Struggling towards a Goal
Challenges & the Computer Game

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To my brother Bo, who initiated it all

I would like to thank Frank, Bo, Rie, and Anne Marie for their help and support.

Abstract

In a fundamental sense the following is a contribution to the discussion of how computer games should be understood and analysed. As a relatively new field of study computer game studies need to develop and cultivate appropriate theoretical frameworks and analytical concepts. Based on empirical observations this thesis seeks to contribute to the effort at building the foundations of the field.

Since the rise of academic interest for computer games is yet a recent event both the subject of study and some of the general positions within the field will be introduced. Moreover, as a notion of genre is central for the choice of example games, principles for computer game classifications are discussed on the ground of the work of Mark J. P. Wolf as well as Simon Egefeldt-Nielsen and Jonas Smith.

The focus of this thesis is the notion of challenge and its vitality for computer games. Here it is claimed that challenge is at the core of computer games and that it is the motor of game dynamics. The theoretical starting point for the following is the understanding that computer games are systems designed to facilitate and motivate playful activity. This view will be debated

and developed in relation to the play theoretical considerations of, to mention the most influential, Hans-Georg Gadamer, Johan Huizinga, and Roger Caillois.

A ludological stance to computer games such as this has often been seen in opposition to an approach to computer games based on narratology. However, one goal for this work is once and for all to reconcile these concepts. Showing that each concept is indeed relevant for the understanding of computer games – the former in more cases than the latter – the notion of challenge will be shown to be able to contain both. The other two tasks that this thesis seeks to achieve are, firstly, to demonstrate the importance of challenges to computer games, and, secondly, to create formal challenge categories that will enable further analysis of the use of challenges in computer games.

The ontological and epistemological understanding that informs this work is based on phenomenological thinking. However, this is not in the first hand an attempt at a philosophical study. While the insights of phenomenological philosophy underlie the present work this investigation is phenomenological mainly because it is descriptive in a reflective way. The phenomenon of challenge will be regarded on the basis of general experience of challenges and in relation to the play theoretical thinkers mentioned earlier. Moreover, as challenge is here investigated in relation to computer games, the observations will even be referring to an empirical basis of six example games as well as to

general experience with computer games. In order to establish a common ground the chosen computer games have all been described in some detail.

Seeking to lay a ground for further investigations into the relation between challenge and computer games and in order to create a shared vocabulary, the types of challenges present in computer games are described. Thus, five categories and their respective sub-classes are created and thoroughly discussed. All computer games, it is argued, may be seen as structures that link these challenge types at different rates of openness and at different rhythms. Taking into consideration both Jesper Juul's notion of emergent and progressive computer game structures as well as Claude Bremond's speculations about narrative logics, a typology of the structuring principles of computer games is proposed. This is partly intended as a tool for further studies, partly as a way to begin thinking about the relation between the challenges of computer games and the construction of meaning carried out by the player.

4

Table of Contents

This thesis amounts to approximately 82 standard pages based on word count.

9

10

Preface

12

> "Computer games are constructed, simulated, rule-based micro-worlds – that contain enormous amounts of data, chaotically complex life forms, and impenetrable labyrinthine routes. Where everything is apparently possible – but nothing is arbitrary. For *everything in reality* is controlled by precisely defined (game) rules laid down in advance with a certain comprehensible – albeit often peculiar – internal coherence."
>
> Jens F. Jensen, my translation, original emphasis

In seeking to understand more about the computer game's special characteristics one is, as the epigraph implies, confronted with an interesting paradox. As simulated environments computer games seem to make sense to the player in the same way that the immediate physical surroundings do; not as a text that stands for something else, but as objects, borders, surfaces, individuals, threats that may be handled or interacted with. On the other hand, there is no denying that computer games are (relatively) finite media products that have been determined and created by a producer.[1] In this sense, the computer game is a text. Thus, computer games may both be analysed as meaning-communicating textual objects and as rule-based systems that motivate and facilitate action. Whereas the former approach may seem the obvious to a detached scholar within the humanities, most game players in the

[1]In a sense no media product is ever finite as the reader, viewer, or user co-constructs the text as they interact with it. But books, movies, and computer games distributed via discs or CD-ROM may be seen as relatively finite as they have been released in an official version that is regarded as finished. On-line computer games in which the players together create the game and simulated world as they interact are another matter. Moreover, it is more and more common for game producers to provide some kind of

heat of the action meet the computer game in the latter frame of mind. Thus, while computer games may be read as texts this is neither the way they are commonly used nor what they have been primarily created for.

Game players use computer games in another way than readers a novel or viewers a television show. While at a more or less conscious level they do co-construct a textual meaning, the primary mode of response consists of physical reactions based on immediate phenomenological interpretation, which are feed into the game system and answered in a continual cybernetic feedback loop. This crucial factor should not be overlooked in analyses of the computer game as phenomenon.

The challenge perspective

The computer game industry is rapidly growing. In the United States adults in increasing number now choose to play computer games rather than watch television (Poole, 2000). Moreover, it is well known that computer game players may continue for hours and hours, training moves, improving tactics, constructing virtual environments, and working towards solving mysteries.

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construction set even with "finite" games, allowing the users to create new gaming environments that may be added to the original game and shared amongst gamers.

What is it that seems to make computer games so compelling? The answer to this question, I believe, is challenge.

The concept of challenge hereto has not been closely examined in relation to computer games. Nevertheless, challenge is a central element of playful activity according to many play theorists. Thus, investigations into the nature of challenge may well provide a greater understanding of the computer game. Moreover, new concepts and theoretical frameworks may be developed during the course of such an undertaking, and the need for this is great within the growing field of computer game studies. The attraction of dealing with a relatively new subject of study such as computer games seems to me at the same time to pose the greatest problem. The lack of a commonly agreed on theoretical foundation leaves the scholar to construct appropriate frameworks and concepts. This is a delightful challenge, but even means that there is not much foundation to safely rest upon.

Stating the problem

As may be clear from the above, this thesis seeks to accomplish several things. Firstly, the intention is to focus on challenges in relation to computer games in order to demonstrate the concept's relevance for the latter. Secondly, as the field of computer game studies still needs to develop analytical concepts in

order to build a theoretical framework specially aimed at computer games, this work will attempt to create coherent and useable challenge categories based on empirical observation. Thirdly, a focus on challenge as a central aspect of computer games may be instrumental in reconciling the, at times opposed, ludological and narratological approaches to computer games.

The purpose of the following, then, is to regard challenge in relation to computer games within a play theoretical framework in order to:

1) **clarify the concept of challenge in order to demonstrate its relevance and vitality to computer games;**

2) **on the ground of empirical observations describe and categorise the challenges posed by computer games thereby facilitating the development of formal concepts and laying a foundation for further investigations;**

3) **demonstrate how seeing computer games as challenge structures may show the relevance of narrative to many computer games without allowing narratology to colonise the field.**

Thesis overview

As the study of computer games is still a relatively recent undertaking within the humanities, the first chapter is dedicated to a brief introduction to the

field, the subject of study, as well as to my theoretical positioning within it. Also, the basics of computer game genres will be touched upon.

Although this is not foremost a philosophical work it is still important to consider the ontological and epistemological understandings underlying it. The second chapter will give a general account of phenomenological thought and method as it is used here.

The empirical foundation of six example games will be presented in the third chapter. In order to provide a common ground of reference the computer games are described in some detail.

Throughout this thesis, computer game use is seen as a type of playful activity. In order to lay a broad play theoretical foundation, play as a phenomenon is discussed in chapter four followed by considerations regarding formally ruled games.

Chapter five will regard the central concept around which this thesis evolves. Challenge will here be touched upon, first as a phenomenon and, then, in relation to playful activity and computer games.

The construction of challenge types will be carried out in the sixth chapter, which will be opened with relevant methodological considerations.

As challenges appear in computer games in relation to other challenges, structure is a notion that should not be overlooked in this context. Chapter

seven discusses various ways of structuring computer games. Moreover, structuring principles based on this work are introduced.

The thesis will be closed by a discussion of the raised issues, which will lead to a conclusion regarding the threefold problem stated in the preface. Suitable subjects for further investigation will be touched upon here as well.

19

20

Enter the Field

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> "In the 1980s, videogames were indeed mainly a children's pursuit, but now games cost between twenty and fifty dollars and are targeted at the disposable income of adults. The average age of videogame players is now estimated to be twenty–eight in the United States; one 200 survey reported that 61 percent of all U.S video–gamers are eighteen and over […] More grownups choose to play videogames rather than watch TV or go to the movies. According to the European Leisure software Publishers' Association, the British videogame market already grosses 60 percent more than the total movie box-office receipts, and 80 percent more than video rentals."
>
> Steven Poole

The field of computer game studies is still rather new, as the subject of study only reached wide distribution together with various types of digital equipment in the middle and late 80's, although the first computer game, *Spacewar*, was invented as early as 1962 (Poole, 2000: 15).[2] Studies of computer games within the humanities are concerned with as varied topics as gender, learning outcomes, semiotics, cultural practices, narrative, and play. Thus, the field should not be regarded as a unified one but rather as a wide array of different approaches, which, at times, have conflicting interests. However, before discussing the field of computer game studies further, what is meant by "computer game" shall be clarified.

[2] Steven Poole (2000: 15-44), Mark J. P. Wolf (2001: 35-48), Egefeldt-Nielsen and Smith (2000: 32-57), amongst others, have provided excellent overviews of the history of the computer game.

The computer game

The term 'computer game' is here used in a general sense to cover all types of digital games played via some kind of computer system, such as PC, Mac, Playstation, GameBoy, Xbox, and the like. It may be confusing, however, that the term 'videogame' notably within the U.S tradition is used in the same meaning, whereas these researchers see computer games as a subcategory that only contains games that may be played on a PC or Mac. With regards to the various available game platforms the difference is great between the computer games developed for each platform on the program level, but for the player the difference between the various platforms is merely visible in the graphical output (due to differences in processing power and screen resolutions) and the type of controls used. The computer games used here as empirical foundation are all PC based.

In simple terms, a computer game is a digital program that executes pre-defined rules in response to players' input thereby simulating some kind of virtual environment. The situation of playing, thus, takes the form of a continuous feedback loop in which, on the interface level, the player reacts on game output by responding with input. This input is then analysed according to the rules that define the game, a process during which the responding output is determined and then sampled in order to be processed (fig. 1). While

the player reacts on the audiovisual expression that is delivered via monitor and speakers, the underlying program and databases are what she in reality is interacting with. The part of the interface that the player uses actively in her response is the keyboard and/or joystick and/or mouse. These she may operate in order to, for instance, choose between interface options, perform various actions (such as investigating, opening, or using simulated objects), or direct movements in different directions, to name some possibilities.

Fig. 1 A simple model of the computer

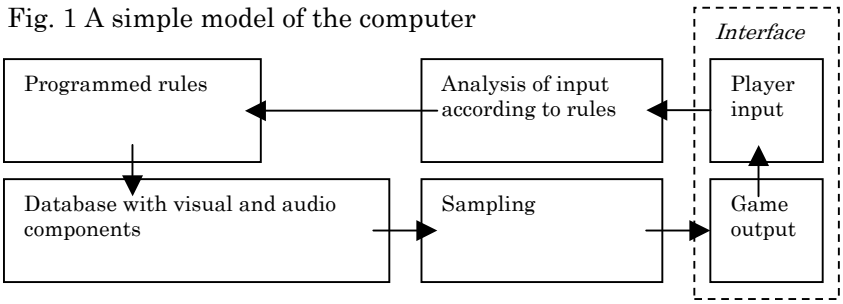
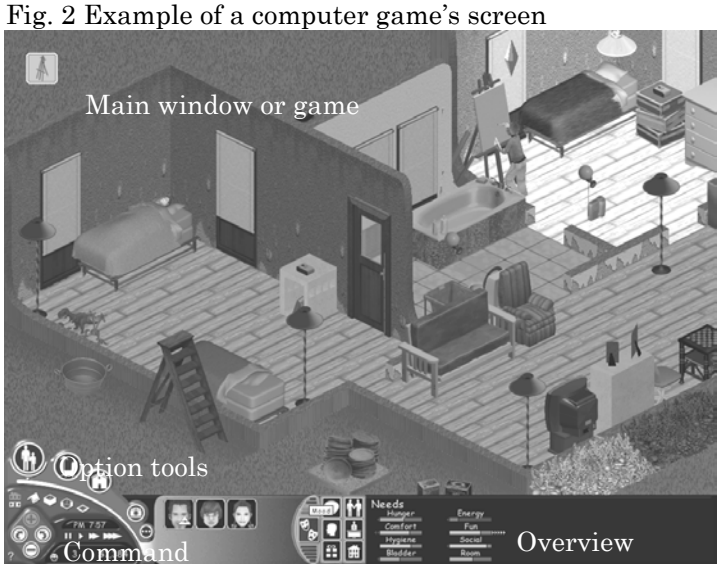


Fig. 2 Example of a computer game's screen



Although there is no such thing as the typical computer game, since games differ greatly from genre to genre, I shall still try to briefly describe the screen interface

that faces the player (fig. 2). All games feature some type of main window, often called the game screen, where the visual enaction of the game is presented. In addition most games will have several types of option menus and overview functions. Some interface functions are external to game playing, enabling the player, for instance, to save and load or to set game configurations, such as sound level, resolution, gamma correction, game difficulty, and violence level, to name a few. Other interface elements facilitate in-game actions. Commands may be issued via a menu lists. Maps and charts will provide different types of overview. Dialogue windows will facilitate communication with non-player characters, and the inventory window will provide an overview over stored objects and may facilitate resource management.

Reservations

Although multiplayer and online games have grown increasingly popular, as they add an enhanced social side to game playing, I shall be concentrating on the single-player side of computer games in order to avoid the increased complexity which the social factor will inevitable add to subject of study. While the socio-cultural aspects of computer game playing are highly interesting, the topic evades the scope of this thesis. Likewise, I shall not consider any types of

computer games that are direct adaptations of traditional card and board games, such as chess or solitaire. While these are clearly formally ruled games, I find that they only offer little illumination with regards to the unique nature of computer games.

When dealing with the computer game, I shall, to a great degree, describe the subject as would a player. This is not due to a naïve interception of the games as represented via monitor and speakers. I am well aware that the screen interface, including the game world, in reality consists of strings of code, which through electrical input via the mouse and keyboard are manipulated according to other strings of codes. Accounting for this fact in writing, however, will be a rather tedious affair. Thus the description: "the pixels that signify the avatar[3] through the player's input is made to simulate movement towards the pixels that signify an object in the simulated world" may be more correctly accounting for what is technically happening, but: "the avatar is made to pick up and examine an object" is a better description of what the player experiences while playing. The choice of phrasing, then, is both a matter of convenience as well as a sign of the phenomenological approach taken to the subject of study. With regards to gaming jargon, I have decided, for the benefit of prospective readers with little knowledge of

computer games, not to use conventional abbreviations such as CRPG, NPC, and the like, but rather to write the words in full.

Computer games and virtual environments

A central aspect of the computer game is the arena for play, which is simulated via the audiovisual output and which may be manipulated via mouse/joystick and keyboard. This playground, although purely symbolic, somehow represents a dimension in which the player may act via some controllable in-game entity or commands. As William Gibson famously expressed in an interview, during playing the player may be so engrossed in her game, that she almost reacts to the simulated space as if it was real:

> "I was walking down Granville Street, Vancouver's version of "The Strip," and I was looking into one of the video arcades. I could see in the physical intensity of their postures how rapt the kids inside were. It was like one of those closed systems out of a Pynchon novel: a feedback loop with photons coming off the screens into the kids' eyes, neurons moving through their bodies, and electrons moving through the video game. These kids clearly believed in the space games projected." (William Gibson cited by McCaffrey, no date: not paginated)

The space which is not there, but still treated "as if", is in contemporary terms a virtual space.

Through time the notion of virtuality has metamorphosed from denoting virtue and might in the Middle Ages to being a highly ambiguous term mainly

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[3] The term 'avatar' refers to the anthropomorphous entity directed by the player during the game. The word is derived from the Sanskrit term 'avatara', which means descent, referring to the incarnation of a

associated with computer technology. Thus, according to Marie-Laure Ryan, it is important to discern between the philosophical concept of virtuality and the VR (Virtual Reality) technology made possible by computers. The philosophical concept even carries its own ambiguity:

> "As we see from the lexical definitions, the term "virtual" encapsulates two distinct concepts: the largely negative idea of the fake, illusionary, non-existent, and the overwhelmingly positive idea of the potential, which connotes productivity, openness, and diversity." (Ryan, 1999: 89)

Virtual worlds, then, as the ones featured in computer games may both be seen as fake "realities" or as sites of potential and possibility.

Returning to the nature of the simulated space of computer games, Esben Aarseth notes what he calls computer games' preoccupation with the representation of space:

> "[…] what distinguishes the cultural genre of computer games from others such as novels or movies, in addition to its rather obvious cybernetic differences, is its preoccupation with space. More than time (which in most games can be stopped), more than actions, events and goals (which are tediously similar from game to game), and unquestionably more than characterization (which is usually nonexistent) the games celebrate and explore spatial representation as its central *raison d'etre*." (Aarseth, 1998: not paginated)

The notion of representation, in this case, is crucial. Aarseth stresses that the projected universes of computer games are symbolic and rule-based, not spatial as such. Likewise, Lars Qvortrup argues that virtual realities are not

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deity.

alternative spaces with an ontology of their own, but rather representations of space as experienced by human consciousness. Pointing to phenomenological thought, Qvortrup points to three aspects that form the human experience of space; the proto spatial, movement spatiality, and body spatiality. Proto spatiality is concerned with space as perceived through the senses, mainly the visual and auditory senses. Human perception of space is moreover practical, based on the experience of actual moving in space. Thus, the perception of space is not passive, in that the embodied human interacts with the surrounding environment. The body spatiality, then, is the body habituating space, as famously expressed by Merleau-Ponty, not just being in it. Thus, according to Qvortrup, when simulated environments are experienced spatially, this is not due to the employment of photo-realism or the construction of parallel realities, but rather based on binocular parallax (the two eyes creating a sense of depth), motion parallax, as well as body interaction. (Qvortrup 2002: 6-7, 16-19)

Adding his comment to the discussion of virtual worlds (as fake) replacing the real world, Qvortrup refers to Heidegger's notion of "the world as image":

> "It should be noticed that when we operate in cyberspace, we do not operate in the world, but – as stated by Heidegger – in the "Welt as Bild". This implies that cyberspace and the many virtual worlds will never be able to "replace" real space and real worlds. Our operations in cyberspace will always be as if operations. […] Here, one can add another dimension to the epistemological scheme of John Searle. In addition to brute facts and social facts there are virtual facts or simply "fiction facts"." (Qvortrup, 2002: 19)

Although acting on the simulated environment of a computer game is not acting in the world, the scenes employ the proto spatial, movement spatial, and body spatial experience of embodiment to create a sense of space.

Studying computer games

While pedagogical and psychological studies of computer games, concentrating on learning outcome and other effects of computer game playing, seem to be an acceptable pursuit, the study of computer games in their own right to a great degree still awaits full recognition.[4] There may be several reasons for this. As happened at the emergence of other media types, such as the book, radio, film, and television, computer games have been and are still claimed to be harmful, and computer game playing is often held in low cultural esteem. In the same way that the media technologies such as writing or moving pictures eventually became accepted as respectively an almost invisible everyday practice and another prestigious art form, computer games presumably will be redeemed as

[4] Denmark, according to Bo Kampmann Walther, is one of the leading countries when it comes to serious studies of computer games in their own (Andersen, http://www.dr.dk/harddisk/realaudi/0308hd_spil.ram, accessed 05.04.03).

well. Until this takes place the study of computer games as phenomena may continue to be perceived as irrelevant by some scholars.

In my opinion, computer games are interesting for several reasons. A phenomenon as prevalent should attract some academic interest, if for no other reason then in order to investigate the reasons for its popularity. Moreover, computer games draw on a wide variety of expression types from older media as well as on mythical material and, thus, are interesting from a textual point of view.[5] Computer games even enter virgin land as the digitally provided interaction forms provide experiences and facilitate activities that have never been possible through the hereto known media types. The player enters a virtual realm which is not only dreamt up in words or moving pictures, but which she may directly interact with and manipulate through some type of interface. The issues of interactivity and virtuality that hereby are raised are other subjects worth study. Exploring computer games as an academic topic may well tell us something about how reading, watching – media use in general – may be reconfigured by digital technology in the decades to come.

[5] I shall be using the word "text" in its widest meaning signifying all types of media products that may be interpreted as meaning carriers. Thus, when referring to a "textual approach" I mean an approach where the subject of analysis is treated as a text.

Plaything or text?

They study of computer games within the humanities may roughly be divided into two more or less distinct lines of study that in some cases overlap and in other cases are directly hostile to each other. The oldest tradition draws on literary and cinematic studies as well as on semiotics and narratology. In this perspective the computer game is viewed as a text that may be interpreted on the ground of criteria developed to suit books and film, as a narrative structure, [6] or in relation to a semiotic system. The playability of the game, however, is more or less ignored.

A newer tradition, the ludological, on the other hand, argues that computer games of all kind belong primarily to the realm of play as the computer game is created to entertain the players by engaging them in playful activity. This activity is designed to lead to an end position of winning or loosing, completion or non-completion. Thus, most computer games feature some kind of combat or other types of fast paced competition either against the digital game system or

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[6] Clarifying what is here meant by 'narrative' I shall point to Claude Bremond's excellent definition: "All narrative consists of a discourse which integrates a sequence of events of human interest into the unity of a single plot. Without succession there is no narrative, but rather description (if the objects of the discourse are associated through spatial contiguity), deduction (if these objects imply one another), lyrical effusion (if they evoke one another through metaphor or metonymy). Neither does narrative exist without integration into the unity of a plot, but only chronology, an enunciation of a succession of uncoordinated facts. Finally, where there is no implied human interest (narrated events neither being produced by agents nor experienced by anthropomorphic being), there can be no narrative, for it is only

against other players. Those types of computer games rely heavily on the employment of fast hand-eye coordination or on strategic overview. These are the classical computer games, and, would some ludologists say, the only true computer games. Thus, some scholars within the field find that any narrative traits inherent in a computer game have rather to do with misunderstood marketing attempts than with good game play:

> "[...] there are no attempts to define games as narratives in Elliot M. Avedon and Brian Sutton–Smith's classic *The Study of Games* (1971) that contains and compresses a century of Western game studies. The words and contested concepts like narrative, story, drama, or theatre do not come up even in its subject index. So should we believe that suddenly, by the advent of computer games, games turned into narratives? Maybe something happened in the marketing department instead." (Eskelinen, 2001: not paginated)

What Eskelinen forgets in his zeal, however, is that narrative may be seen as fundamental existential structuring that deals with related events happening over time, and that it is not necessarily literary. Thus, in a sense narrative structuring is inescapable, and I do not think that the concept should be totally abandoned in the case of computer games.

It is interesting, however, that although the majority of computer games first and foremost make sense in the context of play activity, the study of computer games, until recently, has focused mostly on forms of narration (literary and film studies), gender (cultural and media studies), as well as on

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in relation to a plan conceived by man that events gain meaning and can be organized into a structured

violence and addictive behaviour or possible learning outcomes (pedagogical studies and psychology). As the majority of action and strategy-based computer games are not explainable in the context of the mentioned fields, they have mostly been defied as poor narratives, low culture, male fantasies, violence promoters, and the like.

Instead, a small minority of computer games known as adventure games, have received most of the scholarly attention and praise within the humanities, which is understandable as these games follow narrative conventions, often feature less violence than the before mentioned, and, to a much greater degree, take up the themes that literature and film do. In other words, classical adventure games make much more sense in the context of the above-mentioned fields than the majority of computer games. Consequently, scholars of these fields have often called for games with better stories, more character development, acceptable female role models, as well as less competition and violence. The competition element, however, is necessary in order to create a game, and while a good story and complex characters are crucial for quality narratives, they do not play the same role for quality games. *Pac Man*, which is a classic amongst computer games, is a great game from a ludological perspective, but it does not posses any of the features that qualify a good narrative or a great piece of art.

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temporal sequence." (Bremond, 1996: 63-64)

The ludological approach to computer games to a great degree has arisen out of the frustrations of researchers within the field who have pointed to the importance of studying computer games on their own merits instead of succumbing to the attempts from other fields of colonizing the subject. A play centred view on games entails, for example, the understanding that the game has to be fun, interesting or challenging in a way that is free and not related to labour. Still, play is also an aesthetic practice, and some computer games employ stories, discuss existential issues, use parody, humour and irony, and in other ways enter the realm of literature, film, and art.

Positioning myself

The most radical ludologists tend to focus on the activity and freedom connected with play. On this ground they denounce computer games that take the form of epic narrative because this type of structuring requires a narrator in control, thus limiting the players' freedom of action. However, I find that it is important not to go from one extreme to another. In the case of narrative, it is a fundamental structuring device that enables humanity to deal with its situatedness in time and space, and, so, the form will always be present if not in the game structure then at least in the retelling of a game session. On the other hand, I do believe that other structuring and meaning-creating devices

are at play as well in the gaming experience, and this thesis is an attempt to locate some of these.

With the present study I do not aim to read computer games as texts that carry cultural significance. This does not mean, however, that I do not find critical readings of computer games necessary and important. While the player may not initially focus on this aspect of the games, dominant cultural codes are still present and need to be pointed to. My point is, rather, that in the long term it is necessary to have an understanding for the computer game as phenomenon if such readings are to be more than moralist concern or distanced arbitrations of taste.

My own story

My entry to computer games studies has come about through the intervention of my younger brother. I shall tell this personal story, as I find that my background with regards to computer game playing has been shaping for my academic interest in the topic. Like many other boys, my brothers got their first commodore complete with tape recorder in the mid 80'ies. The actions games they played never caught my attention. Being an avid reader, I detested the repetitiousness of their games, the lack of story, the primitive graphics, and, not least, the horrible soundtracks which would often start as early as five in the morning on weekends. The only computer game I remember liking

and playing with my brothers was some kind of strategy game that required the player assumed the role and responsibilities of a rock artist's manager. The boys did not like the game much, though, and quite soon I tired of the rather tedious game too.

Some ten years passed. One day my brother showed me a computer game set at some space base in which the player had to investigate some (now forgotten) mystery. Although the adventure game had only primitive graphics and primarily used a text interface it caught my attention, and I played it quite a long while with my younger sister. For the first time I had encountered an interesting computer game. Later my brother brought home other adventure games. I specially remember Lucas Art's *The Curse of the Monkey Island*, which we all played together, enjoying the great graphics and the crazy puns. After this I started exploring the area on my own, borrowing all the adventure games from the local library that I could get my hands on.

My academic interest in computer games begun with an interest in hypertext narratives.[7] This later lead to a study of the narrative structures in *Blade Runner* (Bjerre, et. al., 1999), to some degree a reaction against a thesis by Jesper Juul (1999) to the claim that narratives and interactivity in

[7] Hypertext narratives are narratives that employ digital texts with links in the communication of the tale. This enables a structure in which the various narrative fragments may be samples in a different order during different readings, resulting in a slightly changed narrative each time. George P. Landow's

computer games was not compatible. Although the study clearly undermined Juul's claims with respect to adventure games, I had begun to realise that the notion of narrative is rather inadequate in accounting for computer games as phenomena on a general level. This understanding, at first, was based on my observations of others playing action games, but was supported when my brother introduced me to computer role-playing games. These games hooked me even more than the traditional adventure games. Only with this thesis, I make the full move, trying my hand at action and strategy games both literally and theoretically.[8] While still having my personal favourite genres, I find that the study of computer games on a general level requires a widening of my personal knowledge of all the genres.

Computer game classifications

As is already clear from the above, computer games, like novels or movies, do not constitute a single unified mass. On the contrary, there is a wide divide between games of different kinds, and in order to distinguish between various types of computer games some notion of genre is necessary.

Hypertext 2.0 – The Convergence of Contemporary Critical Theory and Technology (1997) offers a thorough description of the genre.

Criteria for genre affiliation

Literary genres are based on form or theme, but computer games rely primarily on player activity and so this factor may be a better foundation for establishing genre relationships within the field. In accordance, Mark J. P. Wolf (2001:113-116) as well as Simon Egefeldt-Nielsen and Jonas Smith (2000:28-31) suggest that the determination of computer game genres should be based on the given goals and the type of main activity demanded by a given game rather than on thematic likeness and audiovisual appearances. Wolf moreover takes "into consideration the dominant characteristics of the interactive experience […] as well as the nature of each game's player-character and player controls" (Wolf, 2001: 116).

Although the genre defining factors suggested by Wolf seem appropriate, he nevertheless comes up with more than thirty genres (of which he admits that some are rather utility programs than games), failing to distinguish between main and sub genres. For example, Wolf operates with a genre of *adaptation* games as well as another genre of *card* games that clearly are a sub genre of the former. This suggests that the defining factors used by Wolf are not

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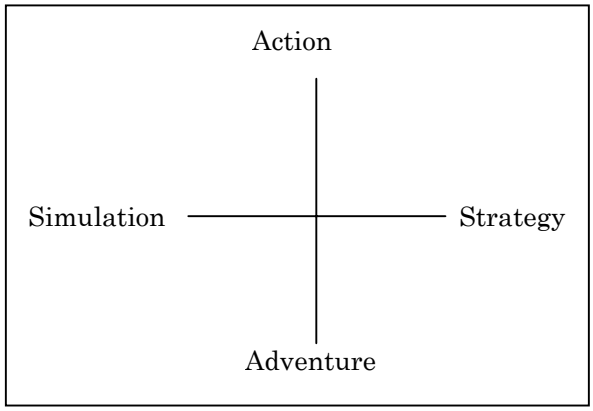
[8] I have previously played *Worms Armageddon*, but otherwise my knowledge of action and strategy computer games have been based on watching others play or reading about them.

general enough. On this ground, I find Egefeldt-Nielsen and Smith's understanding of computer genres more workable.

Defining computer game genres according to the type of skills that are mainly deployed as well as typical player actions, Egefeldt-Nielsen and Smith come up with four main genres: action, strategy, simulation, and adventure games (fig. 3). According to Egefeldt-Nielsen and Smith, action games are characterised by many combat situations. Quick reflexes are required from the player, and the player's influence on the game output is relatively great. Adventure games, on the other hand, focus on the solving of mysteries, this requires logical skills, and the player's influence on game output is relatively small. Still according to Egefeldt-Nielsen and Smith, strategy games are about creating and managing societies. The main player skill required is overview and ability to prioritise. Depending on the type of strategy game played the player's influence on game output is average (turn-based[9] games) or relatively

Fig. 3 The four main computer game genres according to Egefeldt-Nielsen and Smith



[9] In turn-based simulation games the player and the game engine take turns at making their moves. If the running of time is simulated in a turn-based strategy game each turn will represent a set amount of

great (real-time[10] games). However, as pointed out elsewhere (Iversen, 2003: 23-24), Egefeldt-Nielsen and Smith, apart from mentioning that the player needs to be able to master complex situations, fail to identify the special characteristics that distinguish simulation games from action games.

In reality, what Egefeldt-Nielsen and Smith call simulation games are indistinguishable from action games as these games require quick player reflexes as well. Moreover, as simulation is crucial to all types of computer games, I find it problematic to operate with a distinct simulation genre. Rather, I have previously suggested (Iversen, 2003:23-24) that genre affiliations should be judged on required player skill as well as on what is managed by the player, as this is a less ambigous criteria than typical actions. Struggle, which Egefeldt-Neilsen and Smith find to be the typical form of player action within the action genre, for instance, may be found in some kind in all of the main genres. In order to stress both differences and liknesses between the main genres, a third criteria based on Wolf, that of player perspective, could be added. Management of resources, for instance, is not that different from management of character and choice, but the strategy and the

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time. Thus, the player may spend as much time as she wishes on every of her turns without changing the preset amount of time the turn is assigned.

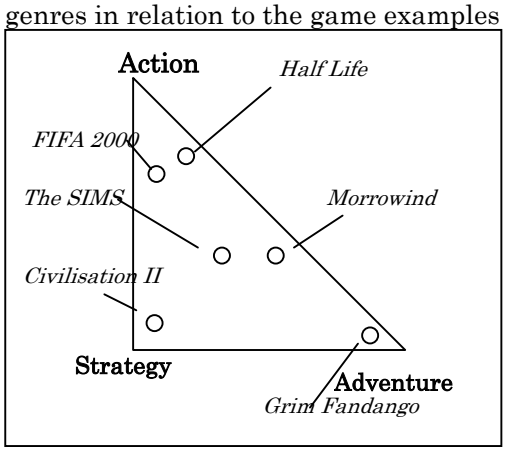
[10] Real-time strategy games simulate the running of time and, so, the timing of player actions as well as the time spend making a move are of consequence to the overall game play.

adventure genres differ in their criteria of success as well as in their player perspective (fig 4).

Fig. 4 Genre defining factors	PLAYER SKILLS	WHAT IS MANAGED	PLAYER PERSPECTIVE
ACTION	Quick response	Time	Personal first or third person
STRATEGY	Strategic overview	Resources	Godlike overview
ADVENTURE	Logic and interpretive competence	Character and choice	Personal first or third person

Based on the suggested distinctions three main genres remain, namely action, strategy, and adventure (fig. 5). These should be seen as three poles in a generic continuum into which existing computer games could be placed according to the degree to which they contain the above properties. That is, the model, while remaining simple and general, facilitates detailed dinstinctions between computer games of different types, and games of mixed genres may be accounted for. Real-time strategy games, for example, may be placed closer to action games than turn-based strategy games. Other types of computer games such as role playing games will fit more or less in the

Fig. 5 The three main computer game genres in relation to the game examples



centre of the triangle, being a mixture of all the three main genres in that they contain real-time combat, which means time is a factor, and to some degree strategy must be considered as well, although the management of character and choice is still the main player activity. Board or card games adapted digitally, on the other hand, clearly belong to the strategy genre, whereas the so-called simulation games like racing games belong to the action genre.

Once the main genre affiliation has been established, subgenres may be created in order to further disinguish between types of computer games. At this level, referring to theme and setting would be much more relevant, as the computer game as an overall type has alredy been established and the need for more detailed means of distinction arises. While I still find most of the genre identifying criteria introduced by Wolf such as 'dodge' or 'escape' too specific, subcategories such as 'sports', 'war', or 'racing' games that refer to the setting and theme of the individual computer games seem more suitable.

45

Approach

2

48

> "One essential feature of phenomena is the intentionality of consciousness: consciousness is directed upon objects. The phenomenological interpretation of this, what attention to the phenomena reveals, is that the relation between consciousness and its objects is an internal one. As such, it is not amenable to causal explanation. All consciousness is essentially consciousness of objects and all objects are essentially, if not explicitly, objects of consciousness."
>
> Edward Craig

I generally hold that theoretical speculations should be assessed against some empirical material in order to avoid pretty theories that do not carry much consequence in practice. Thus, I have chosen to investigate challenges in computer games on the backdrop of six example games. Reflecting on my initial response to the task at hand as well as on the focus that I intuitively seem to choose, I find that my philosophical frame of choice is phenomenological. Or rather, I admit to a certain phenomenological inclination.

Investigating phenomena

Phenomenology is not a unified school of thought but rather a methodology with a diversity of associated frameworks. Several versions thrive side by side, all inspired by, but not necessarily agreeing fully with, the work of Edmund Husserl, who in turn radicalised and build upon Kant's critique of pure reasoning. As this is not a philosophical work, I shall paraphrase the

understanding that I have gained from phenomenology and various phenomenological thinkers. This, then, is by no means a thorough discussion of phenomenology, but rather an attempt to sketch the epistemology and ontology behind my practice.

Lester Embree in *Phenomenology of the Cultural Disciplines* notes that a phenomenological approach to the cultural disciplines may be philosophical but does not have to be. Thus, he sees as phenomenological any approach that is both descriptive and reflective:

> "An effort is *descriptive* in a broad signification when it avoids positing unobservable but presumably still thinkable entities […] In a different but not unrelated signification, thought is descriptive when it recognizes describing as prior to explaining, which it can do when it recognizes that knowledge of what matters is presupposed by attempts to account for matters in terms of other matters." (Embree, 1994: 29-30)

By 'reflective' Embree signifies a focus that is not on the observed object alone, but which is even concerned with the way the phenomenon presents itself or is "intended-to", that is they way it is experienced by the observer (Embree, 1994: 30).

Consciousness and the world

Different traditions within phenomenology account differently for the precise relation between perception and the thing-in-itself. However, the foundation for all phenomenology is the notion that human consciousness is always

intentional, directed towards the surrounding environment, while perception is always limited and unable to perceive fully the noumenal world. The phenomenological move, then, is to admit to the fact that all objects encountered through perception are exactly *perceived objects*. While human beings experience the world as true and existing, this apparent fact can never be assessed for sure and, so, speculations along this line are futile. The bracketing method of the phenomenological *epoché* allows the philosopher to set aside the question of reality in order to focus instead on the properties of objects as they appear to the observer, taking into mind that the perspective and prior understanding of the observer participate in the shaping of the experience. Thus, when stating, as I shall be later, that the play theories chosen for this work support an analysis of computer games that may likewise focus on the plaything or on the subjective experience of playing, the phenomenological notion that phenomena are experienced entities, not the objects per se, is always implied. When dealing with computer games, I do not deal with the "real" objects as such, independent of my (and others') experience of them. Moreover, the part of the computer games phenomenon actually encountered by an observer or player is a simulation not "real objects", if such could indeed be encountered.

The only direct knowledge the human observer is able to acquire about the world is derived by the senses and filtered through the mind. The properties of

objects, then, are neither objective truth, existing independently of the observing subject, nor are they exclusively subjective as it is possible to share experiences through language and (other) mediating tools. Rather, facts and truths about the properties of objects come into being through the meeting between the subject and the environment. Thus, the focus of phenomenology is on the relationship between the human being in the world and the surrounding phenomena.

Phenomenological observations

The phenomenologist seeks to reach an intuitive description of the observed phenomenon's essence, trying to avoid the categories and abstractions of science. This focus on phenomena as they appear is stressed in all phenomenological thought, here expressed in the writings of existential phenomenologist Maurice Merleau-Ponty:

> "It is an attempt at describing our experience as it is, without taking into consideration its psychological origin and the explanation of causes, which the scientist, the historian or the sociologist would give; […]" (Merleau-Ponty, 1969: 23, my translation)

This is not done in defiance of science, but rather as an acknowledgement of the fact that underlying all theorising is the everyday experience of living in time and space. Note that the term 'essence' within phenomenology does not

point to any core of truth within an object or thought in a Platonic sense. [11] Rather, what is referred to are the fundamental characteristics – in Husserlian terms the *eidos* – that mark a given object as being that certain type of phenomenon and not another. Thus, for instance, while trees may vary in dimensions as well as in appearance, all trees have trunks, roots, and branches.

Both explicit and implicit features must be taken into consideration in a phenomenological description as even the surroundings influence the way phenomena present themselves to the observer. Ideally, the purpose is to see phenomena in their entirety, rather than dissecting them in a search for smallest basic units.[12] However, it is not possible to focus on some features without defocusing on others. Consequently, even wholes must be perceived in several stages. (Merleau-Ponty, 1994: 1-3)

Although visual impression plays an important role in phenomenological description, a crucial part of it depends on practical knowledge, on being a body that acts in the world. Thus, Heidegger stresses that objects in the world are perceived as things to act with or on, even to a degree where a given object

[11] While Husserl may have been searching for the true nature of phenomena in a somewhat ideal sense – still dissociating himself strictly from a Platonic world view, however (Moran, 2000: 134-135) – my focus is directed towards the way the chosen object presents itself as useable and meaning-giving to the observer in a given historical and cultural setting.

may be forgotten during use if there is no breakdown in functionality (Embree, 1997: 514). For instance, the computer game does not only present itself to the player as sound and images on a screen. Because humans are practical beings it even invites action as the movements on the screen and the available tools trigger responses, asking to be used. That is, a part of a phenomenon's essence is the way in which it presents itself to an observer as useable. Thus, the relation between the observer and the observed becomes interactive in that the later calls for action from the former. This notion of a dialectic relationship between human consciousness and experienced phenomena is even evident in Gadamer's account of play, which I shall discuss later.

Practice

I find that a phenomenological approach to academic studies supports a stance that is neither based on the subjective experience nor on so-called objective truth. Instead, the focus is on the *relationship* between the subject and the surrounding world. Moreover, I find it important that any inquiry into a given subject first concerns itself with the phenomena in their own right, according

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[12] One of the many philosophical presuppositions that phenomenologists wanted to bracket was the notion that experience could be dissected into basic atoms, which consisted of sensations. This was seen as a theoretical approximation that did not build on lived, intuitive experience. (Craig, 1998, vol. 7: 344)

to their kind, and only thereafter engages in speculations about their meaning, wider instrumentality, or cultural and social worth. This is one of the core thoughts of phenomenology.

Seeking to create and identify new concepts, the phenomenological method of observation is (seemingly) simple but effective. Note, that I do not mean by the term 'identify' that already existing categories may be found, but rather that the classes of challenge once created should be determined with regards to their respective characteristics. As the basis for considerations about phenomena becomes what is observable, futile speculations that do not adhere to the actual substance of existing games and the practice surrounding these are easier ruled out.

Game Presentations

3

> "Will you play a heroic warrior or a stealthy thief? Will you join a mages guild or the assassin guild? Will you explore in the huge open-ended world or will you complete all the quests and find the Truth? You're the only one to answer those questions. You write the Story."
>
> From the *Morrowind* game box

As the empirical foundation for discussing challenges in computer games I shall be using six games – two representatives of each main genre. Selecting six games of many thousands for the purpose of analysis is not easy. While the choice has been based on a set of criteria, which will be discussed in more detail later, I shall not claim that this selection is not to a great degree rather random and informed by my subjective experience and preferences. On the other hand, although the chosen computer games may not be representative in any statistical sense, they are nevertheless representative in the sense that they all in some way or the other have been or are perceived as state of the art by producers and players.

Criteria for choice

There are several reasons for choosing six games as empirical reference. Firstly, I found that two representatives of each main genre was the least requirement if the findings of the analysis should hold even a minimum of general applicability. Secondly, a choice of, for instance, three representatives

of each main genre would mean that I had to familiarise myself with six to me unknown computer games, and this, I found, would be too time consuming for the work at hand. Statistically, six computer games of many thousand can never be a representative collection. This is not a quantitative analysis, however, but rather a qualitative one with the reservations with regards to the general validity of any research results that this implies. Thus, I shall not claim that any findings I may come up with are the new truth of computer games – which I would never do as "truths" are reconstructed, negotiated, and refuted all the time. Rather, any conclusions that I may reach are open for further discussion and investigation. Still, the intent of this work is to provide a framework that holds at least some general weight. For this reason, the computer game examples used here have been chosen on the ground of two criteria, which have been set in order to enhance the general applicability of any research results. These criteria are by no means statistically valid, but serve to ensure that the choice of empirical material is not entirely random.

The criteria applied in my choice of the present game examples have been as follows:

- The computer game examples should be widely known and recognised as (once) state of the art and typical of their genre. The assessment of whether a computer game is "widely know and recognised" is based on reviews, articles, and other gaming community resources.

- The computer game examples should demonstrate the scope of each genre. Thus, the two actions games are thematically very different, one of the strategy games is turn based while the other has to be conducted in "real-time", and with regards to the adventure games one is classical while the other is an example of the newest computer role playing games available.

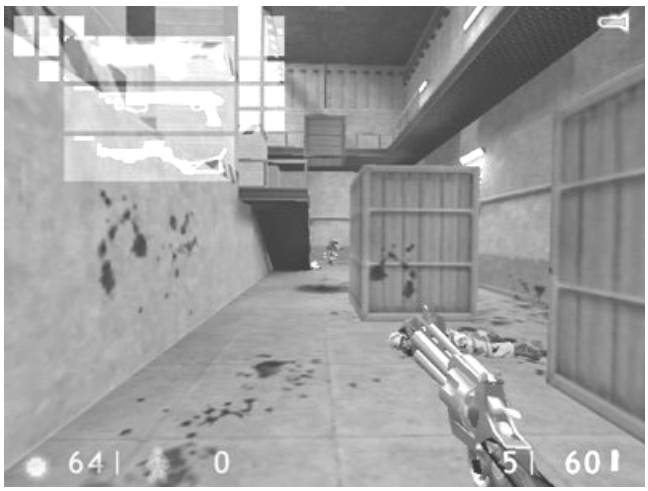
Game examples

In my description of the game examples I seek to be brief, but so many different aspects need to be taken into consideration if the individual games are to be justly accounted for. The six chosen games, which will each be introduced below, are the two action games *Half Life* (*HL*) and *FIFA Football 2002* (*FIFA 2002*), the strategy games *Civilisation II* (*CIV II*) and *The SIMS* (*SIMS*), and finally the adventure games *Grim Fandango* (*GF*) and *Morrowind – The Elder Scrolls III* (*MW*).

Shooting at everything that moves

HL, created by Valve Software and released in 1998, is a so-called first person shooter – a combat based computer game in a first person perspective where

Fig. 6 Half-Life: Picking weapons



the only visible part of the avatar is the weapon-wielding hand (fig. 6).[13] The game has earned more than fifty "game of the year" awards (http://www.planethalflife.com/half-life/, accessed 11.04.03) and the engine from *HL* lives on in *Counter Strike*, the online game in which players form bands and engage in combat via their avatars.

The protagonist and player character of *HL* is Gordon Freeman, Ph.D. in quantum physics and one of the few heroes with glasses. He arrives at his job one morning at the Black Mesa Research facility only to find himself up to his neck in nuclear waste, mutant cyborgs, and US marines because an experiment goes totally wayward.[14]

The player controls the Freeman avatar with mouse and keyboard commands; there are quite a number of short cuts that must be remembered and combined as Freeman is made to proceed through the broken down research facility. Timing is often crucial, as is accuracy. The point of the game

[13] The official *HL* site can be found at http://games.sierra.com/games/half-life/, accessed 11.04.03.

is to keep Freeman alive and make him uncover the source behind the risen chaos. In order to achieve this goal, the player must fight a long row of different adversaries with each their style of combat,[15] and she must find a way out of the underground test facility, making Freeman proceed from one confined area to the next. A great part of the game, then, consists in finding a route from one area to the next. This is mainly done through explorations and thus not quite in the classical adventure game way, still walkthroughs detailing how to proceed are available on the Internet.[16] While there is only one way of proceeding from one location to a new one, the adversaries in the different areas may be encountered and fought in a number of ways. Thus, the single-player version of *HL* is in fact a game of progress with many emergent elements. The game even has an element of resource management, in that the player must judge how to use the player character's resources in the form of health, shield and different weapons and ammunition.[17] All these resources may be renewed along the way as Freeman may find weapon and ammunition as well as first help equipment and batteries for his protection suit.

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[14] See http://www.planethalflife.com/half-life/guide/overview.shtm, accessed 11.04.03, for more information on *HL*'s storyline.
[15] See http://www.planethalflife.com/half-life/guide/enemies.shtm, accessed 11.04.03, for an overview of the various adversaries featured in *HL*.
[16] See, for instance, http://www.uhs-hints.com/uhsweb/halflife.php or http://www.planethalflife.com/half-life/guide/walkthrough/, both accessed 11.04.03.
[17] An overview over the weapon types available in *HL* can be found at http://www.planethalflife.com/half-life/guide/weapons.shtm, accessed 11.04.03.

Upon the start of the game, the player may choose what level of difficulty she wants to play at. Thus, while the background story, the various areas, and the route through them is the same for every new game, the game experience may be very different dependent on the chosen level of difficulty. As action games are usually played for their challenge and not for the eventual story that they may contain, this means that *HL* may entertain a player through several full play-throughs[18].

Playing ball with the elite

FIFA 2002 from 2001 simulates the 2001 football scene, featuring all the great teams and their players in a digitalised version.[19] Although widely popular amongst football fans this game by EA Sports, like the rest of the FIFA series, have received less awards and recognition than the other game examples. Nevertheless, I have chosen *FIFA 2002* because the game is a good example of a type of action games that are sometimes called simulation games (see the

[18] At loss for a better term, I call a full playing through of the whole game structure that ends with the player winning or completing the game for a "play-through". A play-through may well be made up of many play sessions, my term for a single situation of the player sitting down to play the game.
[19] A demo of the game may be downloaded at http://downloads.soccergaming.com/download.php3?id=00005623, accessed 11.04.03.

discussion in chapter one). It is a computer game that seeks to simulate real events and people in a photo-realistic way.[20]

In order to begin a game the player must choose one of the teams or create a custom team. The talent of each of the simulated football players is defined as a score in relation to skills, such as kicking, running, or heading. The team members are automatically assigned a position within the team as defence, attackers, and the like. The player may reconfigure the strategy of the team, signified by the starting position given to each field player. It is even possible to buy new team members for a given team, if the player finds that additional talent is needed in order to build a better football crew. Once the player

Fig. 7 FIFA Football 2002: Player perspective

[20] According to the official EA Sports' official home page, "Authentic football is really what FIFA football is about", http://www.fifa2002.ea.com/game/home.asp, accessed 11.04.03.

has configured the team to her liking it is time to play.

During a match, the player's perspective is an overall view that may be more or less detailed, depending on what camera angles she chooses. The perspective is always impersonal and general, however (fig. 7). The player is able to control one of her field players at a time while the rest of the team and the opposing team are controlled by the game system. The computer controlled football players act according to predefined strategic parameters as well as their skill score, the former may be changed during a match to match the team's situation. The player must use both hands on the keyboard in order to instruct the individual team members about the direction they should move in and what actions to perform, such as headers, tackles, and the like. This is not an easy task and requires some training.

Building history

The turn based strategy game *CIV II*, created by Sid Meier and released by Microprose in 1996, is the oldest game amongst the examples. As the name implies, the objective of *CIV II* is to raise a civilisation to explore, colonise, and conquer the world. This takes place in competition with other civilisations that are managed by the game system. In order to win the player must either

conquer all other civilisations or be the first civilisation to establish a space base in the far away Alpha Centauri system.

The simulated world of *CIV II* takes the form of a map (fig. 8). At the beginning of a new game the entire map is nearly dark. As the player sends out exploration units more and more of the map is uncovered and other civilisations are encountered. In order for the civilisation to grow, the player must build cities, defend them, and cultivate the surrounding areas. Every city increases its population in accordance with the surplus of food that it is able to produce, the latter depending of the type of terrain available in the city's radius. Cities even build various units with different functions such as explorers,

Fig. 8 Civilisation II: The map interface

diplomats, engineers, knights, caravans, planes, etc. Likewise a city may be improved by building constructions such as city walls, temples, harbours, banks, and wonders of the world. The latter advance the civilisation in the competition.

The type of units and improvements a civilisation can build at any given time depends on its technological and cultural development and on available funds. During the game every civilisation evolves culturally and technically, acquiring knowledge of more and more inventions and cultural phenomena. The rate of development depends on the amount of taxes spend on invention. The knowledge of more sophisticated inventions or cultural phenomena can only be gained once the prerequisite simpler inventions have been uncovered. Thus, for example, literacy may only be developed once the alphabet and writing have been discovered.

With regards to her own civilisation, the player has an almost omnipotent status in relation to the simulated world. The player does not control an avatar, but moves the many units of her civilisation, assigning them tasks. She chooses where and when to build cities, what to produce in each city, the type of government and tax rate, and to a great degree even which civilisations to be allied with and which to fight. However, the citizens in the player's cities may be more or less pleased with their ruler. Factors such as type of government, the tax rate, the availability of temples and other types of

entertainment, the number of own troops, etc. play a role in relation to citizens' rate of happiness. Thus, citizens may revolt, and the player may try to stop this by changing some of the mentioned factors. With regards to the competing civilisations, the player does not have full knowledge of their activities, but she may obtain partly knowledge by sending units such as diplomats and spies to the cities of competing civilisations.

CIV II is the one of the six example games with the most complex rule set, and it is distributed with a 200 pages manual. The learning curve is rather steep, but it is possible to play the game without consulting the manual beforehand. However, that will result in a random effort at best. The game may be played at a range of difficulty levels and it is even possible to customise the world that is to be conquered as well as the other civilisations. This ensures that the game remains challenging even for advanced players.

God of the suburbs

The SIMS (*SIMS*), created and released by EA Games in 2000, is famous for being the computer game that finally caught the attention of a widespread female audience.[21] The "sims" referred to in the game's title are simulated people living in a simulated suburbia (fig. 9). The objective for the real time

[21] It is clear from the many fan sites dedicated to *SIMS* that the majority of the players are female.

strategy game is to keep the sims in good mood by taking care of their six needs – nutrition, sleep, social relations, entertainment, comfort, hygiene, as well as a smart and well-designed home.

In order to begin playing, the player must choose or create a family, making them either move into one of the available houses or buy an empty lot in order to build a house there. From the start, each family has an available start capital and it is the player's job to put this money to the best use. For instance, the sims need comfortable beds in order to minimise the time spend sleeping, they need cooking devices in order to be saturated, devices for entertainment and education in order to have fun, and a private spot to relieve themselves. Apart from tending to their needs, the sims may acquire jobs in order to cover their living expenses and friends to meet their social needs. Needless to say, a

Fig. 9 The SIMs: A sim family at dinner

content sim performs better at work, earning a promotion, and is more disposed towards making new friends.

The player has a god-like perspective on the simulated world and may control the individual sims via mouse clicks and keyboard commands, helping them to share the available hours of the day between their various needs. It is even possible to leave the control of the sims to the game system, and players who prefer only to decorate and build may do so, watching how these changes invoke on the sims living in the particular house. Thus, there is a constructive side to *SIMS* as players may build new houses and even create new families. EA moreover facilitates player modifications in that it is possible to create new heads, clothes, objects, walls, flooring, and the like and use it in the game. In this respect *SIMS* becomes a very flexible arena for players' creative output, allowing players to change the innocent suburbia, for instance, to a gothic area.[22] A varied and rich group of fans are dedicated to the creation and distribution of new items for *SIMS* with all the social relations this brings.

Of the six game examples, *SIMS* is the one that comes most close to being a toy rather than a ruled game because the goals for playing are not clearly stated. *SIMS* cannot be won as such, but the objective for the player is to help

[22] For some reason there seems to be a large group of fans who are fascinated with gothic themes, creating, amongst other things, "pale" avatars, goth-punk clothes, and coffins to sleep in. For at list of the members of the *Goths Sims* web-ring see http://members.tripod.com/gothsims/members.htm, accessed 16.04.03.

her sims to friends, status, and riches, while keeping their mood high. Thus, the player may state her own criteria of success for a game session. The reason why I choose to use *SIMS* as an example anyway is, for one, to demonstrate the scope of the strategy genre, but my choice is even based on the immense popularity of the game (and its extensions).

Something's rotten in the Land of the Dead

Grim Fandango (*GF*) is a classical adventure game with a strict narrative structure.[23] The game was created and released by Lucas Art in 1998 and was voted best adventure by two large Internet based game forums the same year.[24] Like the company's other adventure games, *GF* features great cartoon style artwork, crazy characters, as well as a certain twisted humour. A charming hybrid between film noir and Mexican folklore, the game is set in the Land of the Dead, which turns out to be quite like being alive, complete with lousy jobs, impossible love, and someone else getting the god bites. At least this is the experience of Manny Calavera (fig. 10), the avatar directed by the player.

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[23] A playable game demo is available at http://www.lucasarts.com/products/grim/grim_demo.htm, accessed 16.04.03.
[24] See http://www.gamespot.com/features/awards1998/gameofyear2.html and http://www.intelligamer.com/features/igoy98/igoy98rpg.asp, both accessed 16.04.03.

Fig. 10 Grim Fandango: Manny in the Grim Reaper costume that goes with the job

The avatar is controlled by keyboard input, and he can be made to move in different directions, conduct dialogues with non-player characters as well as examine, pick up, or use the simulated objects. The player has a third person viewpoint on the simulated world, as the avatar is always in view during interactive scenes. Most of the time, the player's knowledge of the world is limited to that of Manny's, but at times cut scenes show incidents that cannot possibly be known by the protagonist. These cut scenes serve to advance the story's plot. [25]

By exploring the simulated world and solving different puzzles, the player must direct Manny in uncovering a conspiracy that threatens the salvation of many good souls by solving various puzzles. These are usually well tied in with

[25] A cut scene is an animated sequence during which the player is not able to interact with the game system. Cut scenes usually have one or both of two functions. They may advances the plot, which may be build into the game structure, or they may function as rewards that are given once the player has completed a given level of the game.

the story and may be anything from obtaining needed information to using objects in ingenious or (rather) logical ways.

Being a typical adventure games, *GF* is created as a strict gate structure in four acts in which puzzles have to be solved in a certain sequence in order to advance the player in the game world.[26] Likewise, puzzles may only be solved in one way. *GF* is a clear example of a game of progress. In this respect the game is quite similar to a conventional novel or movie, in that more or less the same things will happen if the player decides to play the whole game through a second time. The quality of the story and the artwork, however, may easily make players want to complete the game more than once.

The stuff heroes are made of

Morrowind The Elder Scrolls III (*MW*) is a computer role-playing game that features real time combat. The game was created and released by Bethesda Softworks in 2002, and has been prised as the best computer role-playing game of the year by major gaming forums on the web.[27] The graphical side of *MW* is quite outstanding, especially the beautifully rendered night sky.

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[26] A gate structure is a hypertext structure that requires the user to fulfil certain criteria before advancing from one section to the next. The structure within each section may be more or less freely accessible to the user.

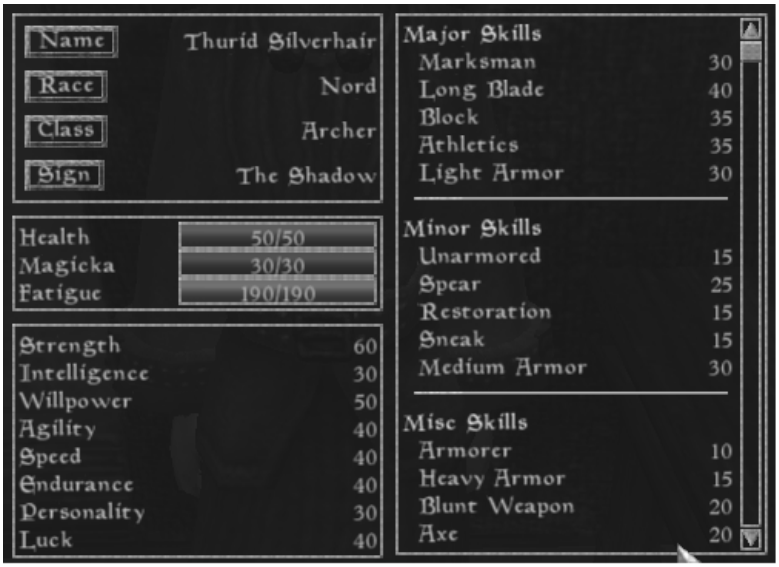
[27] See http://www.elderscrolls.com/index.php?url=/links/links_reviews.htm&bg=06, accessed 17.04.03.

Computer role-playing games derive their root from classical adventure games in their focus on character and choice, and most games of that sub genre feature an epic element. The real time combat element, however, is typical of action games, and most computer role-playing games even contain an element of strategic planning. In a sense, then, computer role-playing games are a mixture of all the three main genres.

Unlike classical adventure games, *MW* (and other computer role-playing games) is open-ended with a loosely woven plot that allows the player greater freedom to define her own goals and explore the simulated world. This is to a great degree due to the fact that the player has to create her own character instead of using the ready-made avatar of the classical adventure games.[28] Thus, there has to be several possible lines of action, according to what type of player character the player has created. Likewise, playing the game with different avatars will result in different game experiences.

Upon playing *MW*, creating a player character is the first thing that the player must do. The player may choose between ten different races, each having strengths and weaknesses that are expressed by a certain score for each of the seven character attributes; strength, intelligence, personality, endurance, luck, speed, and agility (fig. 11). Each player character must even

Fig. 11 Morrowind: character creation screen



belong to a class, based either on combat, stealth or magic. This class determines the avatar's major and minor skills.[29] A great part of game playing, then, consists in developing the player character's skills through (game) experience and training, thereby advancing the player character in experience levels – a score that indicates how experienced the player character is based on the use of her skills, and in reputation – a score that indicates how non-player characters are likely to react on the player character. The player perspective may be either first person – like in most action games – or third person – like in adventures games – depending on the individual player's inclination.

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[28] In fact, I believe that computer role-playing games will, as seems already to be the tendency, replace the classical adventure game, as players enjoy the greater freedom of computer role-playing games in combination with an open-ended narrative structure.

[29] See *Morrowind Summit*, http://www.rpgplanet.com/morrowind/goods/races.asp, accessed 17.04.03, for a list of races, classes and skills. Note that it is possible to create custom classes.

The setting of the game world is the large island of Vvardenfell – a part of the Morrowind province of the great Tamrielic Empire.[30] It is a very large simulated world, which, contrary to classical adventure games and even some role-playing games, is accessible almost everywhere at every point during game playing. Thus, while the player may only gain knowledge of a given location during a later stage of game play, it is possible to stumble upon an unknown location, and thus get to know about it, if it is passed during random explorations.

The starting point of the game is the player character's arrival at Vvardenfell as a released prisoner of unknown origin. Right from this point, the player is free to choose where the avatar should go, what associations she should be involved in, and what tasks she should take on. However, a potential plot line is provided as the player character is instructed to carry out a given task upon her arrival at the island, which leads to a row of related quests. The implied objective of the game is the completion of this main quest, but the game may be played without the player ever doing any of these, and the player may continue the game after solving the main quest. In this respect, *MW* may be played infinitely, that is, until the player tires of the simulated world and the character she has created.

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[30] See http://www.elderscrolls.com/index.php?url=/games/games_overview.htm&bg=02, accessed 17.04.03, for a description of Morrowind's geography. *MW* is the third game in a series of games that all centre

Another reason for *MW*s popularity seems, beside the intriguing universe, the open-endedness of the game structure, and the possibility of creating very different player characters, to be the producer provided tools for modification and creation of new game objects, scenes, and quests. At least most of the *MW* fan websites distribute modifications to the original game, which may add certain objects and races, or even new subplots, to mention a few possibilities. This factor adds to the durability of the game.

round the fantasy universe of Tamriel.

Playing Games

4

> "**game** *n* an amusement for children. **2** a competitive activity with rules. **3** a single period of play in such an activity. **4** (in some sports) the score needed to win. **5** a single contest in a series; match. **6** short for **computer game**. **7** style or ability in playing a game […]. **8** an activity that seems to operate according to unwritten rules: *the political game of power*. **9** an activity undertaken in a spirit of playfulness: *people who regard life as a game*. **10** wild animals, birds, or fish, hunted for sport or food. […]"
>
> Collins Concise Dictionary & Thesaurus

As mentioned earlier, many voices within computer game studies have stressed that computer games and their use should be understood within a play theoretical (or ludological) framework.

The subject of play

Simply referring to play theory, however, is too vague as the concept of play is understood and studied according to a number of highly diverse worldviews. As Brian Sutton-Smith puts to attention in *The Ambiguity of Play*, different schools within play theoretical studies seem to have each their ideological or philosophical agenda that, while pointing to the erroneous ways of their colleagues of differing views, seem to be blind towards their own underlying beliefs. Thus, Sutton-Smith describes what he designates as to be seven rhetorics of play:

- *Play as a means of development*, which is usually concerned with the play of children and young animals, focusing on how these learn and adapt to their

environment via play. This view is highly functional, rarely taking into account that children primarily play because it is funny.

- *Play as fate* focuses on gambling and games of chance, harbouring the underlying assumption that human life is determined by greater outside forces such as luck, fate or the gods, but that it is possible to overcome these by the use of magic in some form. According to Sutton-Smith these are the oldest notions about play.
- *Play as power* understands the phenomena in relation to sports and athletics, even war, viewing play as a means of dealing with conflicts of status.
- *Play as a means of identification* is concerned with the role of festivals and ceremonial acts as means of cultural and national points of identification.
- *Play as creative activity* focuses on all types of playful improvisation within the arts. In a time where creativity is definitively a plus word, this is a popular conceptualisation of play.
- *Play as self-expression* focuses on solitary play activities like hobbies and extreme sports, viewing play as a form of aesthetical experience that is characterized by flow and absorption.
- *Play as frivolity* views play in the light of silliness and is another example of older understandings of play. (Sutton-Smith, 1997: 7-11)

As it may be clear, even from this brief list, the attitude towards computer games may be very different dependent on whether one views play as a means of development or as self expression and creative activity. The former understanding mainly regards play as a means to a developmental end and may not find that computer games sufficiently support children's learning or maturation – which is not the intention of most games anyway. The two latter approaches, on the other hand, appreciate play in its own right and, thus, may be more favourable towards computer games as these are primarily created to facilitate play and fun. Thus, a functionalist view on play may be useful if one assesses computer games for educational and like uses, while a study of computer games in general, to my mind, benefits much more from a play theoretical approach that concerns itself with play as a phenomenon in its own right. For this reason, in my use of play theory I draw on scholars such as Hans-Georg Gadamer, Johan Huizinga, and Roger Caillois, who, while speculating about play in order to understand more about respectively the ontology of the art work and the evolution of culture, still observe play on its own merits rather than as a means to an end. All of the three thinkers regard play in a reflective, descriptive fashion.

Characteristics of play

As mentioned above, Gadamer's study of play in *Truth and Method* is carried out in order to understand the ontology of the art work, and his aim is to argue against the association of play with subjectivity as favoured, for example, by Kant and Schiller. Thus, Gadamer asserts that the subject of play is not the player but play itself. In other words, play as a phenomenon rather than the experience of individual subjects must be the focus of an attempt to understand more about the topic:

> "Our question concerning the nature of play itself cannot, therefore, find an answer if we look for it in the player's subjective reflection. Instead, we are inquiring into the mode of being of play as such. […] For play has its own essence, independent of the consciousness of those who play. Play – indeed, play proper – also exists when the thematic horizon is not limited by any being-for-itself of subjectivity, and where there are no subjects who are behaving "playfully"." (Gadamer, 1994: 102)

Gadamer's notion of play being its own subject is highly interesting, but at the same time I find his claim to play's existence independently of any playfully acting subject somewhat problematic. While the potential for play is present everywhere and the playful situation certainly transcends the player, play as a tangible activity only emerges if someone realises the potential and unleashes it in playful action. However, this may well be what Gadamer means to say: that play, as an abstract potential, is present almost anywhere awaiting concrete realisation. In this sense, the potential is present as something for

itself even when nobody notices it. Thus, the playful situation becomes a dialectical relationship between an existing potential for play and an entity that realises this potential and actually acts out the motion.

Even though Gadamer concerns himself with play at an abstract level, I find that his point regarding play as having its subject in itself has some methodological implications even for a study of a given plaything such as computer games. What follows from Gadamer's assertion is that the study of a playful situation, such as playing computer games, must not necessarily take its starting point in the player but may, rather, focus on the game and its potential for facilitating and motivating play.[31]

As reflective observations Gadamer, Huizinga, and Caillois's descriptions of play are in nature phenomenological. However, the latter two are slightly more systematic in that they take the time to define play by discussing and listing what they see as its various characteristic qualities. Thus, finding inspiration in Johan Huizinga, Roger Caillois defines play as being:

- *free*, that is voluntary;
- *separate*, as it occurs within a limited time and space which is distinguishable and set aside from everyday life;
- *uncertain*, in that the outcome of the game is not know in advance;

[31]My paper *Playful Action & the Computer game - Framework &Analysis* is an attempt at creating a framework for analysing the facilitation and motivation of playful action by computer games.

- *unproductive*, meaning that it is non-work, an activity that is not carried out in order to produce anything other than for the fun of playing;
- *governed by explicit rules*, or *make-believe*; the player is aware of the fantastic nature of play and able to distinguish play activity from everyday activity. (Caillois, 2001: 9-10).

Caillois stresses that play activity is either rule governed *or* make-believe, thereby highlighting the differences of play based on imagination, disguise, and imitation, and play based on knowledge of rules, skills or fate. However, games which are both ruled and based on make-believe do exist. The various types of role-playing games springing from the Dungeons and Dragons tradition actually combine a long row of formal rules with role-playing.

I shall discuss some of the six factors noted by Caillois that I find most important in relation to a play centred approach to computer games, beginning with the active nature of all game playing that is implied in Caillois definition.

To and fro

The Indo-European root *ghem*, from which *play* is believed to derive, means "to leap joyfully, to spring" (Avedon & Sutton-Smith, 1971: 2-3). Thus, the term signifies motion and, Gadamer notes, especially to and fro motions (Gadamer, 1994: 103). This means that all game playing should in nature involve some

type of physical activity: jumping, running, moving pieces on a board, directing on-screen activities via mouse or joystick. Only a few kinds of games rely merely on mind activity such as puzzles and riddles.

The core meaning of the game, then, is to a great degree in the movements. Either in the movements themselves, but more often, when the game poses certain challenges that have to be overcome, in the attempt at doing some required movements in the right way and order. This physical activity factor is important in the discussion between ludological and textual approaches to computer games, in that reading a novel or watching a movie may well be active, as the reader interprets the text and co-constructs it for herself, but it is an internal activity that helps the reader engage with the text, not physical movement as in the case of game playing.

A world of its own

The playful situation that is created when an entity realises an immanent potential for play involves entering into a frame of mind that is different from that of everyday life. Play is an ambiguous activity in that objects and actions may suddenly take on new meanings. Thus, play for a limited time suspends the realities and rules of everyday life.

Describing an incidence of two monkeys at play, Gregory Bateson in *Steps to an Ecology of Mind* seeks to pinpoint the type of awareness that playing requires: the awareness of ambiguity and make-believe. He describes an incidence of watching two monkeys at play, in which it is clear both to him and the engaged primates that the fight between the latter two is of a playful nature. On this basis Bateson argues that in order for the playing monkeys to both know that what they are engaged in is indeed play and not a fight for real, they must be able to somehow share the understanding "this is play":

> "Expanded the statement "This is play" looks something like this: "These actions in which we now engage do not denote what those actions *for which they stand* would denote." (Bateson, 2000: 180)

What follows is that in order to play, an entity must be able to meta-communicate at some level in order to discern between playful actions and actions for real. One of the implications of Bateson's statement is that one cannot play unknowingly. While it is possible to be a part of somebody else's play without intent and knowledge, in which case one does not play but is rather played with, partaking in play requires meta-communicative competences and awareness of crossing into another type of context. When one or more individuals enter into the agreement "this is play", in a sense a magical realm is created in which anything may then be negotiated to take on another meaning than what it has during everyday activity. For as long as the

contract holds this playing field is present in the interactions of the players or of player and toy.

Boundaries of the playing field

Another implication of play's set aside nature is that the occurrences taking place as play should not in any way affect everyday life. As soon as actions in a playful context have a consequence in everyday life, the line between play and non-play has been crossed, as when playful competition turns into fight for real. Caillois discusses this at some length in *Man, Play and Games*, pointing out that the four main types of play with which he operates; play based on skills, play based on chance, play based on make-believe, and play based on vertigo, all may be corrupted if the line is crossed. For example, the notion of succumbing to fate or luck that is somehow inherent in all games of chance may turn into pathological gambling if taken to extreme. Likewise, if someone deliberately seeks more permanently the dizziness and detachment that is felt, for example, during a roller coaster ride, the person must turn to alcohol or drugs. (Caillois, 2001: 44-55)

A third implication of play's set aside nature is that much of what goes on during play does not make much sense or carry any significance outside the specific context. Thus, an outsider watching, for instance, some boys playing an action computer game may find the scenes shown at the screen revolting,

while the boys act on the scenes in the spirit of play, knowing it is make-believe and enjoying the challenges posed by the game. Thus, the understanding that play has its objective in itself even means that playful activity is not a signifying practice in the same way that writing a text is. The player's activities of course may signify something in the context of play, but they may even just be some kind of to and fro motion, and, both may seem to make no sense or mean something else than in the given context outside the limited frame of the playing field.

Ruled activity

Contrary to Caillois's statement, even play based on make-believe is to some degree governed by rules as all playful activity as its foundation has the rule: "this is play". As pointed out elsewhere (Iversen, 2003: 9) this basic rule cannot be broken without interrupting the flow of the game. On top of this foundation may come both a set of informal as well as formal rules that govern the way in which the playful activity is carried out. Speculating about games with formal rules, typically board and card games, Wolfgang Kramer makes an interesting observation:

> "Everything that is in the rules is part of the game. Everything that is not in the rules does not belong in the game. The rules are the borders and the heart of the game." (Kramer, no date: not paginated)

While it is true that the rules define any formal game, the playful situation even in this case is made up of much more than the formal rules governing it. Depending on the participants many other rules may be in play, rules that will be more or less implicitly stated, but which nevertheless inform the conduct of the engaged persons. For example, one group of players may accept cheating while another group does not, and this will certainly affect the way they configure a given playful situation.

Rules as the foundation

Being digital systems, computer games are always build on formal rules, in the sense that the underlying program code is based on formal logic. However, it is up to discussion whether computer games should all be perceived as formal games. While strategy games and role-playing games are clearly based on a highly formalistic rule set, more traditional adventure games as well as action games often seem to have much more in common with acting in the world than with being placed under strict formal rules. Thus, the rules which operate in most adventure and actions games are more akin to some kind of natural or narratological laws that on a general level determine what can and cannot be done. In other words, the play session is clearly determined by a set of given rules, but the player may be as little aware of these as she is of gravity.

Computer games, then, are formally ruled games, but the nature of these rules may be more or less obvious to the player. While some computer games, notably role playing and strategy games rely on rather intricate rule sets, it is still possible in most cases to play a computer game by acting on the occurrences simulated in the virtual game world being only intuitively aware of the underlying rule set. However, in the sense that formal rules are rules that are not as easily broken or changed as informal rules, computer games are formally ruled.

Earlier, the playful situation has been described as the players entering into a contract with more or less clearly stated rules. In the case of formally ruled games, the contract is first and foremost between the game and the player. The game sets up a certain goal for the player to reach as well as some limitations as to how this may and may not be done. The game contract, thus, requires that the player enters into the spirit of the game, accepting both the objective and the restrictions.

Something at stake

The fact that the player may not win means that something is at stake every time someone engages is game playing. This uncertainty is to a great degree what motivates the player, urging her to try her powers against the task. The

player seeks to achieve a certain goal, but may not reach it due to the limitations posed by the game's rules or other players. In this sense formal games always imply competition or struggle:

> "A game is an exercise of voluntary control systems, in which there is a contest between powers, confined by rules in order to produces a disequilibrial outcome." (Avedon & Sutton-Smith 1971: 405)

The "contest between powers" does not, of course, have to be directly violent or combat-like, but a game that does not in some way oppose the player is not a true ruled game. The point is that ruled games are essentially about winning over, beating, or overcoming something. This is even one of the main reasons why so many computer games feature combat and violence. It is simply easier to facilitate uncertainty and competition in a simulation of combat than in, say, a simulation of tea party, because computers are better at simulating acting entities than conversations, feelings, etc. This is not to say that tea parties may not feature opposition, but these would often be of a more subtle kind, which may more easily be expressed in literature or film.

Game playing is a processual activity with an outcome that is never certain at the beginning of the session, and this element of uncertainty may in fact be one of the distinguishing factors of formally ruled games:

> "This attribute, of all entertainment media, is only found in a game. Someone who reads a book, watches a movie, or listens to music, can repeat the experience at any time, but the course and the content is always the same. You can play a game any number of times, however, and the course will always be different." (Kramer, no date: not paginated)

While action games and strategy games are obviously uncertain in their outcome it is arguable whether some adventure games are so to the same degree. Classical adventure games, for example, often take the form of rather linear narratives with build-in puzzles that often have only one solution. However, drawing on Kramer's list of uncertainty-creating factors in formally ruled games I shall argue that even adventure games are uncertain to some degree, and may thus count as formally rules games.[32]

According to Kramer the uncertain outcome of formally ruled games may be produced by:

- *Variable start-up situations*, which is the basis of most card games.
- *A random generator* like dice or a computer system.
- *Complexity* as when the number of possible moves is very high.
- *Incomplete information* as in many card games or in computer games in which the player enters an unknown area.

In many computer games all four ways of allowing for uncertainty is implemented. Even classical adventure games are based on incomplete information. Thus, while the course of an adventure game may be designed rather stringently, the player while overcoming the various rising obstacles is

[32]Kramer would probably not count classical adventure games as formally ruled games as he explicitly counts riddles and puzzles amongst non-ruled games, finding that their outcome is not uncertain. While riddles and puzzles lack other characteristics of formally ruled games, I shall argue that their outcome is indeed uncertain until they have been solved.

not aware of this but is rather concerned with solving the problems. In this respect even classical adventure games may be seen as formally ruled games.

Direction

Although the concrete outcome of a given game may be uncertain at the start of playing, the fact that games have set objectives, as well as rules that limit the ways in which these may be reached, means that the player's activity is headed in a certain direction. Thus, game developer Greg Costikyan defines the computer game as being "an interactive structure of endogenous meaning that requires players to struggle towards a goal"; the word 'towards' indicating a certain direction of the player's activities (Costikyan, 2002:24). Not all end positions are equally desirable and these non-goals are directions that the player is less inclined to follow. Note, however, that the direction and goal of game playing is defined by the game and the playful situation, and, thus, is not directed at the world outside the playing field.[33]

In early computer games, the sense of direction was created alone by rising speed. Typically, the computerised opponent(s) would attack the player-controlled in-game entity with more and more speed until the player had to see

[33]A competitive situation may well exceed the boundaries drawn up by a given computer game as when, for example, a group of children compete against each other in the mastery of the game in question. But this competition still takes place in a playful setting as this struggle of mastery is part of their play.

herself defeated by the pace. In contemporary computer games, rising difficulty, or levelling, is still a directional device. Although, in principle, the player is allowed to make the avatar go anywhere in the game world, she may simply not manage to access certain locations until, for instance, she masters complex control figurations or until the avatar has reached a certain experience level. Designing the game space as a labyrinthine structure, in which only certain locations are accessible at one time and access from one area to the other is restricted to certain criteria is another means of giving the player a notion of direction. Even in computer games with a more open structure, roads in a simulated out-door area will often point the player towards points of likely interest. Narrative, obviously, is another strong directional creating device as it links different events together in a plot that strives towards conclusion.

Computer games in the light of play

The implications of studying computer games in the light of the above introduced play theoretical understandings will be summed up below:

- While the study of individual players' experience give significant insights into computer games, it is even more important to study the games in themselves as well as the playful activity which they seek to facilitate and motivate.

- During playful activity a set-aside field is created through the interaction between players and the playful potential in which everything may take on other meanings than those of everyday life.
- In order to play the acting entity must be able to differentiate between play and non-play.
- Playing is terminated as soon as the carried out activities result in consequences that have effects outside the playing field.
- Being relatively finite systems with clear limitations to what may and may not be done, computer games are formally ruled games whether the rules are directly or indirectly stated.
- Formally ruled games always imply some kind of competition or struggle.
- Uncertainty is a distinguishing factor of formally ruled games and to a great degree what motivates the player to play.
- Being relative finite systems with set goals and rules, computer games tend to lead the players in a certain direction.

100

Conceptualising Challenge

5

101

> "**challenge** *n* **1** a demanding or stimulating situation. **2** a call to engage in a contest, fight, or argument. **3** a questioning of a statement or fact. **4** a demand by a sentry for identification or a password. **5** *Law* a formal objection to a juror"
> Collins Concise Dictionary & Thesaurus

The claim that challenge is a core element of computer games and a great contributor to their compelling effect is central to this thesis. Seeking to understand challenge as a phenomenon, the concept will be considered here in itself and in relation to computer games.

The fundamentals of challenge

As sure as opposition is inherent in existence, the experience of challenge is universally shared. When obstacles or demands are encountered the potential for challenges is present. However, only if the challenged is stretched in the attempt at dealing with the circumstances, only if the outcome is uncertain, does the situation pose a challenge. If there is no chance of failing, taking care of the affairs is merely routine work and there is no challenge to it. The phenomenon, then, is at once a property of the opposing element and of the opposed, and the challenge only comes into existence as the two meet. Moreover, it most be noted that the opposition of challenges does not necessarily have to be of an unpleasant nature. Rather, if the challenge is

dealt with in a confident manner even dealing with life threatening situations may have its own attraction.

When a challenge presents itself to consciousness in the form of opposition, it calls for action, urges transformation. The situation dares the challenged to change it by the use of skills, knowledge, or power. In the process of overcoming, the challenged may likewise be transformed as new ways of dealing with the situation may need to be cultivated, obtained, or learned. Also in conquering or in failing to do so may the challenged undergo change, for instance, with regards to position, opportunities, or even life and death. A challenge, then, is a dynamic phenomenon which implies transformation both for the feature that poses opposition and the one who finds herself opposed.

Depending on the context, facing a challenge may be regarded as a negative or positive situation. However, often only the outcome of dealing with the challenge may decide whether a given incident is viewed as positive or not. Even in the case of an overwhelmingly difficult challenge that seems almost impossible to answer, the situation may be regarded as positive if the challenged does actually defeat the challenge. Likewise, failing to deal successfully with a seemingly easy challenge may make the involved person regard the situation in a negative light. However, one may even learn much through failure and, hence, become better at meeting the next challenge. Thus, even challenges that are not overcome may be viewed as positive incidents.

It is clear from the great popularity of sports and games, even of going to war or of having to learn, that challenges are often regarded as attractive. Humankind, it seems, to a great degree find joy in dealing with challenges of many kinds. The general attractiveness of challenges was beautifully illustrated for me when I recently had the privilege of spending some time with a seven months old baby. When he played on his own, it was interesting to observe that the toys he most wanted were the ones that most strongly opposed him by being almost too large for him to manage or by being out of reach. The challenge of handling something that he did not quite master, but clearly wanted to acquire mastery of, was what attracted him the most. The smaller toys and the ones close by were only of interest if nothing more challenging could be found.

What seems clear from the above example is that the pleasure of dealing with challenges is closely linked to the pleasure of mastery. Both the transformation of dealing successfully with a challenge and that of failing to do so may hold the seed to (later) mastery.

The challenge of play

One of the situations in which challenges appear to be most attractive is during play. Since the actions carried out in play, as discussed in the previous

chapter, do not carry the same consequence as those of non-play, dealing with challenges is such a context is safe even if the attempt at overcoming is not successful. Moreover, as engaging in play is always a voluntary affair, it leaves the participant free to choose which challenges to take on and which to ignore. Pointing once more to the assertion by Avedon and Sutton-Smith, who regard a game as "an exercise of voluntary control systems, in which there is a contest between powers" (Avedon & Sutton-Smith, 1971: 405), it is clear that challenges lie at the heart of all game playing. The player is more than happy to struggle. She even expects opposition, and the thrill of eventually winning only grows with the difficulty of the obstacles. The challenge of opposition is what makes the game attractive.

The uncertainty of both challenges and games is another indication of the close connection between the two concepts. In a manner of speaking, the uncertainty of a game is linked to the challenges that it poses. These challenges are what stand between the player and her goal of completing or winning the game. While there may be challenges without games, the thought of games without challenges is inconceivable. Thus, games that are too easy loose their appeal because they do not offer proper challenges.

Challenges in computer games

Computer games, like all formally ruled games, are built up around challenges. In order to overcome the final challenge of winning or completing the game, the player has to deal with a long row of different challenges which face her during game playing. As computer games, along with other formally ruled games, are relatively closed systems the player is not only confronted with obstacles, tasks, opponents, and puzzles. Her actions are even restricted by the rules of the game and by the nature of the simulation.

The majority of challenges in computer games are there by design. They are intended. However, as players are different and because computer games are mostly complex systems, challenges that are not directly intended by the producers may well be experienced by individual players. The important consequence of challenges being intended is that the producers have even devised potential solutions and answers to these challenges as the various challenges must at least have the potential to be solved. Thus, the challenges faced by the player of a computer game will often indicate their own solution. This may be done in several ways, depending on the nature of the challenge. Puzzles mostly contain clues and hints. The solving of other challenges is made possible by the provision of proper controls and interface elements. Rules for the cause and effect of various resources, likewise, supports the player in

dealing with challenges. Moreover, as the final goal of any game is to complete it or to win, the challenges that emerge between the start of the game and its conclusion in the case of a well designed game are, once successfully dealt with, supposed to bring the player closer to winning. In other words, the answer to the various challenges that confront the player will often indicate the next step towards a direction of winning.

Challenges are even shaped by the player because encountered tasks and obstacles do not challenge the same players to the same degree. The challenge affects player actions, but player skills and the way in which she may choose to act may even prove supposedly difficult challenges to be non-challenges. Thus, the relation between challenge and player is always dialectical in that both parties will be affected by the interaction. Many game designers take the consequence of challenges susceptibility to different players, giving the player the choice between several levels of difficulty.

The appearance of challenges

It is stated above that challenges present themselves as some form of opposition that requires the challenged to act, thereby brining change. In computer games this opposition, obviously, may take on many different forms.

Some challenges are directly stated as given tasks, orders, goals, and petitions for help. The player is informed by the game system through an explicit voice, such as a non-player character, written material, and the like, that she is required or asked to achieve a certain outcome. Thus, in the case of *MW*, the player character at the beginning of the game is asked to deliver a sealed packaged to a certain person in another town. What is to be obtained here is clear, and the challenge is to carry out the needed actions as well as finding out how the outcome can be achieved. At other times, however, players may experience opposition in that they are stuck at some point in a game not knowing what should be done in order to gain access to the next level of the game. Here, before the opposition can be overcome, the challenge is to reveal the type of obstacle the player is dealing with. This type of challenge is typical for adventure games and one of the reasons that many players and theorists view these as poorer games than action and strategy games.

In many cases, the challenges of the computer game arise as the player moves the entities under her control through the simulated environment. Here, the challenges are inherent in the properties of the simulated environment and its inhabitants. Thus, in *FIFA 2002*, to take an example, the player continuously has to deal with the challenge of following the ball, keeping it from the opponents, and trying to score goals. These challenges are inherent in the system but are not planned one by one beforehand. Rather,

they are created as certain conditions arise, and the player has to deal with all these challenges as they are encountered. Ignoring a new challenge that has just arisen may mean that the opposing team gets control of the ball and score a goal. These challenges, then, in most cases present themselves more forcefully to the player than do petitions, orders, and the like.

While some challenges may only have one solution, many games offer the player some freedom to pick her own challenges. In the game *SIMS*, for example, the challenges are that of a simulated everyday life. These challenges are seldom introduced explicitly, but by watching the happiness-meter of the sims the player will learn which areas of a sim's life needs tending to. At the same time the player may pick which other challenges she wants to take on, trying, for instance, to get the chosen sim a better job or perhaps a spouse. In *GF*, on the other hand, the player will often, especially in the beginning of the game, receive direct instructions about the next challenge to overcome. Later in the game a part of the challenge is to infer the nature of the next obstacles that calls for solution. In both situations, though, dealing with the challenges is the attraction of the game.

Challenge at the heart

Summing up on the above:

- Challenge is at the heart of all formally ruled games.
- The challenges posed in a playful situation are attractive because they require the player to expand in some way in a non-threatening atmosphere.
- A challenge invites an interactive situation, as the challenged is dared to answer and both parties affect each other.
- Uncertainty is central to both challenge and games. If the result were given, there would be no challenge and no game.
- As the majority of challenges in computer games are intended they will often contain cues to their answer or means for their solution.

Challenge Types

6

> "Half-Life's intricate environmental challenges, rich story-line, and frighteningly intelligent adversaries add up to a new kind of challenge – one that demands you use your weapons and your wits. Monsters don't walk blindly into you gunfire – they're cunning as hell and want to live as badly as you do. Friendly characters aren't cannon fodder – they're critical to you success."
>
> From the *HL* game box

As the previous chapter made clear the putting something at stake is central to games and game playing. If there is no (at least virtual) risk of losing and getting it wrong, winning does not have the same appeal. The construction of analytical concepts, which may serve as tools for describing and distinguishing between the challenges posed by computer games, seems to me to be the first step towards investigating the role of challenge in computer games further.

Methodological considerations

Although the motivation for playing games to a great degree is tied to the challenges that games provide, the player does not necessarily differentiate between different types or levels of challenge during game playing. With respect to most types of computer games, the player acts on the simulated situations as they arise, and such situations may well consist of several challenges at the same time. Thus, the categories that I shall propose here are clearly analytical constructs.

Based on my experience and the experience of other players, from the onset of this work, I have had an idea of the types of challenges available in computer games. Observing the various challenges on a phenomenological foundation, I seek to describe and characterise these as they appear. This involves starting out rather intuitively, noting the conditions that immediately stand out, thereafter refining the observations through reflection, discussion and ordering. Further investigations have confirmed some of the initial categories while others have been renamed or replaced. While the fundamental descriptions of characteristics have more or less remained unchanged, the greatest problem with regards to the challenge classification has been the creation of proper categories.

Creating categories

Proper scientific categorisation is based on a fundamental logic which dictates that different main categories have different characteristics. Moreover, the classes of the same level need to be of a similar generality. While the main categories will often be fairly general, their respective subcategories will be more and more concrete. The process of naming and categorisation is always also one of construction. Relations and the lack of the same are established, and the concrete is generalised. While the features that lead to one

phenomenon being discerned from another are describable and may be confirmed through inter-subjective scrutiny, classification, at the same time, entails an enforced order which creates the named subjects in its own image. Still, the constructed order brought about by categorisation is often desirable because it offers an enhanced general view on the investigated matter.

When I first began to describe and order the various challenge types of computer games, I strove to devise main categories that were compatible, being of the same generality, sharing no overlapping features. As long as I stuck to the overall principles the abstract classes of my creation seemed sound, but as soon as I began to observe the material thoroughly I was confronted with challenge types that seemed to belong soon to one main category then to another. My first reaction was to go through all my observations and initial lists of potential challenge types again, looking for some kind of order. After some time I came to the conclusion that the main categories I had devised were too abstract, and the solution would be to create classes that were more concrete. This seemed to work better, but then I was faced with another problem, namely that the new main categories seemed to be of highly different generality and the blending sub-classes remained. After further reflection, it became clear to me that the problem this time was one of mixed generality levels. However, I even realised that while the main categories have to be different in nature, elements belonging to the subclasses

may well be present in several main categories, albeit with different perspectives. Since the categories are not natural as such but constructs, their content – in the form of subcategories – will at times blend. While this may seem as a lack of order it reflects the empirical findings. Staying true to the observations of actual computer games, I find, is better academic practice than creating clear-cut and orderly categories.

Challenge types

As computer games are an example of formally ruled play activity, the overall challenge of computer game playing is rule utilisation. This challenge recurs in different forms in the five main categories that I shall propose. For the sake of order these main categories are even assigned sub-classes, detailing different aspects of the respective challenge types. Note that while the most fundamental of these sub groups is mentioned first in the appropriate passage, the sequence of the described sub-categories is not an expression of any strict hierarchy.

Based on observations of the six example games as well as on general gaming experience, I suggest that computer games confront the players with five different types of challenge that will be discussed below:

- The challenge of orientation;

- The challenge of acting;
- The challenge of resource management;
- The challenge of construction;
- The challenge of puzzle solving.

Before discussing these further, I shall, however, treat rule utilisation in more detail.

Rule utilisation

As has been discussed in chapter five, formally ruled games seek to create challenges by setting up a goal as well as certain limits for how this is to be reached. Any serious player, thus, enters a game contract of desiring to win and seeking to achieve this within the framework of the rules.[34] Games, of course, may be played with the intention of loosing, and while this may hold its own aesthetic pleasure it certainly violates the game contract. Rules, likewise, can be broken, but this diminishes the challenge of playing and, so, undermines the central aspect of the activity. The reason why computer game playing is essentially about rule utilisation is because players generally desire

[34] It must be noted that computer games, like other formally ruled games, may be used by players who do not know and are unable to grasp the rules. Younger children, for instance, may enjoy playing computer games even if they are not able to infer the underlying rule set. Instead, they construct their own alternative stories or rules, using the games as props in non-ruled play.

to win and be maximally challenged on the way. Agreeing with the game contract, the player seeks to make the most out of the set limitations.

The notion of rule utilisation refers to the active interpretation of the rules carried out by the player during game playing. It is concerned with judging the appropriateness of actions in accordance with the rules. Knowing the rules alone is not game playing. A player may well read though the whole manual that comes with some games, but working knowledge of the rules is only gained by interacting with the simulated environment. Moreover, many computer game producers do not provide much additional description of the underlying rule set, and, so, inferring what can and cannot be done is often only possible by actually playing the game.

As will be seen in the treatment below, different challenge types are related in different ways to rule utilisation. The relation, moreover, need not be one of correspondence. While the game's rule set is often the standard by which the propriety of an action is determined, criteria of an aesthetic nature may be the foundation as well. Constructive challenges may be answered in a fashion that works against the intention of the rules as a kind of non-rule utilisation. Yet, as long as this is done intently a working knowledge of the rules in question is still involved.

Rule utilisation is not the same as setting a strategy. The player may engage in rule utilisation rather unaware whereas a strategy is plotted

deliberately. Still, setting a strategy may be part of rule utilisation, and the acting out of the plan is visible in the way the player chooses to answer the various challenges. In many cases, dealing with encountered challenges does not require any strategising and often challenges may even be solved by trail and error or random efforts. However, for the pleasure of ordering and trying to foresee what will happen most players set up some strategies for their own playing.

Challenges of orientation

Upon playing a computer game for the first time, the initial challenge confronting the player is mostly one of orientation; of "providing information or training needed to understand a new situation or environment" (Collins Concise). Computer games upon the first encounter, in most cases, provide both new situations and environments. Part of playing, then, is to acquire a certain mastery of the simulated environment, being able to move in it as well as establish relations between different locations or objects in the represented space. However, in this typology I choose to discern between challenges that require the player to operate in an orientational mode and challenges of acting. Orientation may be seen as a type of action, but, as in this case, may even be regarded as a prerequisite for action. While orientation is about the

acquisition of understanding, acting is about executing the former in movement and interaction.

In a fundamental sense, the orientational challenge is concerned with forging a link between the player's experience of embodiment and the projected realm she is to deal with. Moreover, the challenge of orientation often remains beyond the initial establishment of relations. Players may have to read the simulated environment or recognise its potential, as they may need to cultivate an intuitive grasp of the projected space.

Linking bodies

The player is present in the world conjured up by the game via the avatar's body or other actor units that may be manipulated, just as being and acting in real life requires a body. By 'body' I do not necessarily mean a human body, but rather refer to one or more actor units that may be manipulated to cause events to happen in the game world. The car in a racing game and the round being in *PacMan* are both bodies that enable the player to act in the respective realms. In the case of strategy games, the body may either be that of the invisible god-like controller entity, or all the units under the player's control may be seen as members of the same extended body. However, as the player-controlled entity of the majority of computer games takes the form of an

anthropomorphous being, I find that the word 'body' reflects well the function of the in-game entity that enables the player to act in the game.

For most computer game players, as they draw more or less unknowingly on the experience of embodiment as well as on familiarity with game playing conventions, the process of linking the player's ability to affect the game world with that of an (expanded) in-game entity is predominantly transparent. Exactly because being and acting in the world as embodied being is a fundamental human experience, the being in the game world qua one or more actor units seems completely natural and the process of linking is, hence, rarely noted.

An example of how a game system seeks to establish an intuitive relation between player body and avatar can be found in the opening sequence of *HL*. The game opens with a long cut-scene in which the player is given a first person point of view from inside a carriage descending further and further into the Black Mesa test facility. During this, a female voice informs the inbound about the facility, the ongoing research, and security measures of the place. The locations and places through which the Freeman avatar must later fight his way out are presented as an ever-descending labyrinthine structure. At some point before arrival, information appears on the screen in capital letters, presenting the main character of *HL,* Morgan Freeman in a dossier-like style, detailing his work experience, his security clearance, and the location of his

work. The scenes presented to the player draw on the experience of embodiment, playing on the recognition of perspective during movement. The sense of moving along with the carriage is played upon in order to create a feeling of "being there".

At some point, the images stop moving although the high-speaker voice continues, informing passengers not to forget any belongings in the carriage and to await identification by the guard before disembarkation. At the same time a, yet disembodied, male voice greets Freeman. Nothing more happens on the image side, however, until the player starts using the directional controls, whose identity and function she will need to have familiarised herself with beforehand. As long as the player does nothing, the image on the screen will just appear to be an image, but using the directional controls will shift the image from side to side or back and forwards in a zoom effect, creating the visual impression of head movement. Using the controls, it is possible to get a full circle view of the carriage which is empty.

Here two things happen. For one, the player is invited into the fiction conjured up by the game; the fiction that the player's movements are suddenly the movements of someone with a first person perspective on the monitored scene. The game, in other words, offers an illusion of body – or at least some eyes – moving in space, which, as discussed in chapter one, is based upon the human experience of being embodied in actual space. This experience is to a

great degree visual, but even the auditory senses are stimulated into accepting the virtual body of the game. Thus, when the player uses the movement controls the sound of footsteps can be heard, enhancing the illusion of body movement in an actual room. Secondly, at this point several cues – the dossier, the greeting – have been given as to identify the disembodied view with that of Freeman's (which is strangely at the same time that of the player).

Often the linking between player and avatar is more abrupt. For instance, in the case of *GF*, after a long introductory cut-scene that presents the avatar Manny and his situation there is a sudden shift to the player-controlled mode. After finishing dealing with another lousy client, Manny just stands around without doing anything or saying anything, waiting for the player's directions. Likewise, when the player is first confronted with the represented space of *CIV II*, a settler unit is blinking in the middle of the screen. Text in a pop-up window informs the player about appropriate actions, but otherwise nothing happens until the player takes control. The blinking avatar by its almost impatient movements, which are not moves but rather idle reflexes signalling that moves are possible, invites the player to put it to use.

In games like *FIFA 2002* or *SIMS* the avatars will continue to move around and act even when the player does not issue any commands. However, the *FIFA* team is unlikely to win without the player's input, and the sims are as unlikely to get friends or jobs if the player does not intervene. The apparent

action in those cases is more or less futile and without overall direction until the player assumes control. Thus, the lack of action or of actions that lead to achievements is a cue to the player, signalling that her taking over is required. The fundamental challenge of orientation, the linking of player body to simulated body, is characterised by a lack of action in the game environment or by futile actions that do not lead to achievements or that will result in the avatar's death.

Reading the simulated environment

After the initial orientation towards the avatar or units which the player is to control, the challenge of orientation remains in many computer games as the player still needs to find her way around the projected environment. This is a challenge of reading the represented space, and, often, of relating the locations of the simulated environment to in-game maps.

MW provides a good example of a complex simulated environment that poses great orientational challenges. The player moves the avatar around in a large simulated environment where every location in principle is accessible.[35] Movement between cities may either be via different means of travel (instant

[35] Some locations are locked and require keys, magic or lock picking in order to become accessible. Moreover, the opponents present at some locations may be too strong for a low level character, which means that these places are in reality only accessible for high level characters.

links) or "on foot", in which case the player moves the avatar through a variety of terrains where other non-player characters, wildlife, houses, caves, and the like may be encountered. The terrain between cities is not empty in *MW* as it would be in classical adventure games where instant links typically connect larger important areas. Locating certain places and getting there alive is often a part of the tasks that the avatar may take on in *MW*. Help can be gained from non-player characters that may provide directions, and the game features a map facility and a compass to aid the player's orientation. The challenge for the player, then, is to combine the information obtained via map, compass, and directions given by non-player character with the environment that the avatar is encountering in the game world.

Taking an example from *MW*, the player character has to reach the Caldera Ebony Mine from the small town of Caldera. The precise location of the mine is not on the in-game region map, but after receiving directions the player may consult the map to confirm the general direction of the avatar, and the compass tool in the lower right corner may assist further in keeping the right direction. Not knowing anything about the mine's location, the player character has to ask the locals for direction. The mine, she is told, is southwest of the town, but a very steep range of hills lie between it and her current position. She may try to climb the hills or she can take the longer route going straight west from Caldera until she reaches an opening in the mountains

where she will have to turn south. If the player wants to make the avatar try her luck at the shorter route, she will have to search out the least steep slopes. Although the in-game map indicates different types of terrain, it is not as detailed as to show where it might be possible for the player-character to cross the hills and where the terrain will be too steep. In order to find out, the avatar has to try climbing the hills until she finds an accessible slope. Answering the orientational challenge, the player needs to let direct observations of the game environment work together with the information obtained from non-player characters, in-game map, and compass.

In games of the adventure genre, where the player is usually faced with a lot of different tasks, locating places, getting something from somewhere, and the like, are often part of the quests. This task is not a puzzle as such – and thus not part of the challenge of puzzle solving – since there is clear information both about where to go and what to do there. In *Collins Concise Dictionary* 'labyrinth' is mentioned as one of the synonyms for 'puzzle'. Thus, finding way in labyrinthine environments that are created to be difficult is closely related to puzzle solving.

Drawing on Qvortrup's notion of simulated spaces being representations of the human experience of being in real space, I find that the ability to read the simulated spaces of computer games depends on the same cognitive

competences that are used when someone has to orientate herself in real environments.

Recognising environmental features

In maze-like game environments, such as the one featured in *HL*, the orientational challenge is often related to recognition and remembrance rather than to relating the various readings of the represented to each other. Thus, *HL* provides no map and the player has to remember which parts of an area she has already explored and which are still to be searched for possible entrances to the next area. Moreover, the player must learn to recognise what types of environmental features may work as access points either in their immediate or a manipulated form. In *HL*, for instance, many locked doors and windows may be broken thereby allowing the avatar access. Vents, under-water pipes, ceiling holes, to name a few, may be entered, and the player has to build up a knowledge base of such potential entrances in order to facilitate the ongoing progress of the Freeman avatar.

In the case of computer games with a relatively closed structure such as *GF*, the complexity of the areas to be explored is relatively small compared to more open games such as *MW*. Solving the puzzles of *GF* still involves making the avatar walk from place to place in order to pick up objects or get information, but the environment rarely leaves the player lost with regards to finding the

way. The reading of this environment, then, is more connected to puzzle solving than to orientation as it is concerned with remembering the location of significant objects or character as well as references to important locations.

In other types of computer games that feature dungeons and other maze-like environments, the environmental features that must be recognised are not potential entrances or exits. In such situations, the player is often required to find a certain object, piece of information or creature somewhere in the maze which is inhabited by different types of hostile creatures. Here the player may search every corner of the environment, fighting her way through, but this may require more resources than what the avatar posses. Thus, another strategy is to try to work out the location of the maze's significant points, heading directly for these. Such points will in many cases be guarded by high level adversaries. Recognising environmental features, in such cases, means to locate the most challenging opponents or obstacles.

In all the mentioned examples recognising the environmental features is about the player getting an overall view of the simulated situations she is to deal with. Whether this means spotting potential enemies, spotting significant objects, or other potential for advancing the game this type of orientation goes deeper than just dealing with simulated space in its own right. It is rather an orientation that depends on the player's understanding of the underlying game system's logic which is visible in the simulated environment. As a proper

recognition of environmental features may result in more optimal use of resources, this type of orientational challenge is associated with the group of resource management challenges.

Cultivating an intuitive sense of the simulated space

The challenge of orientation obviously is present in games such as *MW* or *CIV II* that represent large landmasses and ocean on which the player must move the avatar or units under her control. However, even games with simple space representations, such as *FIFA 2002*, require the player to orientate herself. This type of orientation, however, is of a more intuitive nature. Moving the team members up and down the simulated football lane, the player needs to cultivate an instinctive map of the location of the goals, the ball, the other team members, and the opposing team. As actions, in order to be effective, have to be carried out at a high pace, the player cannot spend much time getting an overall view of the immediate situation. Without an almost instinctive knowledge of the simulated environment and the other actors in it, the player is unable to react as quickly as successful game play demands. This type of orientation is typically needed in fast paced computer games that focus on motor control and precision. Thus, more slow paced games such as *CIV II*, *SIMS*, and *GF*, do not demand players to cultivate an intuitive sense of the simulated space in the same way that *FIFA 2000* and *HL* do.

Fig. 12 Challenges of orientation	
Linking bodies	The initial and fundamental orientational challenge of all computer games during which a link is established between player body and in-game body. Characterised by lack of or futile in-game action. Associated with the challenge of acting.
Reading space	Concerned with finding the way in complex environments by the help of directions, maps, and other means of help. Based on the experience of embodiment and the cognitive abilities of relating experienced space to depicted space.
Recognising features	Concerned with decoding the potential of the simulated environment. It may be potential for access, for holding significant objects, and the like. This type of orientation deals with the logic of the underlying game system. Associated with the challenge of resource management and puzzle solving.
Cultivating an intuitive sense	When successful game play depends on very fast reactions an intuitive sense of the simulated space is required. Associated with the challenge of acting.

Challenges of acting

The challenge of acting in computer games is to a great degree related to motor function but also requires an understanding of the logic of the underlying

game system. Building upon orientation, the player chooses to initiate different types of actions in the simulated game space. Acting in this context, then, is to make the player controlled units move and engage in various interactions. Here I chose to see 'movement' and 'interaction' as two separate subcategories of the challenge of acting. While movement is a form of interaction – with space and between body members – game technically it often functions, and moreover feels (psychologically), differently than interaction with non-player characters or object use. Thus, moving is focused on motor control while the other interactions are about relating to entities in the game world. One provides a different challenge than the other.

Moving

During game playing, the game engine translates the player's commands via mouse, keyboard or joystick, among others, into avatar body movements or directional moves visible on the screen. In other words, the game establishes a correspondence between the use of certain interface elements and certain in-game actions. This transition may seem intuitive and natural to the experienced player, but the link between a certain player movement and the corresponding avatar movement is arbitrary, in principle only fixed by the producer's decision. However, most computer game subgenres have over time developed their own standards for control functions, and for advanced players

game control may seem to have its own logic. In the case of newer games, the player is, moreover, usually given the option of customising the various function keys to her own liking.

The complexity of the controllable entities differs greatly from game to game as does the potential for free movement. As a minimum, the player should be able to move the avatar or controllable object up and down or to the left and right. Many contemporary computer games even simulate movement in three dimensions. The challenge of moving in computer games is typically connected with transportation as well as combat in the wide sense, which includes competitive sports. When it comes to action games, combat and transportation are, in fact, closely connected as enemies are typically encountered when the avatar is made to move through various areas of the simulated space. Important with regards to combat, however, is the fact that it is a borderline case as it also contains strong elements of interaction. Thus, combat in some types of computer games, such as *CIV II*, only involves a minimum of movement and rather centres on interaction, while combat in *HL* and *FIFA 2002* is highly movement intensive. Yet, even the two latter cases involve interaction.

In the case of, notably, action games the challenge of moving remains major during the course of game-play. Thus, the challenges of *FIFA 2002* and *HL* to a great degree are concerned with successful movement. In order to perform

with the speed and timing required the player has to develop an instinctive knowledge of how to operate the controls; a skill that is tightly linked to the acquisition of instinctive location knowledge. It is not enough to know that pressing a certain key when playing *FIFA 2002* will result in a tackle. The player also needs to be able to choose this option without having to consciously think about how to do it. The movements must be so integrated in the player's action pattern that they are "in her hands". The acquisition of such mastery usually requires repetitive training and a good motor function. As the game features football teams of different skill, the challenge of acting in *FIFA 2002* will remain for experienced players, who may test their abilities by playing against the best teams or by trying to bring a low level team through a tournament. In action games, such as *HL*, where the player directs the avatar in a labyrinthine structure, the challenge of acting is mostly retained by ensuring that overcoming obstacles will take more and more skill. Skill, in this context, means fast movement control as well as precision.

Movement is a type of action that computer games are good at simulating in comparison with, for instance, dialogue or feelings. Therefore, game developers who strive to create a transparent mediation will find that this is most easily done in relation to movement. While the use of controls, as already mentioned, has to be learned, many players achieve great skill. For the players who manage to reach an intuitive approach, the mediated nature of the game may

fade away during playing because using the controls has become second nature in the same way that using legs or hand is for most people.

In the case of the other computer game genres, the challenge of moving in the game environment will often be initial, partly because the movement controls are less complex to use and the difficulty of using these does not increase, partly because the games are more concerned with the result of actions rather than the actions themselves. For instance, in the case of *CIV II*, the game system moves the units according to the player's directions. It is the system that determines how a given command, such as "go to [given place]" or "attack" should be interpreted as simulated movement. The way actions are carried out by the units is not important. Central is rather the type of actions performed as well as their result.

Interacting

While movement is interaction with space, some computer games even challenge the player with other forms of interaction such as dialogue, combat, trade, or use of objects. Fundamentally, making changes to the simulated environment or its inhabitants involves interaction. The carrying out of interactions is often handled via interface windows. Unlike the movement controls that may almost seem to become transparent over time, the use of the interface windows always points towards the hyper-mediated nature of the

game. Thus, dialogue, for instance, has to be carried out via a window with different written sentences that the player may choose between. Some games use audio for the non-player characters' lines, but mostly these may even be subtitled. Carrying out dialogues in computer games, then, in most cases appears less "natural" than moving. On the other hand, the former activity does not demand much training or motor skill although skilful "conversation" will often require an understanding of the game's objective and its logic. Thus, conversation between avatar and non-player characters is usually about gaining information, or about convincing the non-player character by choosing the right dialogue options. While functionally being a type of interaction and thereby part of the challenge of acting, the true challenge of conversation is closely related to puzzle solving (gaining information), resource management (getting tasks, convincing), or construction (making choices according to player inclination).

Other types of interaction involve objects. Thus, simulated objects may typically be examined and picked up via mouse clicks, and an interface window provides room for objects carried by the avatar. These simulated objects are to be used in puzzle solving or as resources. The first type of objects may be combined by dragging one on top of the other, or by applying one to various environmental features, such as using a key on a lock. The latter type of objects may be used by the avatar. Clothes and armour can be worn, weapons

are to be wielded, food is to be eaten to gain strength, etc. In many games the objects that the avatar obtains can even be sold in order to gain funds. Again, apart from the initial challenge of learning how to carry out the various object-related interactions, the main challenge of object use is connected to resource management (trade), puzzle solving (gaining information and using objects), and construction (as options that may or may not be chosen and brought to different uses).

As mentioned earlier, combat is also an interactional challenge because it involves object use and dealing with other characters or units. As interaction is fundamentally about attempts at affecting the surroundings, combat clearly belongs here. Thus, the goal of beating or killing someone, involves making changes to the existing order. Apart from this, the interactive side of combat, for instance in the case of *MW*, may be the monitoring of the health bar of an opponent in order to determine how far the player is from conquering the foe. In the case of *FIFA 2002* the interactional side of combat is to a great degree tied to orientation as it is concerned with keeping an overall view of both team members and opponents.

The notion of an interactional side to the challenge of acting is, as is clear from the above, highly ambiguous. On the one hand, it does appear as something set apart from moving, but on the other hand it is closely associated with other types of challenges, receiving much of its challenge quality from

these. However, I find that the challenge of acting is not complete without the subclass of interaction, and so it will remain until a better typology has been developed.

Fig. 13 Challenges of acting	
Moving	Concerned with using the controls in order to make the controlled in-game entity carry out movements in the simulated world. Includes transportation and to a certain degree combat. Mainly about motor control and precision. Associated with the challenge of orientation.
Interacting	Concerned with interacting in order to affect changes in the simulated world, by engaging in conversation, combat, trade, or object use. Associated with the challenges of puzzle solving, resource management, and construction

Challenges of resource management

Managing resources is often part of computer game playing and the central pursuit in strategy games. The resources may be as diverse as the team members of a football team, health, strength or experience points, money, ammunition, time, production or army units, to mention a few. Just using available resources in itself is not a challenge, and, so, this aspect of resource management is not treated as a separate sub group here. Rather, the challenge

only arises once the player gets an understanding of how the various resources may be best used or when she is put in a situation where she is forced to prioritise. The point of resource management, then, is to make the most of the available resources in accordance with the goals set by the game system or with own goals. While resources may be managed according to the player's whims or aesthetical pleasure (being part of a constructive challenge) successful game playing will usually require that resource management is handled strategically in relation to the game's rules or "natural laws".

Understanding the potential of resources

Deliberate use of resources requires knowledge of their potential. Without an understanding of the opportunities that different kinds of resources open, the player is not able to make informed choices but only makes random dispositions. Although the latter may hold its own entertainment value, such an approach will often be closer to free play than game playing, thus violating the game contract and the designated point of the game.

The player may obtain understanding of resources' potential by going through the manual or by careful observation of the game system's reactions to various resource related inputs. As many computer games are not distributed with detailed manuals, adequate experience with resources is often only developed over time by trying to put these to use.

Pointing to some of the example games, the income generated in *CIV II* may be used to generate scientific advances, to build various reinforcements or units, to make the population grow or to please the population with luxuries. Before the player is able to make informed choices about how to best use the income, she will need to know something about the consequences of both spending and not spending income on these activities. Taking another example from the *SIMS*, a sofa is not just a sofa in this game. Different sofas have different rates of comfort and stylishness, and so choosing which sofa to use in a sim's home is not just about judging looks. Rather, the player has to add up the various ratings for the furniture she wants to place in a home in order to understand how these contribute to keeping the sims contend. Likewise in the case of *FIFA 2002*, it matters which team members are placed in what positions. A team member with a high score in heading, thus, seems to be a better choice of defender than a team member who has a high score in running. In all examples it is clear that the realising of resources' potential is closely interlinked with an understanding of the game's rules.

Generating and cultivating resources

In the case of most games, the player is assigned an initial amount of basic resources on start up. As the difficulty of game play increases these resources will usually have to be developed or replenished in order to keep the player

fully up to the task. Part of resource management, then, is to generate new resources as well as to cultivate the existing ones. As the available resources differs greatly from game to game, the ways of obtaining and developing these does too.

In role playing games like *MW*, experience is one of the resources that the player has to generate by making the avatar use her skills. Thus, using a certain weapon type during combat over time increases the avatar's skills in this area. When a number of skills have gone up through use or training, the player is awarded experience points that may be distributed among the avatar's seven character attributes. Every time the avatar reaches a new level of experience, the resource of character attributes is strengthened.

Most computer games of the strategy genre operate with some kind of income resources that goes towards developing and maintaining the controllable units. In the case of *SIMS*, the simulated people become more content the more expensive their homes are and, thus, get more time to spend on developing their skills and their friendships. Income in *CIV II* goes towards developing the civilisation, for instance, by creating new functional units. The latter may either be seen as resources available to the god-like controller, or they may be seen as the extended body of the player. In both cases, however, these are still resources in the same way that the skills of the *MW* avatar are resources regardless that they are at the same time part of her as a body.

The resources that are to be gained in adventure games like *GF* are knowledge and objects. Thus, a great part of playing this game is to search for useable objects. This is done by moving the mouse cursor over the simulated environment. When an object with a potential use is targeted, the cursor changes in order to indicate that something here can be investigated or used. As it will be clear from this description, finding new resources in such cases is even closely associated with orientation. Some adventure games offer descriptions of such objects which may give hints as to their (alternative) use, thereby indicating for the player if they may come in handy or if they are just for show. In *GF*, however, the player has to think this out by herself. With regards to the usefulness of these resources, some adventure games feature more portable objects than are actually to be used for puzzles in an attempt to conceal the linear nature of the structure.

Prioritising

Like in real life, many situations that the player encounters during game playing are not ideal. Several directions for development may be available, but often only some of these can be chosen at a time. In other words, the player has to make judgements and prioritise, for instance, in accordance with the strategy of her choice or with the overall goal.

Using an example from *CIV II*, the player usually cannot at the same time hold peace with the other civilisations and obtain knowledge of their secrets via diplomats and spies. Thus, the use of these resources has to be prioritised. The player will have to decide whether the possible gain of cultural development is worth the resources that may go into a war. Likewise in *MW*, the avatar is part of various competing organisations. While it is possible to be a member of all these circles at the same time, advancement to the higher ranks within one will involve breaking the rules of one of the competing group. It is possible at times to circumvent this problem through cunning, but the immediate situation seeks to force the player to choose between which resources in the form of allies to maintain and which to lose.

In many action games time is often a scarce resource, as the player has to react fast in order to avoid the annihilation of the avatar – or loosing the ball to the opposing team in the case of *FIFA 2002*. In fast paced situations, the player often has to prioritise the time tightly. Here knowledge of the potential of resources like moves or weapons together with an intuitive sense of the simulated environment and good movement skills will assist the player in making good priorities. Thus, many types of challenges play together in such a situation.

Fig. 14 Challenges of resource management	
Understanding the potential	Concerned with learning what the various available resources may be used for. The foundation for effective use of resources. Often only cultivated over time.
Generating and cultivating resources	Concerned with finding resources as well as with putting them to a use whereby they are cultivated or multiplicated. May be linked to the challenge of orientation (when resources have to be located).
Prioritising	Concerned with dealing strategically with resources in situations where making one choice means that other options close. Associated to the challenges of orientation and acting.

Challenge of construction

The challenge of construction is aesthetic in nature. As all play is aesthetic activity, this may seem a rather vague characteristic. However, in my understanding, the challenge of construction centres on the aspect of playing that is most closely connected with aesthetic activity as choices are here based purely on the player's enjoyment of the situation. A fundamental characteristic of constructional challenges is a lack of determination in the game system. Thus, the constructive challenge arises in situations in which the player is given a choice; the choice of picking strategy, expression, style, etc. Basically, the constructive challenge invites the player to indulge in aesthetic pleasure

by making her own constructive choices, often by choosing between given options and combining them to her own liking. The challenge of construction, then, may either be intended by the game's producers or it may arise through the interaction between player and game system. In the latter case it is symptomatic of the constructive energy present in most play.

The uncertainty of the constructive challenge is often of another nature than that connected to the other challenge types where it is relation to possible failure or success. Often, in the case of constructive challenges, the uncertainty is rather linked to the lack of predestination that is connected with creative activity. Thus, the player who, for instance, embarks on creating a character does not know from the unset of playing precisely how this entity will work in relation to the game system. The judgement of success and failure in such a case, often, will be dependent aesthetical criteria set down by the player.

General construction

General construction is about making choices without deliberately seeking to optimise role play or play against the intention of the rules. Still, it may be a pleasurable challenge and, thus, designates a sub-class of construction. The constructive aspect of character creation in *MW* or house and home building in *SIMS* may be obvious, but even the choice and creation of football team in

FIFA 2002, choices of dialogue options in *GF*, or choice of playing style in *HL* and *CIV II* will to some degree pose constructional challenges.

For instance, the player engaged in *CIV II* may choose a strategy relying on either civilisational development or on warfare. Both choices have their own implications and challenges, but one is not more likely to lead to winning than the other. Thus, the choice is purely aesthetical, dependent on what style of playing gives the player the greater pleasure. The same is true for a game like *HL*. While the game system decides in what sequence the player character is to enter the various locations and, so, even in which sequence he is to meet given opponents, there is a relatively great freedom for the player to choose what weapons to use. Truly, some opponents may only be neutralized by certain types of weapons, and at given locations special equipment that requires certain tactics is the only means of rendering opponents harmless, but during most of the game the player is free to choose the approach.

Another aspect of the general constructive challenge is the choice of added difficulty. Thus, a player may want to try her skills against maximum competition. This is normally only a playing style chosen by advanced players who still want to be challenged although they have developed great mastery of the game. Likewise, a player who chooses to create additional limitations to those posed by the game system does this in order to create a constructive challenge.

Optimising

A constructive challenge that some players find much pleasure in is optimising, as they re-play game sessions facing challenges in a more optimal way for the sheer beauty of it. By optimising the player seeks to play as much in line with the rules and the game system's potential as possible. As it will always be possible to play less skilfully and effectively the choice of optimising is a deliberate aesthetical choice. An optimising playing style requires experience with the direction of the game, its scenarios, and rules.

Role playing

Another sub-class of the constructive challenge is role playing. While this would typically be a playing style connected with role playing games, players of other genres may make this constructive choice as well. Role playing is about empathy and identification. In the case of simulation games, the player may seek to play scenarios that accurately recreate historic events. In the case of action and adventure games role playing will typically be connected to character. The player seeks to portrait a believable or rounded character through her choices of actions. Thus, if playing the avatar as evil, the player may abstain from doing good deeds, whereas the opposite would be the case if

the player sought to portrait a righteous character. Playing in line with a certain character profile or historic event is, of course, only possible, if the player is allowed a relatively great freedom, and the constructive challenge, as mentioned earlier, only rises in cases where the game system leaves the player to choose.

Playing against the intentions

The constructive challenge will often be secondary to the challenge of resource management as most players will want to play in line with the intentions of the rules rather than against them. However, at times players choose to disregard the game contract in order to pursue a constructive challenge. Thus, playing *SIMS* the player may choose to construct houses purely on the ground of aesthetic considerations. This may require cheating, as the start capital may not be enough, or it may result in less optimal conditions for the sims. Taking a more extreme example, a player engaged with *FIFA 2002* may decide to see how many own goals her team can score or how many tackles the team is to perform before all the team members are thrown out of the match. While such attempts may give aesthetical pleasure, they are at the same time counterproductive with regard to the rules and will make the completion or winning of the game much more difficult or even impossible.

Fig. 15 Challenges of construction	
General construction	Concerned with all the free choices the player makes for her own aesthetical pleasure. The choices may not be based on a strategy of optimising, role playing, or playing against the intentions of the rules. Characteristic of constructive challenges is a certain lack of determination in the game.
Optimising	The player deliberately chooses to play in a way that is as optimal in relation to the game's rules and overall goals as possible. Depends of prior knowledge of the game and its underlying logic.
Role playing	The player seeks to act in alignment with the nature of a chosen character or historical period. Based on identification and empathy.
Playing against the intentions	The player seeks to play against the intentions of the game's rules for the pleasure of it.

Challenges of puzzle solving

The challenge of puzzle solving is mainly present in computer games of the adventure genre, but as *HL* shows, it may also be featured in other genres. A puzzle, according to *Collins Concise Dictionary & Thesaurus*, is a "toy, game, or question presenting a problem that requires skill or ingenuity for its solution"; a clear indication of challenge. Sharpening the definition, I shall add that a puzzle in this context is not just any problem, but that the notion

implies mystery, lack of straightforwardness, or concealment. Finding way in the game world, for instance, may prove a problem, at least for players with a less developed sense of orientation. However, if clear directions are provided and the location or object is not hidden, the problem of locating it is not a puzzle. On the other hand, having to locate something that is concealed may well prove to be a puzzle. This form of challenge addresses the player's logical and interpretive abilities but may even require creativity as solving puzzles is often not dependent on logic but on intuition and imagination. Solving a puzzle may at times be the main issue of a task obtained directly from the game system (from non-player character or as written instructions), but more often the puzzle will be part of a larger quest.

Logical puzzles

Logical puzzles require the player to detect the laws behind the working of given objects or phenomena such as riddles. The solution to logical puzzles can be found through reasoning and experiment, but even a pure trial/error approach will, given the time, lead to the correct answer. While some logical puzzles are excellently integrated in the simulated world, others seem to be placed there out of context because the game has to feature some challenges. In the case of *GF*, however, the few logical puzzles are well integrated into the story. For instance, Manny and his buddy Clovis need to get some gears that

are placed on a strange construction with four pumps, two on each side. The pumps move in and out in stable cycles. If the construction can be made unstable enough, the gears will fall off, and so the player needs to determine how this may come about. Four tubes run from ground level to the pumps, and by making Manny drive a wheelbarrow over these, it becomes apparent that each pump is connected to a tube. By blocking given tubes with the wheelbarrow the player may stop the corresponding pump, then at the right movement move the block in order to make the pumps on each side work in unison. Done correctly, this will destabilise the construction. The logical puzzle in this case is to determine which tubes need to be blocked at what point during the pumps' cycle.

Interpretive puzzles

Interpretive puzzles are about decoding and relating pieces of information. In order for a puzzle to be interpretive there must be direct hints or hidden clues that can be found by the player. There must be connections which, once revealed, seem perfectly obvious. In *HL*, for instance, Freeman at some point enters an area that contains a control room from which it is possible to direct some kind of laser machinery. This device is workable, while the consoles in other areas are usually not. A player with a well developed interpretive sense will realise that the mentioned machinery is different than other devices

encountered and may therefore conclude that it is to be put to some kind of use. In the same location a new type of monsters appear which do not take damage from the weapons at Freeman's disposal. Relating one observation to the other, the player is supposed to realise that the laser device can be used against the new monsters. As this is not straightforward it is a puzzle that involves interpretation.

Creative puzzles

In want of a better word, I shall call the last sub-category of puzzles for creative puzzles. These are puzzles that are neither about logical reasoning nor about interpretation of hints and information. Rather, these puzzles are about thinking in alternative ways and taking far fetched associations to the extreme. Finding their solution usually requires quite some fantasy. Often creative puzzles involve alternative use of objects, and *GF* is a game that booms with such puzzles. Thus, Manny at some point wants to get into a backroom of a blimp security officer's office. The problem is that he will only be allowed in there if he is to be strip searched by the officer. The same officer is only allowed to strip search someone when the alarm of the metal detector goes off. As Manny has to leave all his belongings on a table before passing under the metal detector, it seems to be impossible for him to set off the alarm. The player somehow has to infect Manny with metal. The solution is to make

him drink gold flaked liquor before going through the metal detector. As there is no apparent connection between the fancy gold flaked liquor, which Manny has been carrying around for a long time, and getting into the backroom, this can be considered a creative puzzle.

Fig. 16 Challenges of puzzle solving	
Logic	Concerned with detecting the laws behind the working of an object or phenomenon. The solution may be found by reasoning or by trial and error.
Interpretive	Concerned with decoding and relating pieces of information.
Creative	Concerned with coming up with creative solutions to problems. Often about association and alternative use of objects.

Challenge relations

As is clear from the above treatment, the challenges of computer games and their sub-classes are neither clear cut nor appearing orderly one at a time. In concrete computer games, the posed challenges arise in intricate webbings, and the complex relations between challenges of different types at times make them hard to distinguish. Thus, investigating the challenges of computer games, these are to be regarded not only individually and isolated but as

components of different kinds of structures. The next chapter discusses the structuring of computer games in general and the role of challenges in this. Concluding this chapter is a diagram which provides an overview of the proposed challenge types and their sub-classes (fig. 17).

Fig. 17 General view of proposed challenge types and their respective sub-classes

Rule utilisation (often requires strategising)				
Orientation	Acting	Resource management	Construction	Puzzle solving
Linking bodies	Movement	Understanding potential	General construction	Logic
Reading space	Interaction	Generating and cultivating	Optimising	Interpretive
Recognising features		Prioritising	Role playing	Creative
Cultivating an intuitive sense of space			Playing against intentions	

Structuring Challenges

7

> "A story is linear. The events of a story occur in the same order, and in the same way, each time you read (or watch or listen to) it. A story is a controlled experience; the author consciously crafts it, choosing precisely these events, in this order, to create a story with maximum impact. If the events occurred in some other fashion, the impact of the story would be diminished --or if that isn't true, the author isn't doing a good job."
>
> Greg Costikyan

In the previous chapter, a categorisation of computer game's challenge types has been attempted. Thus, the various classes and subclasses of challenges have been described as relatively well-defined. However, in the practical gaming situation, challenges do not stand alone but are implemented in relation to each other. Dependent on this structuring, the various computer games appear with each their distinct direction and rhythm, and structure in relation to challenge has to be considered.

The structure of computer games

Computer games, even when featuring random effects or allowing a great range of player actions, are media products with a certain form. As has already been touched upon, it has been an ongoing argument within the field of study how computer game structures should be described. Upon discussing Jesper Juul's notion of progression and emergence structures as well as narratives as

a general open structure, I shall suggest that computer games should be regarded as challenge structures.

Progress and emergence

Juul (2002) describes computer games as employing one of two possible structures, being either games of *progress* or games of *emergence*. This notion is interesting for the current work in that it, too, is concerned with structures of challenge.

Juul describes games of progression as structures in which the player is presented with serially introduced challenges that normally may find only one solution. While some of these games allow for limited "free" exploration, the events occurring during game play are still highly predictable. (Juul, 2002: 323-324, 326) Featuring conditional links, which work as portals that only allow access to new nodes once certain conditions have been met, such games leave most of the configurative control to the producer. Juul sees the progressive game structure as a narrative structure, finding that the demand for narrative coherence is what limits the player's freedom. As shall be discussed later, this is not necessarily the case.

Games of emergence, according to Juul, remain the more interesting structure of the two as they allow for a much greater degree of improvisation

and variation. Computer games with emergent structures, in other words, are here seen as the true form:

> "*Emergence* is the primordial game structure, where a game is specified as a small number of rules that combine and yield large numbers of game variations, which the player then designs strategies for dealing with." (Juul, 2002: 324)

What happens in a game of emergence, according to Juul, is synergetic as the whole created through the interaction of the existing parts is greater than these and cannot be directly inferred from these. Juul admits that this does not mean that the player is free to do whatever she pleases, or that the behaviour of players lacks pattern or regularity:

> "Rather even in an open rule-based system, some event can still be determined or are at the least very likely to happen. This can both be the property of the system – some games will drift to certain conclusions, no matter what the players do, and it can be a psychological effect. One way to put it is to say that players tend to respect the *game contract*, where they agree to pursue the game goal. This means that players will tend to do certain things." (Juul, 2002: 327)

Thus games of emergence are neither fully player controlled nor fully determined by producers as the producer has not necessarily anticipated all the possible player actions while creating the game. However, as Juul admits, the producer's failure to anticipate players' actions does not necessarily equal emergence.

The concept of emergence stems mainly from biology and refers, according to Mark Bedau, to phenomena that are "somehow constituted by, and generated from, underlying processes", being at the same time "somehow

autonomous from underlying principles" (Bedau, 1997: not paginated). This notion according to Bedau is highly philosophical, tending to the metaphysical, in that something highly complex seems to derive from more or less nothing, and he points to the concept's lack of usefulness in relation to empirical situations. In order to redeem the concept, Bedau proposes that a distinction should be made between strong and weak emergence. Weak emergence, according to Bedau, arises when a phenomenon can be derived from the external conditions of an underlying system only through simulation. (Bedau, 1997: not paginated) In other words, if the underlying system is complex enough as to be immediately impenetrable by the human mind, thus requiring simulation in order to be fully grasped, the outcome of its behaviour is weakly emergent. Thus the concept of emergence is made significantly vague through the notion of weak emergence, but becomes much more useable in this process. Although referring to this distinction between weak and strong emergence, Juul never directly states that he uses the concept in the former sense.

In order to discern between degrees of emergence, Juul proposes three different types of emergence: *rule interaction*, *combination*, and *emergent strategies*. The first form 'rule interaction' refers to the situations in which players use devices or handle situations within the game world in ways that have not been predicted by the producer. As Juul rightly points out, failure on behalf of the game designer to predict the behaviour of players does not

necessarily equal emergence. The second category, that of combination, points to the potential of computer games to derive many different game sessions from the same set of underlying rules. The third category refers to strategies employed by players which are not directly deductible from the game rules. (Juul, 2002: 326)

While finding Juul's attempt at describing the structures of computer games interesting, I see at least two problems in his use of the concept of emergence. Firstly, I do not think that it is possible to categorise all computer games as either progressive or emergent. Based on my experience with computer role playing games and some types of actions games I find that many computer games shift between emergent and progressive situations. Thus, as Juul to a certain degree admits by the employment of the category of rule interaction as well as in his analysis of the online computer role playing game *Everquest* (Juul, 2002: 326, 327-328),it would be more fruitful to see strong progression and strong emergence as two opposite poles in a continuum. Turning to the second problem with Juul's notion of emergent structures, I find that while weak emergence is certainly at play in many computer games, it is a characteristic of a certain situation brought forth by certain structures rather than a structural aspect in itself. Emergence, in other words, is a property that may become present, but it is not a structuring device as such. In this respect, describing a structure as emergent does not convey much about the nature of

this structure, but only tells that relations not predicted beforehand may arise in it. I shall elaborate more on this point later, but first narrative as a structuring device will be discussed.

The challenge structure of narrative

As touched upon earlier, the most radical ludologists regard narrative as a form of structuring that requires great narrator control, thus being an obstruction of free play as it only leaves little room for players' configurative activity. While narratives in novels or movies certainly are narrator controlled, narrative may even be seen as a general structure of interlinked events of human interest. Thus, Claude Bremond with regard to the laws of narrative discerns between the general and the particular level:

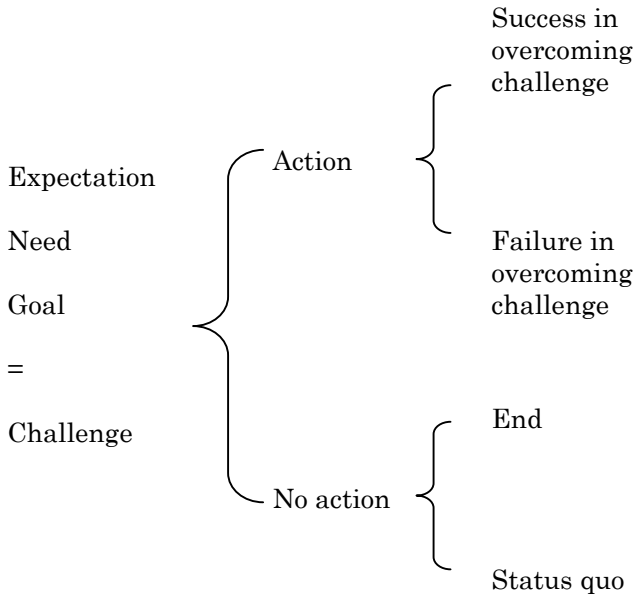
> "These laws themselves depend upon two levels of organization: they reflect the logical constraint that any series of events, organized as narrative, must respect in order to be intelligible; and they add to these constraints, valid for all narrative, the conventions of their particular universe which is characteristic of a culture, a period, a literary genre, a narrator's style, even of the narration itself." (Bremond, 1996: 62)

In connection to challenges and computer games the interesting aspect is the logics of narrative structure, which Bremond explores in *The Logic of Narrative Possibilities*.

Seeking to map the logic of narrative possibilities, Bremond envisions the events of narrative in a triadic relationship (fig. 18). Thus, the outset is a

situation of need, of (negative or positive) expectations, or of setting a goal. In other words, a challenge takes form. This situation will mostly lead to actions that seek to meet the challenge. The initial situation may even be followed by a lack of action that will either result in the narrative ending or in status quo. Sooner or later in the case of status quo, the narrative must either end or action must be taken. When action is taken, this may be successful, in which case there is a time of fulfilment until the next challenge appears, or it may end in failure in which case the challenge will still apply or the narrative may end.

Fig. 18 Narrative as challenge structure based on Bremond



According to Bremond, the events of any (conventional) narrative may either lead to amelioration or degradation. These states of affairs follow each other throughout the narrative structure until its conclusion:

> "There are narratives in which misfortunes follow one after the other so that each degradation brings on another. But in this case the deficiency which marks the

> end of the first degradation is not the real point of departure of the second. The intermediary interruption – this *reprive* – is functionally equivalent to a period of amelioration, or at least to a phase which represents the preservation of what can still be saved. The departure point of the new degradation is not the degraded condition, which can only be improved, but the still relatively satisfying state which can only be degraded." (Bremond, 1996: 65)

Bremond regards the structure of need/fulfilment, degradation/amelioration, expectation/realisation as necessary for narrative dynamics. It is the engine of narrative propulsion. This does not mean that stagnation does not feature in narratives, but sooner or later in order to advance the narrative some action must be taken in answer either to the original challenge or to a new one. [36] In this respect, then, narratives, like games, are about action and struggle, about challenge. In both cases, the open situation that appears once a challenge takes form is what makes the reader read on and the player play. While the reader of a novel is being told about actions that are out of her control, the player is invited to actively intervene in the potential narrative that unfolds in the computer game.

Note that the challenges in the general narrative structure do not necessarily require a certain answer. In a movie or novel a challenge has one answer due to the limitations of the medium, but in more dynamic settings such as computer games there may be many potential answers to a given

challenge. On this level of generality, narrative appears as a rather open structure which even allows for different degrees of emergence as described by Juul. Weak emergence does not depend on the lack of narrative structure but rather on the openness of this structure. Thus, the lack of player freedom in playing progressively structured computer games, as described by Juul, is not due to the use of narrative but rather depends on the closed structuring. Looking to the empirical material, the different structuring of *GF* and *MW* which both feature strong narrative traits is a good example. The narrative structure of *GF* is closed in that challenges can only be overcome in one way, often even in only one given order. *MW*, on the other hand, throws many challenges at the player at the same time, which may be solved in several ways or even abandoned. Still, the desire for a closure will lead most players to act on the challenges that are a part of the main plot-line.

Narrative, as I have attempted to demonstrate here, is relevant in relation to computer games as challenge structures, despite the protests of some ludologists. The concept, however, does not account adequately for all types of computer game structures alike. For instance, the lack of aspects of human interest in games such as Tetris out-rules the notion of narrative in that context. Games of this type are purely structured around a single given task.

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[36] Avant-garde literature, of course, experiments with narrative conventions, seeking, for instance, to create narratives in which nothing happens. But if truly nothing happens it is rather a case of

Other types of games may still feature actions and events of human interest, but are rather structured around set intervals of time. This includes many of the action games that revolve around a sports match as well as these that simulate vehicle management. This has partly to do with the subject matter of the games, but even stems from the fact that these games will often be more concerned with the result of playing or the feeling of acting in the world than with the relation between actions. The notion of narrative structure seems more suitable in relation to strategy games as these are mostly highly concerned with the "plot" behind the result, and narrative traits are even obvious in all games of the adventure genre.

Open and closed structures

Merging some of Juul's thoughts with the model of narrative challenge structures based on Bremond, I want to suggest an alternative way of viewing computer game structures. Emergence, I believe, is not as much a structuring device as a potential for the unexpected whose actualisation is dependent on how openly a computer game is structured. As stated above, I suggest that

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description than narrative. See chapter one, note six.

computer games should be seen as challenge structures insofar as challenge is the core element of computer games; the engine of game dynamics.

Computer games may be seen as structured challenges. Most of these have deliberately been build into the game system in order to entertain the players. However, some challenges, notably those of constructive nature, may rather be added or found by the player independent of the producer's intention. Moreover, some challenges arise once the player makes the controlled in-game unit enter a certain location. Others are initiated by the fulfilment of various criteria. The criteria may be, amongst others, the solving of certain tasks and challenges, reaching a certain level of strength or experience, reaching a certain point in game time, to mention a few. Challenges may even be initiated if the player chooses certain optional interactions with non-player characters or objects. Thus, some challenges will always arise during an (ideal) play-through while the initiation of others depends on the player's actions. Because of this most descriptions of existing computer game's structure will be subjective, referring to a specific player's play-through. As most computer games even employ different structures at different points during their course, it seems more suitable to talk about structuring principles rather than pure structure types.

The various structuring principles are characterised by *the relation between the challenges* and *the degree of freedom* to answer the challenges. Moreover,

a notion of *rhythm* is vital in this connection, in that different games challenge the players at different pace. Some games hold to a slow or a fast rhythm during the whole play-through while most games are created with some passages faster paced than others. As long as the assessment of computer games' structuring principles deals with the general design it is enough to consider the three above mentioned factors. If, however, the intention is to give an accurate and full description of the actualisation of a concrete computer game, even the nature of the encountered challenges has to be regarded.

Challenge levels

In order to differentiate between the different levels of challenge that make up a computer game structure, I shall point to four distinct ranks of challenge, which, like the other analytical concepts, do not reflect the player's experience but rather are constructed to aid the inquiry into the subject.

Key objective

The overall challenge of the game which, once overcome, leads to the player completing or winning the game, I shall call the *key objective*. The key objective in *GF*, for instance, is to guide the Manny-avatar through all his ordeals, solving the mystery of the missing tickets to the heavenly express

train the Number Nine, during which process he will gain his true love as well. The key objective for *CIV II* is to be the first civilisation to have conquered the world, either by force or by being the first to colonise the far away Alpha Centauri system. Other games have less clearly stated key objectives. As already mentioned, *SIMS* does not have a clearly stated final goal for the player, although the challenge of making the sim households excel in friendships and carriers is not small. While players may chose to adopt other strategies, it is implied in the set up of the game that the key objective is to make the sims succeed.

Main tasks

The key objective consists of a great variety of challenges – the *main tasks* – that must be solved in order for the player to reach the final goal. These main tasks are important in the overall structure of the gaming experience. Most computer games are designed with a form of sectional structure. The various sections may be the so-called levels typical of action games, areas, set time periods, or chapters in a plot, to mention to most obvious. These sections make out a main task and dealing with all or, at least, the required challenges in such as section is equal to solving the main task.

The use of such main task sections is one of the factors contributing to the creation of rhythm in computer games. Often, the start and close of a section

may be more slowly whereas the events happening in between may take place at a higher pace. The sections may contain several structuring principles. Thus, at the transition from one section to the next a quite closed progressive structure will often be employed.

Each separate area of *HL* constitutes a main task as does each match and the preliminary preparations in *FIFA 2002*.

General tasks

Often the main task of dealing with a whole section of a computer game is separated into many *general tasks*. General tasks are always defined and described by the game system and they are not featured in all computer games. They will be given as commands, requests for help, major obstacles that have to be dealt with in more than one step. In closed game structures, general tasks usually serve as conditional links that, once all have been solved, give the player access to a new main task. More open game structures to a higher degree leave the player to choose which main tasks to take on. However, if the game has a set key objective, some main tasks will be compulsory and must be solved in order advance the game and complete it.

The different side quest given to the player character by the various non-player characters in *MW* as well as the various overall steps that go into solving a main task are examples of general tasks.

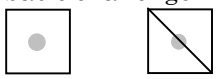
Basic challenges

The main and general tasks are composed of series of *basic challenges*. These are the fundamental building blocks of challenge structures. In the case of closed game structures, most basic challenges (apart from constructive challenges) will have to be dealt with and solved. Obviously the player is given much more choice regarding which basic challenges to take on and which not in an open game structure. As is evident from the descriptions of the empirical material, some computer games feature basic challenges that must be solved in a given sequence and in one specified way such as *GF*. Most computer games, however, such as *FIFA 2002, CV II,* and *MW*, are more openly structured, allowing the player to choose which of many basic challenges to take on or generating random basic challenges.

Structuring principles

Below I point to three different structuring principles that all exist in a simple and complex version. The six structuring modes are illustrated by simple models that show the relation between the basic challenges of which they consist (fig. 19). Fully drawn arrows indicate a compulsory relation

Fig 19 Symbols for basic challenge



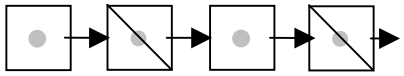
while dotted arrows indicate possible relations.

Main tasks, general tasks, and key objectives are not indicated in the illustrations below, but these may of course be noted down if one wishes to create a model of the play-through of an existing game. Other factors that would be appropriate to note in a diagram of an actualised challenge structure would be the type of challenge encountered, the rhythm in which the challenges arise, and whether solving the posed challenges is compulsory or optional. As most games contain thousands of challenges which moreover blend into each other and arise at the same time, giving a full and accurate description of an actual play-through will be a daunting task.

Progressive challenge structure

The most simple challenge structure is the *simple progressive* which is closed, stressing producer control on the cost of player freedom (fig. 20). Challenges are serially introduced and may only be solved in one prescribed way. Thus, the general challenge of a progressive challenge structure is to identify when a basic challenge is encountered and then answer it by trying to find the correct solution. If a featured challenge is not identified, the player may find herself in a stagnated game world where nothing important happens until she realises the nature of the unnoticed challenge.

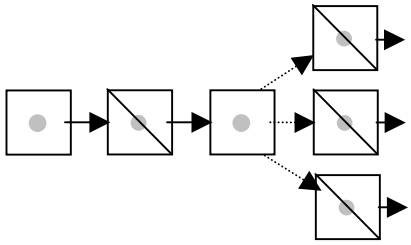
Fig 20 Illustration of the simple progressive structuring principle



Of the six example games, *GF* is the one with the most clear progressive structure. While at times during the game, more basic challenges are open for solving at once, there is always only one right answer to a given challenge, and most of the time, only one main task can be faced. Thus, after the game intro, the first main task is to get Manny to a massive food poisoning in order to pick up the dead. While it is possible for the player to explore several parts of the immediate area and collect items that will be needed in order to overcome later basic challenges, the first general task is to get Manny down to the garage. Unfortunately someone has sent his driver home for the day and the next general task is to find a new driver, then to get a permit for this driver, and so on. Many individual obstacles have to be overcome before Manny is able to get to the poisoning and no matter how fast or slow the player is in answering the individual basic challenges, the outcome will still be the same due to the closed structuring of the game. Manny will arrive too late to pick up any decent dead.

The progressive challenge structure may be more or less complex, depending on the player's freedom to choose her answer to the basic challenges. Thus, in a *complex progressive* challenge structure, the introduced challenges may be solved in more than one way (fig. 21).

Fig 21 Illustration of the complex progressive structuring principle



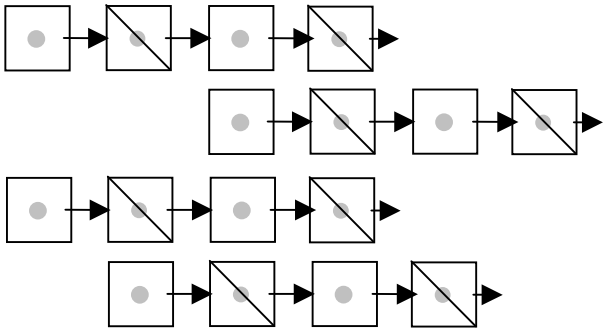
This leaves the structure open to weak emergent behaviour. It is important to discern between the simple and the complex progression structure because complex progressive challenges structure may otherwise be mistaken for more open complex challenge structures.

HL is a game that is mainly structured in a complex progressive way. Thus, the player must move Freeman from location to location. The main task connected with each area is to find the entry into the next location. This involves searching the premises and staying alive. Thus, a limited number of adversaries face Freeman in each location and these may be fought in a number of ways. The player is given freedom to act according to her own strategy which will depend on the avatar's health and shield points as well as the type of weapons and amount of ammunition available.

Parallel challenge structure

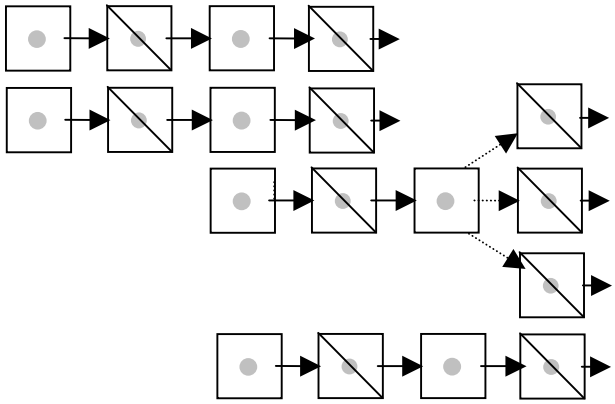
A more open and complex challenge structure, the *parallel*, may feature several parallel basic challenges at the same time (fig. 22). Parallel basic challenges may well be related to the same main task, but one may not have structural priority over the

Fig 22 Illustration of the simple parallel structuring principle



other. That is, if one basic challenge must be completely overcome before solving the other can be continued, their relation is prioritised, and so not a case of parallel challenge structure. The parallel challenge structure may be more or less complex, depending on how freely the player is in her choice of overcoming the given challenges (fig. 23).

Fig 23 Illustration of the complex parallel structuring principle



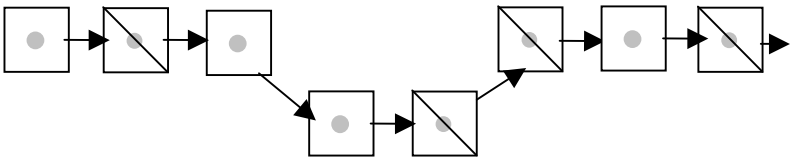
FIFA 2000 provides the player with a lot of parallel basic challenges during the matches. The player must at the same time direct one of the team member with the movement controls, she must be aware of the rules of football playing, and she must keep a track of the ball and the other team members. It is possible to play the game only concentrating on one of these aspects, but a better result is certainly gained if the player is able to do all at once. Thus, the basic challenges are related, but one is not dependent on the other.

Nested challenge structure

The last challenge structure that I want to point to is the *nested*. This structuring principle may, like the others, be either *simple* (fig. 24) or *complex*

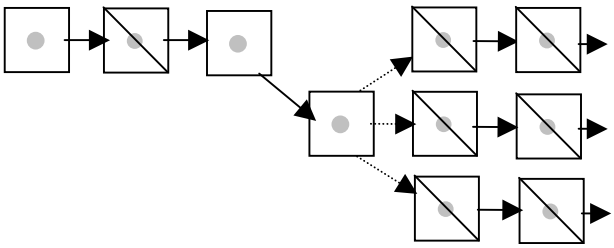
(fig. 25). It may, moreover, be featured in both progressive and parallel structures.

Fig 24 Illustration of the simple nested structuring principle



Characteristic of the nested structure is that finding the solution to some general task involves dealing with another general task in order to proceed with solving the first. The relation between these general tasks is structurally prioritised as the former challenge may only be solved once the nested task has been taken care of. Thus, the nested challenges work as conditional links, imposing the control of the producer more strongly on the player than in the case of pure parallel structures. This is not an ordinary progressive structure, since two challenges will be introduced in a row without before their answers may follow. Likewise, it is not an ordinary parallel structure because the emergence of the nested challenge is dependent on that of the first challenge, whereas the relation between ordinary parallel challenges is not prioritised.

Fig 25 Illustration of the complex nested structuring principle



Nested challenge structures can be found in *CIV II*. The game is the most freely and loosely structured of all the game examples, having only a clear set

final objective. Building civilisational wonders, such as the pyramids, Leonardo's workshop or a cure for cancer, may be seen as main tasks, but these run alongside other activities that are likely important. As for the complex nested challenge structure, the player at some point during the game may be informed by writing in a pop-up window that one of her cities needs, for instance, sewers in order to grow further. The particular civilisation may not, however, yet be as advanced as to be able to build sewers, and thus, this basic challenge is nested, as another basic challenge, that of advancing the civilisation to a state where sanitation is a known technology must first be overcome.

Structuring principles and beyond

The structuring principles for computer games as challenge structures are, like the challenge types, simplified constructs created to provide an overall view of a complex subject matter. As touched upon earlier, making a full and precise description of an actual play-through of a given game will be an overwhelming task in most cases. Although such a description may provide interesting points, the notion of structure seems more useable on a general level as a framework for comparing and discussing different types of computer games as challenge structures.

The most important point in this connection, however, is seeing challenges as the motor of computer games and as components of structural relevance. Not only does this approach redeem both narrative and non-narrative structures in relation to computer games, but it even begins to imply that the player's meaning-creation in relation to computer games to a great degree may be facilitated by the structures of challenge.

181

Concluding Remarks

8

In the preface of this work three areas of investigation were introduced. Thus, the aim was, firstly, to demonstrate the relevance and vitality of challenges to computer games; secondly, to categorise the challenges posed by computer games; and, thirdly, to reconcile the concept of narrative in relation to ludological computer game studies. Here each of the three areas will be discussed and concluded upon.

Challenge as a vital concept

As I have sought to demonstrate throughout this thesis, challenge is a central concept in relation to computer games. In a structural sense challenges may be seen as the basic units whereupon the computer game is build. If there is no opposition, problems, or obstacles with an uncertain outcome there is nothing to make the players engage in the game. Challenges may both be present in the form of build-in difficulties and in the form of the limitations laid out by the game's rule system. As challenges are directed at the player, and not merely at a character in a fiction, the player is strongly invited to interact and put her own skills at stake against the problems. Like all challenges even those present in computer games invite intervention and promise transformation.

The uncertainty of challenges and their ability to stretch the challenged are in part what make computer games so attractive to many players. Several features of computer games may provide entertainment for the player. Much of this is connected with the execution of challenges and the player answering these. The accompanying background stories, which are provided with some computer games, or the simulated enaction of the player's choices may even provide entertainment. Still, without the challenges which ask for the player's active intervention it would rather be an interactive movie or novel, not a game. In the safe environment of the playing field, experiencing the uncertainty of the outcome of one's actions provides excitement and pleasure. The same does the acquisition of new skills or knowledge because this is not connected to work but to voluntary playful activity.

Challenges, moreover, play a role in providing direction in computer games because they are designed as individual components of a larger, coherent structure. Even if challenges are not directly linked to each other, a challenge always requires some answer if the game is not to reach a stand-still and, so, there will always be a minimum of direction from the posed problem to its solution. Often, however, one challenge points toward or triggers the next and in this way contributes to tying the many different incidents together to a whole. In this respect, the challenges of computer games may play a structural role that is somewhat akin to that of a narrative's plot elements.

Categories of challenge

The challenges employed in computer games are many and varied. Based on observations of six example games as well as on general experience with computer games, five main categories of challenge types have been constructed as part of this work. Being the creator of the categories I have, of course, sought to make these as covering and as true to the empirical material as possible. Concluding on that section of this thesis, I shall point to some possible uses of the categories and to areas of further investigation.

Firstly, this work has succeeded in focusing in on challenges, and it has provided the first outline for a shared vocabulary regarding that subject. Moreover, I believe that the notion of challenge types and their various sub-classes will find several other uses within the field of computer game studies. Thus, when computer games are regarded as challenge structures the focus is on formal properties rather than on the audiovisual expression or the theme of the individual games. Thus, computer games of different types may here be considered on the ground of a shared conceptual framework which is not confused by the varied expressions of individual games and which does not favour one genre on behalf of others. This will create a basis for comparing games of different types and genres on the ground of the challenges employed in these and in relation to how the challenges are structured. Both likenesses

and differences will come into view, which may lead to discoveries that, for instance, go against the general understanding of genre. Moreover, the notion of challenge types may even assist scholars in asserting on a more formalised basis why some games are better games than others. In other words, with some additional development the notion of challenge types in computer games may provide a foundation for qualitative judgements that are not based on taste. The possible criteria for such assessments have not been covered here, but taking a starting point in this work they may be developed.

As mentioned in chapter six, devising proper categories proved a great challenge. Ideally, in order to develop the proposed framework based on the notion of challenge, the created categories should be discussed by other scholars within the field. The challenge types proposed here should, thus, be seen as a first draft in a work that has just begun. However, in order to make the challenge types more useable it may be a good idea to create more detailed sub-classes or even sub-classes of sub-classes. While the initial work in my opinion had to include all types of games for the sake of thoroughness, I believe that further investigations may benefit from concentrating on the various genres separately. The findings concerned with each genre may, then, in turn be compared and united into a general framework. Thus, a more detailed understanding of the challenge types employed in computer games may evolve.

Bridging the gap

As demonstrated in chapter seven, seeing computer games as challenge structures to a great degree overcomes the claimed opposition between formally ruled games and narrative. Computer games, it is argued by some scholars within the field, should be openly structured, depending only on an underlying set of rules for their limitations of action. A linear narrative which from the outset has the outcome of all situations of opposition already decided upon is, thus, not found to be a proper background for a computer game. However, this understanding of narrative is tightly linked to the narratives of media types that are less interactive than computer games. In the optic of Claude Bremond's notion of narrative logic, it becomes clear that narratives do not have to be that closed. Rather, many choices of action may be available each time new challenges arise in the storyline. Moreover, nothing in play theory speaks against employing narrative principles as some of the rules underlying a computer game as long as the rules are consistent and coherent.

Computer games are first and foremost games, and, thus, should be seen in the light of play theory. However, the binding together of events of human interest in a plot is a meaning-supporting operation that is available both to closed and open computer game structures, and which is, moreover, often employed. In other words, the use of narrative techniques does not rule out an

open and complex challenge structure. Instead of seeing formally ruled games and narrative as two competing concepts both may find their place under the umbrella of challenges. Here the likenesses between games and narrative are even highlighted: the need for transformation in order to move on, the uncertainty of action's outcome, and the putting something at stake.

It is important to stress, however, that not all computer games benefit from being understood in the light of narrative. A game of *Tetris*, for example, does not seem to convey any significant meaning if viewed as narrative or text. The blocks just keep falling faster and faster, and sooner or later the player has to give up. From the player's point of view, however, dealing with the challenges posed by the game is meaningful in itself because overcoming challenges gives pleasure. Thus, the sole meaning of some computer games lies in carrying out the right actions at the right time for the enjoyment of it. If a narrative outlook is forced upon such computer games the eye for their true significance is lost.

Challenges and meaning

Throughout this thesis the terms 'meaning' and 'meaning-creation' have from time to time appeared. As implied above, I believe that the notion of challenge may fruitfully be linked to that of the players' meaning-construction in their use of computer games. Often, the meaning of computer games has been

sought in their audiovisual expression because most media types deliver the fragments from which meaning is constructed via these means. Computer games do this too, but only to a certain degree. I believe that another meaning-bearing factor is at play, namely the actions that the player engages in via the interface. The meaning of actions in this context is not textual but akin to the meaning linked to "acting in the world". It is a deep and instinctive meaning-creation that is fundamentally related to survival. A posed threat leads to action which sooner or later takes the opposed to another challenge and then another. Thus, the importance and joy of carrying out the right actions at the right time – which is fundamentally analogous to surviving – is the only meaning that a computer game needs to convey to its player. In this respect, when computer games are regarded as challenge structures the challenges around which they evolve may be seen as components for the player's meaning-creation.

The fields concerned with meaning and meaning-making are many, and the conflicting understandings of the subject abound. Thus, a full investigation into the relation between challenges in computer games and the meaning-construction of players evades the scope of this work. However, it is an area for further research which I believe will prove to be important to the further developments within the field of computer game studies.

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