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INTRODUCTION

One of the primary goals of the relatively new and emerging field of computer game theory is to understand the form and structure of computer games [Mateas and Stern]. Since computer games often include elements from literature, movies, and games, an approach has been to consult the theories known from these studies in order to analyze existing computer games. The scholars performing these analyses often come from such different areas that it influences greatly on their understanding of computer games. One of the most dominant discussions has been the polemic about whether computer games primarily are to be seen as a vehicle for storytelling (*narratology*) or whether computer games are games after all, and therefore should not be studied according to narrative criteria (*ludology*). This discussion has been going on since 1997 where Gonzalo Frasca introduced the term *ludology* as a counterpart to the term *narratology* [Gonzalo Frasca]. In my opinion this discussion is too narrow and there is the need for some common ground between these two extremities. I believe that this common ground can partially be build upon knowledge from other areas, but I also agree with Britta Neitzel, who says that specific computer game methodologies are needed in order to start treating computers as the hybrid media they are [Britta Neitzel, p. 227]. In this paper I would like to investigate some of the parts of the classical narratology that in my opinion can be seen in relation to the structuring of computer games, and thereby create storytelling computer games. This will serve as a foundation for the following examination of two computer games that supposedly are built and structured upon narratological principles.

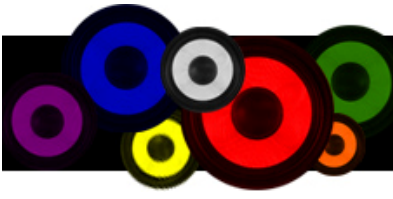
PROBLEM DEFINITION

In relation to the above stated topic, my working questions have been the following:

- How can narratological principles be used to structure computer games
- How does such a structure affect our understanding of computer games?

DELIMITATION

Due to the huge variety of computer games and their different 'narrative' situations I will have to narrow my focus of attention down. The focus of this paper will be on single-player computer games. Furthermore, computer games involving narratives tend to come from genres such as adventure- and roleplaying. Because of this my examination of narratological principles used to structure computer games, will be centred on games that belong to such genres [Britta Neitzel, p. 235].



METHODOLOGY

The purpose of this paper is to examine some of the structural elements within narratological theory and afterwards examine a couple of supposed storytelling computer games for their use of these or similar principles. The goal is not to point out all relevant narratological principles in relation to computer games, but rather to gain knowledge of narratological principles that possibly can be transferred from narratology to computer games in order to structure these.

I will start out by sketching some fundamental narratological terms and try to relate those to computer games, in order to understand the role of the player from a narratological point of view. I will then take a look at a couple of computer games that have tried to use narratological principles to structure their games, in order to see to how this affects our understanding of computer games.

NARRATOLOGY

In this chapter I will pick out some fundamental narratological principles and try to relate those to computer games, to understand the role of the player from a narratological point of view.

NARRATIVE

According to the film theorists Bordwell and Thompson a narrative is considered to be a chain of events in a cause-effect relationship occurring in time and space [Bordwell and Thompson, p. 69]. The recipient of this information (the player) tries to structure the given information through the actions of the discourse into something that gives meaning to her. Bordwell and Thompson describe this process the following way:

"The mind is never at rest. It is constantly seeking order and significance, testing the world for breaks in the habitual pattern." [Bordwell and Thompson, p. 48]

Britta Neitzel mentions that a story does not need to be fully realized in order to be recognizable as according with the narrative canon:

"Missing segments are expanded upon, as shown by cognitive research dealing with processes related to order and the development of meaning in narratives."
[Britta Neitzel, p. 233]



According to Mandler and Johnson every human being learns certain schemata for recognition of narratives during the course of a lifetime; these schemata are primarily based upon the frequent hearing of stories - and hereby the knowledge of the pattern of events in stories, including their beginning and end. But also the knowledge of causal relationships and various sorts of effects of actions known from the experience of the real world affect our schemata [Britta Neitzel, p. 233]. Shortly put, these schemata serve to fill in the blanks when some parts of a story do not appear. This suggests that a narrative can omit certain parts and possibly still make sense to the recipient. I see this as a possibility to tell stories via computer games, since computer games due to their interactivity are not suitable for classic linear storytelling principles.

STORY AND PLOT

The term story is traditionally used about all the events in the narrative, both the explicitly presented ones, and the ones that are inferred. The term plot is used to describe everything that is visible and audible present to us [Bordwell and Thompson, pp. 69-74].

According to Britta Neitzel, the term plot often refers to the arrangement of the events, which serve to create a certain order. This can either lead the player in a certain direction so that she can construct the story, or be obstructed in doing so – depending on the developers intention [Britta Neitzel, p. 232].

THE FUNCTION OF THE PLAYER

One of the main differences between movies and computer games is that the cause-effect relationship is triggered by the player of the computer game. This means that the process of playing a computer game to some extent corresponds to the process of narration. By playing a computer game you leave traces on the level of discourse, which makes up certain relationships with the level of the story, e.g. in respect to temporality. So the major difference is the fact that events in computer games only occur when triggered, opposite in movies where the plot moves on in a linear fashion [Britta Neitzel, p. 236].

In movies the recipient sees a narrative produced by somebody else, interprets it, and then constructs a story on this basis. But in computer games the concrete order of the events is established while playing the game, which also makes the player responsible for creating the plot, in addition to the interpretive task. This raises the question of how a plot can be created by the computer when the possibility of player interaction could ruin the flow.

Espen Aarseth has defined three user functions that among other things can be used to describe the relationship between the user and the narrative:

- *The explorative function* is in use when the player chooses certain routes and explores the virtual world.
- *The textonic function* refers to situations where the player permanently alters the game, i.e. the player changes the program itself.
- *The configurative function* influences on the surface level of the game, i.e. when killing opponents or creating a certain plot.

The explorative- and the configurative functions are related to the narrativity of a computer game, since the player chooses from the possibilities given in the computer game, and actualizes these by the process of playing the computer game. Britta Neitzel stresses that this process of temporalization is also found in narratives. It resembles the reading of literature and the projection of films. In computer games the input from the player causes the computer to process the sequence of events. The unfolding of the narrative in computer games therefore relies on a combination of the organization of the possible sequential and causal relationships in the algorithms, and the player performing the explorative- and configurative function [Britta Neitzel, pp. 239-240].

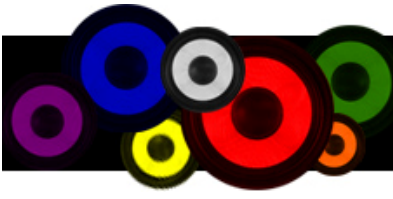
Since the player determines what comes to pass, Britta Neitzel suggests that the role of the player could be described by the term *implied author*. The term stems from literary theory, where the implied author consists solely of what can be deduced from the text [Wikipedia¹]. The implied author creates the text on the one hand, but is on the other hand dependent on the text as well. According to Britta Neitzel this is exactly the functionality found in the implied author of a computer game:

“He or she initiates certain sequences but not the entire text in the sense of a real author, because the chain of events is dependent on the virtual world with its possibilities and restrictions, which are not brought forth by the implied author, but dictated by the program and the hardware” [Britta Neitzel, p. 240]

Britta Neitzel adds that this also explains why many players see themselves as the originators of the events and as decisive participants in the story.

But someone must set up these possibilities and restrictions. The narrative instance that then has this superiority, and thereby is responsible for forming the virtual world, she suggests should be called the *implied creator*. The implied creator is responsible for the setting, the characters, and the happenings in the world. This covers e.g. the characteristics of the avatar, as for example their looks and modes of taking action, as well as the hindrances and restrictions to action. The implied creator also covers the authority of the *intrigant*, a term invented by Espen Aarseth. The

¹ Search criteria: 'Implied Author'



intrigant is: *"the one who spins the web of intrigue from which the player has to wriggle out."*
[Britta Neitzel, p. 240].

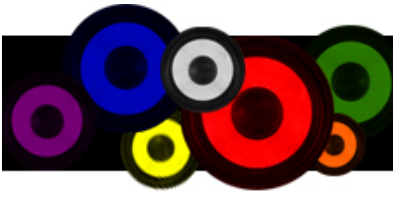
In this way the implied creator is responsible for creating the rules and thereby the possibilities and presenting them as options in the program. The implied author then chooses among these options in the game, and thereby produces the link between all the relevant events in the plot. Without the implied author there would be no plot - only a set of rules. And without the implied creator there would be no world to play in.

In order to get an overview of the levels of representation in a computer game Britta Neitzel uses the following division:

1. The world design - the rules of the virtual world (implied creator)
2. The visual design – presentation of the virtual world (implied creator)
3. The arrangement of action (implied author)
4. The temporal design – temporal relationship between story and discourse (implied creator)

Britta Neitzel concludes that it does not seem feasible to simply adopt the established model of narrative authorities used to study literature and apply these to computer games [Britta Neitzel, p. 241]. According to Britta Neitzel the player seldom performs textonic function (cf. p. 5) in computer games, since she would then be capable of creating a new game in the most extreme instance [Britta Neitzel, pp. 239-240]. This means that the functions of the implied creator seldom are available to the player of the computer game.

I would like to examine a couple of computer games that, in each their manner make use of some of the above mentioned narratological principles to structure their computer game. Afterwards I would like to discuss some of the possibilities and hindrances that arise from such an approach.



NARRATOLOGY IN PRACTICE

In this chapter I will take a look at a couple of computer games that in my opinion have tried to incorporate some of the narratological, structural principles mentioned above.

FAÇADE²

Like many contemporary games, *Façade* is set in a simulated world with real-time 3D animation and sound. It offers the player a first-person, continuous, direct-interaction interface, with the ability to pick up and use objects. Visually the story world consists of a simple 3D model of a young couple's apartment, simple 3D models of the couple Trip and Grace themselves, and a few props and objects. The way *Façade* differs from most other computer games is by the player interaction through natural language processing based on keyboard input, and the way the narrative is structured. The narrative is divided into several, small *Story Beats* which are shuffled depending on the player's actions during the game. The player's actions influence the *Story Beats* on a local level, but also the entire story on a global level. In this way earlier actions will define which *Story Beat* the player will experience next. When a *Story Beat* ends and when a new one begins is transparent to the player. On average, each *Story Beat* lasts about one minute. The beats are flexible and mutable and the structure and composition of them is controlled by what is called a *Drama Manager*. The idea is that even though the game is fairly short, compared to the average length of games today, it is very re-playable. Only after 6-7 times through should the player begin to experience that content and situations are being repeated.

The interesting thing, in relation to this paper, is the way *Façade* uses the *Story Beats* to introduce plot elements. The plots points are introduced to align to a well-formed Aristotelian tension arc, i.e. inciting incident, rising tension, crisis, climax, and denouement etc. The structure is flexible since the *Drama Manager* contains many small *Story Beats* that can be combined in many ways. The idea is possibly build upon the knowledge of the human mind's capability to fill in the blanks in stories to give them form (cf. p. 3).

The fact that destructive player interaction possibly could ruin the work of the *Drama Manager* has been handled by letting the characters, Grace and Trip, attempt to cover up and retain the integrity of the dramatic arc. However, if the player persists in acting overly inappropriately, for believability's sake Grace and Trip are forced to give up and throw the player out of the

² For more information about *Façade* see Appendix 1, or www.interactivestory.net



apartment, ruining the drama, and thereby ending it prematurely. This reaction from the Drama Manager is according to Mateas and Stern necessary for true player agency³:

"...if players are given an interface with the expressive freedom to ruin the experience, they should be free to do so if they wish." [Mateas and Stern, p. 5]

In this way Mateas and Stern claim to have come up with a possible solution to the problem that typically arises in storytelling computer games, with the player being able to disrupt the narrative structure with her interaction [Mateas and Stern, p. 3].

In *Façade* the player certainly functions as an implied author, as suggested by Britta Neitzel, since the player interaction, both now and from the past, determines which Story Beat is effectuated next. Here you can talk about global player agency, since player choices (the explorative- and the configurative functions) affect the entire narrative.

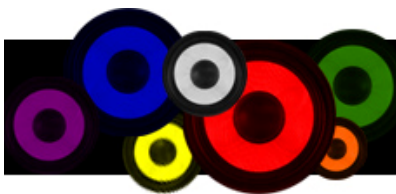
STORYTRONICS⁴

Storytronics does not seem like most other computer games. It has not been released yet, and therefore it was not possible for me to try it out before handing in this paper. It is scheduled to be released during January 2007. Chris Crawford, who is the kingpin of the project, refers to it as "a simulator that generates stories". *Storytronics* borrows some terminology from theatre in order to create, what Chris Crawford describes as something completely different than computer games, namely interactive storytelling. *Storytronics* differ from most other computer games by approaching the task from a more stage-play oriented point of view. *Storytronics* is a tool that allows the user to either create or play a story - as *Storybuilder* or *Actor*, respectively. As the *Storybuilder* you create the *Storyworld* for the game, whereas the actors can be both human and computer players.

Chris Crawford has thereby made it possible for the player to carry out the function of the implied creator. The function of the *Storybuilder* in *Storytronics* is very closely related to Britta Neitzel's description of the implied creator, since the *Storybuilder* is the one who defines all the dramatic components and dramatic principles that define the possibilities for the *Actor*.

³ "A player has agency when she can form intentions with respect to the experience, take action with respect to those intentions, and interpret responses in terms of the action and intentions; i.e., when she has actual, perceptible effects on the virtual world. " [Mateas and Stern, p. 3]

⁴ For more information about *Storytronics* see Appendix 2, or www.storytron.com



According to the overview of levels of representation in computer games provided by Britta Neitzel (cf. page 6), this would look the following way:

1. The world design - the rules of the virtual world (*Storybuilder*)
2. The visual design – presentation of the virtual world (implied creator)
3. The arrangement of action (*Actor*)
4. The temporal design – temporal relationship between story and discourse (*Storybuilder*)

The overview suggests that the Storybuilder to some extent takes over the role of the implied creator. However, this is not entirely true, since the Storybuilder is building her story from options made available to her by the software. I.e. there is a limit to what the Storybuilder can do. However, this does not change the fact that the Storybuilder, in relation to Espen Aarseth's three user functions, has textonic function. Whereas the Actor's function in Storytronics resembles that of the player in a more 'mainstream' computer games, e.g. the explorative- and the configurative function (cf. p. 5).

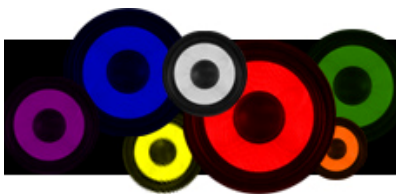
This structure makes it possible for the player to create her own universe in which stories can unfold. As the Storybuilder you do not create specific stories, but instead you create spaces in which certain stories can unfold, depending on the Actor's discourse.

DISCUSSION

In this chapter I will try to sum up and discuss upon my findings in the previous chapters: 'Narratology' (cf. p. 3) and 'Narratology in Practise' (cf. p. 7)

I have examined two examples of computer games that to some extent utilizes tools from narratology in order to create a structure in the games. The idea behind Storytron is to make the player a *Story Builder* (implied creator). This changes the player function, in relation to most other games, since this makes it possible for the player to create her own story world, and thereby narratives by giving her textonic function. However, giving the player a piece of paper and a pencil and encouraging her to write stories is in my opinion not the answer to the problems regarding the issue with narrative vs. interaction. To me this just seems like a way of letting the user create *Emergent Narratives*⁵. So what game designers could do instead is to construct an architecture that allows for narrative structure.

⁵ "Stories... that emerge from the interaction between the player and the environment the author created."
<http://www.mediamatic.net/article-9529-en.html>



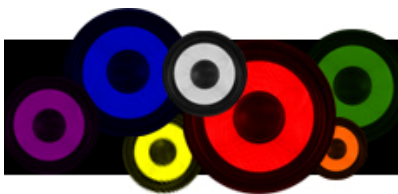
In *Façade* the *Drama Manager* exposes the player to specific *Story Beats* in order to fit the plot to an Aristotelian tension arc. In order to achieve this it has been necessary to create a brand new game architecture that provided authorial support for narratological concepts, such as e.g. *character* or *plot*. According to Mateas and Stern the reason that attempts on narrativity in computer games hitherto have not been successful is that narrative is commonly reduced to a linear overlay on top of the actual game mechanics [Mateas and Stern, p. 10].

Mateas and Stern's work with *Façade* suggests the possibility of narrative structures that allow for both local and global agency, although their practical implementation (the game *Façade*) lacks longevity, because only 27 of the so-called *Story Beats* have been implemented. The fact that *Façade*, to some extent, permits the possibility of narratological structures in computer games, suggests that the assumption made by ludologists, about the incompatibility between narrative and player agency, can be proven wrong.

I was surprised to see how their practical approach to a theoretical problem could bring new information into the debate. They do themselves point out that sometimes building experimental games (like *Façade*) offers an alternative methodology for researching and understanding games, which is beyond what can be understood by playing and studying existing games alone. They also stress that building games can offer new perspectives on existing art forms and genres [Mateas and Stern, p. 1].

This raises the interesting question whether computer game theory should be based solely on analysis of existing computer games or if a combination with a more experimental approach would be more suitable. As mentioned in the introduction, computer game theory is a hybrid field, and the idea of exploring the potential of computer games by also developing experimental games sounds interesting to me. As I see it, this provides for the possibilities of building games within already sampled regions of design space to gain a more complete understanding of these regions, without relying on only what commercial game developers happen to provide. But it also allows for the possibility of exploring new regions of design space that could help uncover game forms that commercial developers have not yet ventured into. In this way it would be possible to directly experiment with some of the more vexing questions in game studies, such as the narratology vs. ludology debate, helping the field avoid making taxonomic and prescriptive errors.

Though it should be kept in mind that an experimental approach to the study of computer games might end up changing the understanding of the problem in question, and thereby creating what Rittel and Weber refer to as *Wicked Problems* [Mateas and Stern, p. 7]. But this only stresses the fact that an experimental approach will help the study of computer games moving on.



Yet another advantage of the combination of a theoretical and experimental approach in the field of computer game theory could be bringing the scholars closer to the developers, which has also been pointed out as a problem at e.g. the Game Developers Conference.⁶

CONCLUSION

In the course of this paper I have seen how the narratological principles can be applied to structure computer games. It is fairly easy to find computer games that involve some sort of narrative, but mostly the narrative is an overlay on top of the game mechanics. Even though Storytronics borrows a lot of its terminology from theatre, the computer game itself does not seem to have a clear narrative. However, the game makes it possible for the user to perform textonic function, since the Story Builder can define the dramatic components and dramatic principles that define the possibilities in the Story World. Unfortunately I have not been able to play the game, since it is scheduled to be launched during January 2007. From the descriptions available online, Storytronics does not seem to bring anything new into the debate of whether narratives can exist within computer games. But the fact that Storytronics borrows heavily from the narratological taxonomy, and the possibility to act as Story Builder at least suggests a narratological approach in the structuring of the game. The extent of this could show from a session with the actual game.

Façade approaches the topic of this paper in an experimental manner, which I had not foreseen the possibility of before writing. I am inspired by the practical approach, even though the game itself clearly appears experimental. The idea of creating an architecture that allows for storytelling, instead of trying to apply a narrative on top of a set of game mechanics that primarily focuses on the game play, is a way of thinking that possibly could make computer games more suitable for narratives.

In my opinion we need a bridging between the different scholars, but also between theoretical scholars and ones performing a more practical approach, to truly discover the potential of computer games.

Date:

Signature: _____

⁶ The issue is e.g. discussed in this article: http://www.gamasutra.com/features/20060322/dillon_01.html

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APPENDIX 1

SHORT DESCRIPTION OF FAÇADE

The back story of Façade is that you are a friend of a young couple, Trip and Grace, using your own name and gender. The game starts at the beginning of a visit at the couple's apartment, and it soon becomes apparent that their marriage is in trouble. As the evening elapses, the couple engages in various discussions and arguments with their relationship as the centre topic, and you, as their friend, become entangled in the whole mess. How you react is up to you. You can be diplomatic and try to help them repair their marriage, you can be destructive, you can pick sides, etc. Your actions have a significant influence of how the evening progresses, and ultimately what happens between Trip and Grace.



Figure 1 – Screenshot from 'Façade'⁷

The characters Trip and Grace are controlled by artificial intelligence agents, and the player mainly interacts with them through natural language processing, based on keyboard input. They are designed to create drama by involving the player in their psychological games, and are able to respond to questions, provocations, etc. They keep track of the player's current affinity with each of the characters, the overall level of tensions, the specific information revealed about their marriage and more [Façade website].

The developers describe Façade in this way:

"Façade is an attempt to create a real-time 3D animated experience akin to being on stage with two live actors who are motivated to make a dramatic situation happen. Instead of providing the player with 40 to 60 hours of episodic action and exploration in a huge world, we want to design an experience that provides the player with 20 minutes of emotionally intense, unified, dramatic action." [Façade website]

⁷ Image Source: <http://www.interactivestory.net>

APPENDIX 2

SHORT DESCRIPTION OF STORYTRONICS

The human actor usually plays the protagonist or villain, whereas the computer plays the other actors. The Storyworld evolves around dramatic components and dramatic principles that define the possibilities in the story. All actor actions are called *Verbs*. The Verbs are defined by the Storybuilder and can be performed by both user controlled actors and computer controlled actors. Computer controlled actors have some inclinations added to their *Options*, which make them more inclined to choose one Option over another, whereas human controlled actors can choose freely between the available Options based on the player's inclinations. The computer controlled actors also have to-do lists which keep track of the actors Plans. When a to-do item is performed it is crossed out on the *Plans* list, and added to the *Events*, which holds information on past events. The action takes place in locations called *Stages*, and may be aided by *Props*.

According to the creators of Storytronics the main difference between Storytronics and other so-called interactive storytelling computer games is the following:

"Instead of creating a story, you create dramatic possibilities. Instead of planning a character's behaviour, you imbue an Actor with a unique personality, and send them into the storyworld to behave according to it. Instead of creating a plotline, you define special principles that maintain the narrative's form." [Storytron website]

The Verbs are used to describe the possible dramatic actions, like e.g. a kiss, a demand, or an advice. When a Verb is defined it can be used indefinitely, e.g. by all characters. The use of the Verb is dependent on the context and on the Adverb used. As stated by the Storytronics creators:

"When more than a thousand Verbs are used together, the richness of possible behaviours stretches across horizons. When each Verb also defines what kinds of consequences it has and what reactions it may warrant, these possibilities can be organized into complex cause-and-effect relationships that allow the interaction to maintain a coherent and narrative form, no matter how adventurous the player's behaviour." [Storytron website]

In this way Storytronics aims at making the users able to create stories by cause-effect chains, which Bordwell and Thompson mentioned as a key component in narratives. (cf. p. 3)