* ("the reception machine", Juul 1995), that allows the user to lead a simple clichéd conversation with an erotic subtext - a parody of a conversation in the bar at a reception.

that some of the problems in interactive fiction are not solved, but seen as inexplicable but yet acceptable characteristics of this new computer game? I do not think so, since the combination of game and narrative leads to unsatisfying interaction, and the interaction *has to* be interesting in a game.

A side effect of this thesis has been that the comparison of games and narratives has pointed to some rarely commented traits of narratives. Narratives are so widely used, both in practice and in the current theoretical climate as source domain for theoretical descriptions, that they are hardly ever compared to other phenomena. It is in itself a surprising that there might be a medium that is not narrative. But the computer game is simply not a medium for translating narratives to and from. There is no translatability between the computer game and other media.

Narrative turns out to be characterised by describing events that are not *implemented*. Narratives simply do not contain the mechanics or dynamic needed to simulate the events they describe. The psychology of the characters may be described, but it is *never there*. There are many human, non-productive forms that differ in actually working: Computer games, other kinds of games, sports.

In a way, every novel is interactive *to the main character*. The novel posits a world that reacts to the main character in a certain way. The main character only can play once. The actions of the main character are integrated into the expression; it is an integrated part of the text. A novel can psychologise the main character, but in the computer game, the reaction patterns of the main character are not fixed. So the game risks having a main character with an unconvincing psychology.

Space also works differently in the computer game and in narratives. The computer game is basically about navigating in space, and the goal of the player is to master this. But the narrative only uses space as far as it is meaningful. In the game, the player has to move all the way from A to B, but in narratives the journey is only described if it adds something to the totality of the narrative. Interactive fiction shares this partly since it often splits the world in discrete locations, thus ignoring some of the space used by the action game. Yet interactive fiction still has an internal contradiction in that the player often has to use much energy moving between points even if it is uninteresting within the story that the game tries to tell.

The reader and the player

Computer games do not necessarily focus on *meaning* at all. This is why computer games can be much more abstract (unsemanticised) than narratives. Computer games only need the flow of moving through space, the concentration on geometric patterns, the possibility of getting better.

I have pointed towards some reasons for playing computer games: the desire of understanding the game structure, and the desire to be able to use this knowledge. There are reasons why humans have these desires. Mammals have an evolutionarily developed curiosity and an ability to play. We basically want to master things, and computer games can satisfy this craving.

Historical perspectives

Even if the computer game has become popular in a historical period often label *post-modern*, it is hard to fit the computer game under this heading: The American literary theorist Brian McHale (1987) has suggested an interesting (but not especially perfect) distinction between modernist and postmodernist literature: Modernist literature is described as *epistemological*; oriented towards knowledge and the conditions for our knowing the world, whereas postmodernism is *ontological*; oriented towards creating fictive worlds. The computer game is kind of hard to place. The player clearly tries to discover how the game is structured - which is epistemological. But creating a game is clearly creating a world, and one that is usually without special reference to anything. According to McHale, the detective novel is the prototypical modernist novel, since it is about gaining knowledge - and as we have seen, many games borrow elements from the detective story. But the prototypical postmodernist novel according to McHale is science fiction, since it creates fictive worlds. A very large amount of all computer games *also* contain elements of science fiction.

Computer games can thus not simply be described as modernist or postmodernist. At the same time, there aren't really any games with a moral to them. On the other hand, we might imagine a game based on Mozart's Don Giovanni: A game world where the promiscuous Don Giovanni is punished by the stone guest, while a virtuous Don Giovanni escapes the fires of hell. This means that there is no special technological resistance to creating a strongly moral computer game. It is rather the player's reluctance against getting caught in a too limited game universe that leads to the slightly amoral character of many games.

The computer game and the non-linear texts are special objects of study because they in a double movement both match and don't match both structuralism and poststructuralism. Every playing/reading of a non-linear text or a computer game can be unique, and this has made George P. Landow and others proclaim this new field as equivalent to poststructuralism as such. A claim that these new texts are even more unstable and differing than other texts. But these traits do depend on some technological phenomena that are clearly more formal than other texts - the program in a computer game is handled by a causal machine. So the non-linearity of the computer game may on the surface level remind us of a popularised deconstruction, but this non-linearity is also the prod-

uct of some formally defined mechanisms, that precisely do not fit under the same heading. And this is why Landow does not discuss *the program*.

The dualism described between the formal program and the interpretable material demonstrates the double character of the computer game as both more fixed and more evasive than the texts we usually study. Such a dualism is uncommon in the humanities today, but it is very useful since it describes an actually existing phenomenon in the computer game; the potential conflict between the construction of the text/game and the material, used for presenting this construction. This realisation helps us telling the difference between the description and the phenomenon, between the advertising and the game before us.

Method

My examination of computer games and narratives has focused on describing the computer game as such. This has been done strategically, with the purpose of examining interactive fiction. This sketches several areas suitable for further investigation: The fact, for example, that computer games are *games*. My theory of computer games might suitably be connected with more overall theories on games, even if the computer game most likely differs on several key points. (The most obvious being the possibility of real time and the combination of different media.) It would also be interesting to work more on describing *multi player* games without defaulting to the sociological.

My overall point about the distance between the game and the narrative has often been met resistance by people presented to it. One reason is that *the narrative* today is a hopelessly inflated term. Another reason is that many take the self-presentation of the games at face value. They *believe* that they fight an evil empire in *Star Wars*. I have tried to create a thesis that didn't simply believe the packaging.

Ending

Computer games are often criticised for not telling good stories, and I have pointed to several reasons why this might be so. I am not saying this to devalue computer games, but to point out that the qualities of computer games are based on entirely different factors: In computer games the player is given a liberty to explore and understand the structure of the unreal game world, and to get better at handling it. Adding more story to this inevitably leads to less freedom and less game, and to the player playing the game fewer times: Having completed *Myst*, there is little reason for playing again, whereas a simple game like *Tetris* is great for playing again.

The computer game shows us that some parts of the world are not captured in the grand category of "the narrative": *Games*. Computer games can be explored and challenged in different ways

that literature. It is due to the *absence* of the narrative, that the average player of *Quake* spends more time with the "text" than the average reader of *Moby Dick*. This means that there is no point in insisting on computer games with a good story, since they *work* the way they are. Computer games are not narratives, but phenomena whose qualities are in exploration and repeatability. In a construction that allows the same small elements to be combined and recombined in new and interesting configurations.

I am not saying that you *cannot* or *should not* combine the computer game with the narrative. I am saying that the combination of the two leads to a number of conflicts. I will not make the claim that these conflicts *necessarily* are devoid of aesthetic value. But if not, this value has been repressed rather than used.

It is then the *strength* of the computer game that it doesn't tell stories.

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