Logic and Structure of the Computer Game

ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch

DIGAREC Series 04

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with the editorial cooperation of Sebastian Möring

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Potsdam University Press 2010

Bibliographic Information from the German National Library
The German National Library has cataloged this publication in the German National Bibliography; detailed bibliographic data is available over the internet through: http://dnb.d-nb.de

Potsdam University Press 2010
Am Neuen Palais 10, 14469 Potsdam
phone: ++49 (0) 331 / 9 77 46 23
fax: ++49 (0) 331 / 9 77 34 74
web: http://info.ub.uni-potsdam.de/verlag.htm
e-mail: verlag@uni-potsdam.de

The DIGAREC Series is published by:
Digital Games Research Center (www.digarec.org)

This publication was made possible by funding from the Medienboard Berlin-Brandenburg, the Association for the Promotion of Computer Games Research "Gamology", the German Research Foundation, and the Department for Arts and Media at the University of Potsdam.

Layout: Klaus Zimmermann (www.signandshine.com)
Typesetting: Martina Kellner
Proof-Editing: Benjamin Gaede
Print: docupoint GmbH Magdeburg

ISSN 1867-6219 (print), 1867-6227 (online)
ISBN 978-3-86956-064-9

This publication has also been simultaneously published online through the publications server of the University of Potsdam:
URL http://pub.ub.uni-potsdam.de/volltexte/2010/4269/
URN urn:nbn:de:kobv:517-opus-42695
[http://nbn-resolving.de/urn:nbn:de:kobv:517-opus-42695]

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Introduction

Stephan Günzel, Michael Liebe, and Dieter Mersch

The conference on the "Logic and Structure of the Computer Game" that took place on Friday, November 6th and Saturday, November 7th of 2009 at the House of Brandenburg-Prussian History in Potsdam was hosted by DIGAREC, the Digital Games Research Center of the University of Potsdam. It was the first conference to explicitly address the medial logic and structure of the computer game. It focused on the specific potential for mediation and on the unique form of mediation inherent in digital games.

Computer games research has come a long way quickly; after ten years, the research community can already look back on an increasing number of conferences, volumes, research projects, and a lot of comparisons between digital games and cinema, literature, theatre, and arts – nearly every artistic practice was taken into account. Within this period, one can look back not only on the (by now almost classic) controversy between ludology and narratology, but also on several other approaches, for instance the discussion about the character of action and interaction, ethics in computer games, and the interrelationship between games and violence, the social impact of digital games. More recently, the interconnection between space and the visual or the role of the first person perspective, as it was discussed in analytical philosophy, and the question of the dispositive or empowerment, to name but a few, have been topics of discussion..

Some consequences may be drawn from this: Firstly, computer games are a complex issue which has to be analyzed from an interdisciplinary angle. This is why DIGAREC started with a combination of different fields, including Media Studies, Psychology, Law, Art Processes, Design, Computer Science, and others. Secondly, the research of computer games leads not only to insights pertaining to

computer games as such; these insights have to be contextualized. This contextualization, including the position in the history of media and the arts, allows for new reflections on art and cinema, on popular culture and the role of games in culture in general. This in turn leads to new perspectives for cultural studies. Thirdly, the concepts of the medial, the intermedial and of mediality are salient. They are the main frame for all such different studies and their contextualization.

The program of the conference was based on the inclusion of existent, yet scattered approaches to develop a unique curriculum of game studies. In line with the concepts of 'mediality', 'logic', and 'structure' of the computer game, the notions of aesthetics, interactivity, software architecture, interface design, iconicity, spatiality, and rules are of special interest. Presentations were given by invited German scholars and were commented on by international respondents in a dialogical structure. The conference topic corresponded with the goals of the research project "The Mediality of the Computer Game", funded by the German Research Foundation.

In their paper on the "Logic and Structure of the Computer Game", the members of the research project **Stephan Günzel**, **Michael Liebe** and **Dieter Mersch** (University of Potsdam) give an overview of the mathematics of decision logic in relation to games as well as on the construction of narration and characters. This includes specific limits of the use of decision logic pertaining to games in general and pertaining to storytelling in specific. Furthermore, the rule system as the medial unconsciousness is put into focus and remarks are made on the debate between ludology and narratology, which had to fail as it missed the crucial point: the computer game as a medium.

As **Julian Kücklich** (Mediadesign University of Applied Science Berlin) demonstrates, game space can be conceived of as being structured by varying levels of ruledness, i.e. it oscillates between openness and closure, between playability and gameness. In "Seki –

Ruledness and the Logical Structure of Game Space", he analyzes how the movement through game space can be described as a vector defined by possibility spaces, which are generated organically out of the interplay between ruled and unruled space. The possibility of breaking the rules is always already inscribed in this vector of movement. Kücklich arrives at a formal description of game space which allows for analyzing the game space as a semiotic chain of unit operations. The ambiguity of play is understood as a result not of its unpredictability of exuberance, but of its inherent contextual logic.

In his contribution "Logic as a Medium", **Martin Warnke** (Leuphana Universität Lüneburg) argues that computer games are rigid in a peculiar way: the logic of computation was the first to shape the early games. The logic of interactivity then marked the action genre of games, while in massively multiplayer online gaming, all the contexts of the net confront us with just another type of logic. These logics are the media in which the specific forms of computer games evolve.

The contribution of **Daniel Cermak-Sassenrath** (University of Bremen) proposes play as another possible perspective on communication, simulation, interactive narrative and ubiquitous computing in human-computer interaction. In "The Logic of Play in Everyday Human-Computer Interaction", he analyzes how everyday use of the computer increasingly show signs of similarity to play. This is discussed in respect to the playful character of interaction with the computer that has always been part of the exploratory learning process involved with new software and the often creative tasks that are undertaken when using the computer. These observations point to a sense of security, autonomy and freedom for the user which produce play and are, in turn, produced by play. This notion of play refers not to the playing of computer games, but to an implicit, abstract (or symbolic) process that is based on a certain attitude, the play spirit.

Michael Nitsche (Georgia Institute of Technology) understands "Games as Structures for Mediated Performances". Games are performative and transform players into actors, game levels into virtual sets, and living rooms into cross-media stages. Applying concepts from Performance Study to video games opens up new perspectives on questions of game space, play, and game interfaces, among others. It also offers a useful theoretical background for Game Studies and game criticism. Drawing from early consoles as well as the most recent Augmented Reality examples, we can identify a shifting border as games expand further into the physical space and re-stage the players in new ways. Accordingly, Nitsche traces some of these developments and draws Performance closer to Game Studies.

Seen through the perspective of critical discourse theory, there is no specific knowledge of a specific game. In his talk "Invisible Structures of Fluid Knowledge. Games as Cultural Techniques between Common Sense and Specialized Knowledge", **Rolf F. Nohr** (Braunschweig University of Arts) focuses on common samples, forms, symbolisms, meanings or narrations as materializations of intersubjective knowledge that should be understood as negotiations of social and operational knowledge. His main point is the cloaking of technology; while playing a video game nobody wants to think about the functionality of the media system that makes this act possible.

Karin Wenz (University of Maastricht) focuses on the "Narrative Logics of Digital Games". Games can be understood as abstract code systems in which the narrative logic is embedded on the code level. When focusing on the player's performance, it becomes important to see how the possibilities given in the code are realized. The underlying narrative logic of a game can only be synthesized through a player playing the game and is inseparably bound to the player's performance. Both the logic of code and that of performance are reflected in player's narratives based on their playing experience. Products created by players have been described as metagaming activities,

as they are a sign of the intimate knowledge of the game, and of the desire to imprint oneself into the text. These narratives rely heavily on the source text (the digital game), which means that they give insights into its underlying logic.

The question of how different interfaces shape the experience of gaming is the starting point of the paper of **Serjoscha Wiemer** (Braunschweig University of Art). In "Stimulus-Response or Resonating Interval? Notes on the Logic and Temporality of the Movement-Image in Music Games", he examines the common structures and aesthetics of contemporary music video games in order to explore some characteristics of the human-machine-relation established in those games. Wiemer discusses the interconnection of movement, image and sound beyond a (simplistic cognitive) scheme of stimulus and response and argues that the 'situation' of 'playing music' puts player and machine in a specific state of resonance that can be described as a variation of the movement-image.

Jochen Venus (University of Siegen) ascertains the characteristics of the representational function of computer games by contrasting them phenomenologically with conventional games on the one hand and cinematic depictions on the other. "Simulation of Selfaction. On the Morphology of Remote-Controlled Role Playing" shows that computer games a) separate the player from the playing field, and b) translate bodily felt concrete actions into situational abstract cinematic depictions. These features add up to the situational abstract presentation of self action experience. Computer games establish an 'artificial sameness' of self action experiences and allow the direct communication of styles of acting. They reveal a potential as a new means of shared cognition which might unfold in the 21st century and change the being-in-the-world in a similar way as cinematic depiction did in the 20th century.

Mark Butler (Independent Institute for Environmental Concerns) presents an intense game playing description of Grand Theft Auto 4 as a paradigmatic example for examining the relationship between reality and simulation. His talk "On Reality and Simulation in an Extra-Moral Sense – The Playful Logic of Life and Death in Liberty City" uses Friedrich Nietzsche's pertinent essay "On Truth and Lie in an Extra-Moral Sense" as a starting point. Butler develops the hypothesis that the experience of playing the respective version of Grand Theft Auto does indeed have an impact on the player, but that it is markedly different than the one postulated in the dominant media effects discourse. In short, it postulates that playing the game promotes competency in deconstructing simulations and implements a cyclical logic of recreation.

Each talk was answered by a selected commentator: **Barry Atkins** (Newport School of Art, Media and Design) responded to Daniel Cermak-Sassenrath, Karin Wenz, and Mark Butler. **Gordon Calleja** (IT University of Copenhagen) responded to Julian Kücklich, Michael Nitsche, and Serjoscha Wiemer. **Rune Klevjer** (University of Bergen) responded to Martin Warnke, Rolf F. Nohr, and Jochen Venus. The sessions were chaired by **Dieter Mersch** (University of Potsdam), **Mathias Fuchs** (University of Salford) and **Stephan Humer** (Berlin University of the Arts).

An additional presentation on DIGARECs Computer Games Collection was given by **Michael Liebe** and **Sebastian Möring** (University of Potsdam), demonstrating a new approach for the categorization of games for interdisciplinary research. Prior to the conference, on Thursday, November 5th 2009, **Mark J.P. Wolf** (Concordia University Wisconsin) gave a keynote lecture and discussed it with the invited respondents on the podium. His paper on "Theorizing Navigable Space in Video Games" will be published together with the other DIGAREC Keynotes from the winter term 2009/10 in the forthcoming volume of the DIGAREC Series.

Many thanks are due to Sebastian Möring for administrative support, Anastasia Zueva and Moritz Queisner for local organization and catering, as well as students and teachers from the European Media Studies-Program at the University of Potsdam and the Potsdam University of Applied Science for their outstanding support. Without their help the conference would not have been possible. We also owe our gratitude to the German Research Funding Society (DFG) in Bonn for the grant enabling us to hold the conference.

Stephan Günzel, Michael Liebe, and Dieter Mersch

Logic and Structure of the Computer Game

This paper comprises four parts. Firstly, an overview of the mathematics of decision logic in relation to games and of the construction of narration and characters is given. This includes specific limits of the use of decision logic pertaining to games in general and to storytelling in particular. Secondly, the rule system as the medial unconsciousness is focused on. Thirdly, remarks are made on the debate between ludology and narratology, which had to fail as it missed the crucial point: the computer game as a medium. Finally, gaming in general, as well as its relationship to chance, coincidence, emergence, and event is discussed.

Decision-Logic and Gaming

The approach taken in this text is based on a rather unusual point of view. It is a fruitful method for choosing unfamiliar perspectives or ones that don't immediately seem to be relevant to computer games in order to gain fresh ideas and insights. The unusual starting point in this case is psychoanalysis, or to be more precise: Jacques Lacan. In a famous lecture on psychoanalysis and cybernetics from 1964, he mentioned his specific interest in *doors*. What does "a door" mean, Lacan (1988, 307) asks: "[it] opens on to fields, but we don't say that it closes on to the sheepfold, nor on to the paddock". – Thus, the door closes something, it draws lines, it deals with entrances and exits, with inside and outside and also with openness and closure.

In summary, there is not only a door and its obvious connotations for binary systems; there is also a threshold, and sometimes an indetermination or non-accurateness between inside and outside. The relation between entrance or access and closed doors or non-access might not be clear. Being on a threshold is different from having a choice. Sometimes it might be the most convenient location be-

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 016-035.
http://pub.ub.uni-potsdam.de/volltexte/2010/4302/ [urn:nbn:de:kobv:517-opus-43020]

cause you are neither inside nor outside, you are 'in-between', which means you always have a choice. However, it also means feeling unable to choose.

Hence there is more at stake with a simple door than just the binary alternative between *open* and *closed*. Even if the door is reduced to this binary code, some mistakes may still happen. In *Modern Times* (USA 1936) for instance, Charlie Chaplin acts as a waiter in a restaurant with swinging doors which allow exchanges between the restaurant and the kitchen. Through these, the waiters enter the restaurant with their heavy loads of food by just kicking the door or, the other way around, they enter the kitchen with a similar heavy load of used dishes and glasses by also kicking the door. In Chaplin's movie, the restaurant architects obviously made a serious mistake, because the door is marked "in" both inside and outside the kitchen. Obviously two waiters – and of course one of them is poor Charlie – will crash into each other. Sometimes decisions are not clear, especially if you have doors which are, as in this case, a bit confusing in respect to the clear difference of what is "in" and what is "out". But isn't this a typical situation in life? This was exactly the point of Lacan: A door, by its nature, belongs to the symbolic order. Nevertheless, there exists a dissymmetry between openness and closure, as he puts it, because a door seems to be responsible for rules of access: to allow some in and to forbid others. The door itself is a symbol for a rule, and indeed a very strict, binary rule, however there is no rule to rule the rule.

A door also serves as a perfect model for decision logic, or, in other words, it serves as a spatial paradigm for the binary code. There are similar spatial metaphors such as bridges (about which Martin Heidegger wrote important remarks in his essay from 1935/36 on *The Origin of the Work of Art*) or corridors and their ramifications (Trüby 2008). These different kinds of thresholds are all related to space. Doors, bridges, corridors and ramifications structure spatial orders, in the words of Gilles Deleuze and Felix Guattari (1987:508-510) they

(re)territorialize, space using decision logic, they produce a binary 'marked space' (Spencer Brown 1969). It is therefore no surprise that they also play an important role in computer games. Even more than that, structuring spaces through the use of doors, corridors, bridges, ramifications and so forth leads to mazes, labyrinths, pathways and the like (Wolf 2010). This structure is quite obvious in games such as MASS EFFECT (2007) and HALF-LIFE (1998): the player seems to have a choice, but actually has no choice at all. The pathway towards the goal of the game allows for some detours, but in the long run is predetermined. A different, but in its nature similar effect is found in PAC MAN (1980): You are always escaping the ghosts, but you are always on the verge of being caught and forever trapped in a maze. In classical adventure games such as THE SECRET OF MONKEY ISLAND (1990), the sole purpose of player interaction is to find the correct order of things, events and spaces. The action space is directly linked to the narrative of the game – the labyrinth-structure of the story goes hand in hand with the spatial pathway used by the player. In other words, it is no coincidence that the spatial order of computer games is mostly based on a labyrinthine structure.

The decision-logical fundament of computer games corresponds to them being mathematical systems. Yet these decision-logical orders are hidden under the surface (or, as Frans Mäyrä (2008:15-21) puts it: the core-gameplay is hidden under the representational shell), as the surface tries to camouflage the basic labyrinths as 'real' spaces which seem to be under the command of the player's gaze and their (first person) perspective; This is especially noticable in gameseries such as HALF-LIFE (since 1998), CALL OF DUTY (since 2003) and FAR CRY (since 2004). In short: The feeling of being in a natural space, outside in an open field or in a mythical forest, able to move and explore the terrain freely, is only an illusion. Instead, a player is conditioned by a labyrinth, which defines their possible movements – they are already inside the closed door, so to speak, locked in a maze which only allows for decision-logical movements.

Although there is still a range of possible selections, the player may only decide within the framework of the logical basis the game offers. In both MASS EFFECT and its sequel MASS EFFECT 2 (2010), for example, the controlled avatar is unable to jump or fall from heights. The range of possible movements is predefined by the characteristics of the avatar as well as the level design. There always is a possible path towards which the player is guided, or, even more radical, there are seemingly many pathways, but only one of them may be chosen. There is no freedom in a true sense: one might call this the *dark side* of the 'magic circle', if a magic circle exists in computer games at all (Liebe 2008). The offered possibilities are mere alternatives; there is no escape from this rigid structure, even if the player is not motivated to play at all.

This structure is the core of what is called the 'medium' of the computer game, the kernel of its logic. This can also be seen in the characters, the "pawns" of the game – the avatars and their design. Take a typical roleplaying game such as MORROWIND (2002) or GOTHIC (2001), as this genre brings some of the most successful features of character development into computer games. There always is a similar starting point, asking the player to design a character by choosing some features from the menu: be a knight, a thief, an ambassador, be male or female, be rich or poor, or equipped with special abilities, a number of lives, magical powers and so on. Even if there are options to create additional programs or a different series of algorithms that alter the structure of the game, you still operate in the realm of choices – you can only add more possibilities which allow for new alternatives. You are still the puppet on the strings of these alternatives, trained for pushing buttons and choosing elements from a menu.

However, one might object with the famous argument made by Niklas Luhmann (2000) in his book on *Art as a Social System*, where he points out that even an author has to choose when creating a narrative figure. In writing novels you also have to decide if your charac-

ter is male or female, colored or white, old or young, married or single, with blond or black hair, shy or audacious, unemployed or a master of their job and the like. Maybe creating a character has to do with these basic operations, but what you give birth to is not a character. Instead, what makes a figure in literature or film interesting is the development of his or her character. This does not simply mean adding some features. Development is not a feature at all; instead, it depends on personal histories, memories and the growth of experience with a lot of unexpected and surprising aspects you cannot anticipate. In role playing games, the progress of a character is marked by experience points and new levels of power and capabilities.

The features raise values, such as abilities, and have stronger effects on the game-play the more they are based on additive algorithms. In MORROWIND, the third game of THE ELDER SCROLLS series, it is a common trick to jump all the time while travelling the game world, because every jump gives experience points in the skill "Acrobatics". Increasing experience in skills leads to the possibility of increasing attributes of the character. When a character increases "Major" or "Minor" skills 10 times, it reaches a new level, allowing the player to distribute increases in attributes, such as "Willpower", "Intelligence", or "Strength". As a consequence, having acrobatics as a major skill lets the jumping player increase the level of his character continuously – also having an effect on features that do not have a direct link with jumping, such as intelligence or willpower. This kind of linear development of characters, or rather this linear evolution of powers, has become a common feature in many of today's games, ranging from futuristic shooters such as BORDERLANDS (2009) to strategy games such as CIVILIZATION IV (2005) (military units gain experience, reaching a certain amount lets the player assign additional features and strengths to the unit) (Aarseth et al. 2003; Elverdam/Aarseth 2007). In life, however, there is more at stake than a simple play of alternatives. Being a person – and not a pawn, a char-

acter or an avatar in a game – includes response and responsibility, which are not a matter of decision but rather, as Aristotle already put it, a matter of practical wisdom or *phronesis*.

System of Rules and the Unconsciousness Pertaining to the Medium

Quite like games, decision-logic is based on rules that make meaningful choices possible. To decide something means to choose from a set of possibilities. The notion of choice in itself already is limited: You never take a choice in complete freedom, but in respect to rules, an apparatus or technological means or a set of alternatives. It has often been claimed that games are based on rules – Ludwig Wittgenstein (1953) does so, as do Johan Huizinga (1955), Roger Caillois (2001), and plenty of recent computer game scholars such as Katie Salen and Eric Zimmerman (2004), Jesper Juul (2005) and Ian Bogost (2007). Moreover, it has been stated that you have to play according to given rules in an absolutely strict manner, like a machine, or else you are playing a different game.

Huizinga and Caillois focused on the structuring power of rules, meaning that rules provide meaning to player actions and, by constraining free forms of play, allow for civilized and cultural forms of play. Both scholars also point to the motivational aspects of rules (e.g. defining a winning condition) and the challenges in artificial constraints created by rules. Based on the descriptions and definitions provided by them, as well as Brian Sutton-Smith (1997), Salen/Zimmerman and many others, Juul (2005:36) finally came up with a formalistic definition of games with rules at its core:

> A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable.

The strict separation of the fictional layer of computer games and the rule based underlying structure of games undertaken by almost every game scholar (most prominently in Gonzalo Frasca (2003) and Frans Mäyrä (2008)) finds its roots in this line of discourse. Accordingly, rules bring mere functional aspects to the game while the representation of meaning is based in its fiction. In contrast, Ian Bogost establishes a model of games that proclaims rules to be the basic means for communicating information. This leads to the point that games can communicate with the player through their sets of rules and automated behaviors rather than having to rely on fiction. Most recently, Miguel Sicart (2009) based his theory of ethics in computer games on the consistency of possible behaviors.

Constitutive rules, as John Searle (1969) called them, create the conditions for the possibility of action or interaction: they transcend the practice of gaming. Indeed, games are parts of normative systems which exceed its rule system and which in turn condition their design and usage in the first place. There would be no rules without a common sense of norms, of laws or of commandments. These factors suffuse rules – they govern the establishment of rules. They always precede them. Moreover, rules neither define nor limit possible practices nor do they structure the complete field of things. Instead, they arrange things and possibilities with regard to a specific set of guidelines which normally remain unconscious for the player. In other words: rules furrow a field according to their own conditions. In the context of the 'navigable space' (Manovich 2001:244-285) of computer games, they produce grids on a surface. These grids allow the mapping of the surface.

Maps in games like DOOM (1993) or GHOST RECON (2001) both give orientation and define trajectories according to their underlying loco-semiotic system at the same time. In the case of computer games, this system is based on code. It is not the map itself which establishes the code, it is the other way around: it is the code, the basic mathematical system, which substantiates the map. It is not the

map that is the medium, but the code mediates mapping. Yet as the medium it remains hidden: The code remains concealed but at the same time reveals the structure of possible movement or action. The mathematical order functions like an unconsciousness of the game. It is this unconsciousness which pulls the player towards its strange and sometimes perverted directions; e.g. in FAR CRY, when a player tries to escape the 'map' of the game or discover its borders and is automatically killed at the edge of the game's space, which presents itself as open and unlimited.

Accordingly, there is more at stake with rules than meets the player's eye. As decision logic forms the basis of computer games, restrictions due to the rule system are implied. This system is nothing more than a mathematical system and its 'unconsciousness' becomes more and more present as the player's actions are reduced to a series of choices, sometimes meaning nothing more than simply: 'press this button now!' Although a lot more complex in performance and aesthetics, music games such as GUITAR HERO (2005), ROCK BAND (2007), and VIB RIBBON (1999) exemplify this very well. Based on a complex codification of the played music, the game causes the player to continuously react to the rhythm of the song.

This aspect is also prominent in other game types, however. To give a short example: you can move through cities, pass corridors, cross bridges, but you cannot stand in complete serenity just watching the birds flying or the monsters passing in order to just contemplate their bizarre beauty: You have to react or else the game is over very quickly (Pinchbeck 2008). Neither is it possible to open a door and meet some strange person heavily loaded with guns and spontaneously start a conversation with him. The player has to react to the threat according to the implemented rules of the game – in this case: shoot before being shot.

Thus, rules are indeed essential to games, but there is more to it. They are not the whole story, there is still something hidden behind the rules that constitutes the unconscious code of the game.

This code not only creates the modalities of each play session, but also constructs the player's intentionality and his so-called freedom. In order to keep the game running, the player becomes an application of decision logic, as they are forced to have one decision after another. This characteristic of computer games is most prominent in moments of frustration and aggression as reflected in game creations like I WANNA BE THE GUY (2007), which turns playing into a combat between the player, the designer and the capabilities of the avatar.

The 'Ludology vs. Narratology'-Aporia

Although the discussion between so-called ludologists and narratologists was the leading argument during the last six to eight years of game studies, there are some signs that it has lost its harshness. Although the debate was a useful step in the development of a theory of games, it actually failed. It did not come to the realization that it is necessary to discuss computer games as a *medium* (Wolf 2001), one medium among other mass media like film, photography, painting, storytelling etc. All these different media include certain forms, aesthetics and structures that dominate the language through which they can express ideas. The computer game has a lot in common with these media forms, but it also has many differences, or rather divergences.

These divergences can most obviously be found in the rules: Their ambiguity, the whole setting of different meanings and implications, as well as its implicit code system, its dialectic of revealing and concealing information are all related to a theory of play and not to a theory of narration. Yet this does not mean that the ludic approach to games becomes more valuable here than the approach of narratology. There is no doubt that computer games are games, but they raise the question of gaming anew. In order to find out how, the computer game has to be discussed in the context of play, and especially of the question of the 'mediality' of play (Günzel et al. 2009).

Ludology, which tried to face this task, widely referred to classical ideas as they are found for instance in Friedrich Schiller (1967), as well as in Huizinga, Caillois and others. However, ludologists suffer from an approach to gaming that comes from within, mainly focusing on the formal aspects of rules, using a rather rigid concept of the magic circle, as it can most prominently be found in Jesper Juul (2005:164-167). There is no proper understanding of the ludic impact of computer games in ludology, because there is no adequate theory of the 'mediality' of play.

Reading the medial, to take a quote from Wittgenstein (1953:146), often suffers from a "one-sided diet". This is why the forms of new media are often discussed in comparison to those of preceding, old media, such as photography and painting during the early 19th century, or cinema and theatre or literature at the beginning of the 20th century. Such comparisons tend to adopt approaches that seem to fit media with long traditions like painting and theatre, therefore it is no surprise that in early photography or cinema theory there are strong references to painting and theatre or literature. The same is true for computer games. Since the first scholars who approached the new medium came from literature departments, such as Janet Murray (1997), Marie-Laure Ryan (2001) or Henry Jenkins (2004), they adopted textual metaphors like 'fiction', 'figuration' or principles of storytelling. They 'read' computer games in the realm of narration. Others were film-theorists (King/Krzywinska 2006), who adopted the visual aspects and the theory of story-telling in films to computer games. This was useful to a certain degree, but all these comparisons were somewhat misleading.

Indeed, adoption in itself lacks validity. Take photography and painting: from the outside, they seem to have a lot in common with each other. But the essence of photography lies in its indexicality, which does not make any sense to painting. The same holds for cinema: Acting in a movie and on stage seems to have a lot in common, and typical strategies of staging and the *mise en scene* seem to

be quite similar. Accordingly, early film theory stuck to Eisenstein's montages and its possible modes to establish a storyline. Adopting the rhetoric of narration from literature theory therefore seems to be the obvious suggestion to describe films. However, and again, there is more to the medium of film than narration or figures. Film is, in the first place, the art of moving images. It mainly operates in the realm of the visual. Debating cinema in terms of language, text, or narration therefore misses the point; from the very beginning of the history of cinema, there are entirely abstract films without any narration, just moving images with a very playful concentration on shapes, geometrical forms, and colors such as Hans Richter's *Rhythmus 21* (G 1921).

These films without any narration, which simply operate in the visual, take all their impressions from visual playfulness alone. These examples tell us a lot more about the medium than any Hollywood blockbuster movie can. Thus, an exclusive discussion of the mediality of film under the notion of narration similarly fails, just as the discussion of computer games under the focus of rules, to establish a proper theory of the medium. This is not an argument to exclude these approaches completely from film theory or game studies, but to make obvious that these approaches are too reductive and do not allow for a full understanding of their objects of analysis.

Discussing film in terms of visual art does not need a debate about narration's relevance to the medium. Accordingly, if one discusses computer games under the notion of decision-logic, the diverging argument between ludology and narratology disappears. Put very briefly: Decision-logic provides the basic system of code formulating the rules that structure the game. Hence, understanding computer games as games shifts the theoretical perspective towards the realm of a theory of play. At first sight, this is a trivial statement; and perhaps not obvious, as it is very easy to use any game, even simple games such as jack-in-the-box or card games, to create a story. Children often do this, and Italo Calvino demonstrated in his 1973 novel *The Castle of Crossed Destinies* how to use Tarot to invent high literature.

At the same time, any narration may be transformed into play. This happens by transforming the narrative into factors of action or interaction by reducing the narration to a set of rules and the normative system behind it; every translation of a film into a game undergoes this transformation. The crucial point here is the relationship between rules, or rather decision logical rules, and narration, especially since decision logic only facilitates constricted narratives. There can be no full interaction with the storyline as, ironically, especially acclaimed story driven games such as HALF-LIFE or MASS EFFECT (2007) demonstrate. There is always a goal to reach, missions to accomplish and characters to meet, but no events that are not already part of the internal structure of the game. Narrations that are created by the use of choices indeed allow for quite a number of stories, but they always also imply serious exclusions for certain not included possibilities. This is a very important aspect of computer games. The range of possibilities is determined.

Gaming in Relation to Chance, Coincidence, Emergence, and Event

Obviously, games in general use rules in action. Games that exist only conceptually and cannot be played are not games. Games only exist through reference to the actual movements of a player, which in turn are primarily dependent on two essential principles: *contingence* and *order*. The difference between these two principles refers to the hidden structures of the computer game, which are overseen by theories that mainly deal with rules and actions.

There is another, almost mostly forgotten approach to game theory originating with Hans-Georg Gadamer. His original paradigm was not ritual (Huizinga and Caillois), or language (Wittgenstein), or the games children play (Buytendijk), but that what was traditionally called *ludi naturae*, the playfulness of nature, especially the "to-and-fro" (Gadamer 1999:105) of movements in nature, waves coming and going at sea, the wind playing with leaves and other similar

examples. For these references to nature, the ball serves as a perfect example in human play. In *Truth and Method* from 1960 he wrote: "Playing is being played with. The attraction of a game, the fascination it exerts consists precisely in the fact that the game masters the players." (Ibid:106) The statement implies that the practice of playing the game as little obeys the sovereignty of the player as it is characterized by the player's virtuosity or strategy. Instead, gameplay is embedded in the logic of happenings or rather something that 'befalls' (in German: *Widerfahrnis*). Everything that is a game is in the first place an *event*.

Yet games are framed by rules and structures. Games or the practice of playing is endowed with a double *cathexis* or 'occupation': On the one hand, a structure is required within which the game takes place. On the other hand, the act of playing is unforeseeable and undetermined as the rules create situations that are unregulated, undetermined and full of responses that are not anticipated. Games are characterized by alterity, whether it is through a number of opponents whose reactions are unpredictable, or through the unpredictability of the game's object itself, e.g. the ball (This is also the reason why games like football or soccer are so intoxicating). Hence games operate in a field of ambiguity: they are constituted by the *to and fro of structurality and contingency*.

This structural characteristic of games is also included in the differentiation of *tuché* and *automaton* by Lacan (1978) in his *Seminar XI*. *Tuché* is the randomness that cannot be forced or repeated, which is most effective in the realm of passivity. *Automaton* refers to the automatic generation of coincidences by means of algorithms and random samples. In the first case, a frame which margins or locates something that happens is sufficient: an open space of unknown events. In the second case, randomizations, probability functions, the so called Monte Carlo-method or other mathematic simulations of emergence produced by software programs or machines are at play.

Due to its digital nature, the computer game *by definition* uses the latter ones. Rules in computers are not just frameworks, but themselves constituted by internal structures. There is no space that may remain empty, as in the art forms using *tuché*. In his work *Silence*, for example, John Cage (1961) plays with this notion of possible nothingness. The parts with no sound at all constitute the artistic expression. Yet the freedom to not fill the frame is not given when acting with computers. Even the white screen of an empty document file is generated and not empty as such. Additionally, the range of possible outcomes through user input is determined by the input-options defined by the program.

Computer game rules are no different. Instead of establishing their productivity in play through passivity, they function as 'positive rules'. The rules of computer games, as well as the ball in computer games, allow for actions that would not be possible at all if it were not for the lines of code defining them. At the same time, the progress of a match of FIFA 10 (2009) is predetermined by the range of possible actions included into the game. This internal structure stands in contrast to the text production of concrete poetry or compositions such as Cage's *Empty Words* from 1973/74. *Tuché* instead refers to 'negative rules' which simply frame an open space in order to let something happen, "the outcome of which", as Cage (1979) puts it, "cannot be foreseen".

In conclusion, games in general deal with the ambiguity of structure and coincidence. The most interesting and playful ones are the games with an open framework and the possibility for "events"; we love to be confronted with something which disempowers us, something that makes us aware of our non- sovereignty in the world (which may already happen through something simple as a bouncing ball). Computer games simulate this exact situation. However, here we are dealing with an *automaton*, a set of algorithms that create randomizations and emergence in a completely formalized and structured environment. The limits of computer games become especially

obvious when compared to art practices. These limits are seen best from an oblique angle and tell a lot more about the essence and characteristics of computer games than any direct or upfront approach at analyzing them.

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Julian Kücklich

Seki

Ruledness and the Logical Structure of Game Space

Game space can be conceived of as being structured by varying levels of ruledness, i.e. it oscillates between openness and closure, between playability and gameness. The movement through game space can then be described as a vector defined by possibility spaces, which are generated organically out of the interplay between ruled and unruled space. But we can only define rules *ex negativo*, therefore the possibility of breaking the rules is always already inscribed in this vector of movement. This can be conceptualized as a boundary operation that takes the difference between 'ordinary life' and 'play' as its argument, and which thus generates the difference between 'play' and 'game'.

As long as there have been games, there have been rules, and as long as there have been rules, there has been the possibility of breaking them – or so common wisdom has it. As J. Barton Bowyer (1982:10) notes,

> the first recorded example of cheating occurred on or about 2500 BC in the Nile valley […]. There on the wall of a forty-five-centuries-old burial chamber is a tomb painting that depicts the oldest known con game. […] When modern con artists do it to separate a sucker from his money, they call it the shell game.

Over the centuries, much ingenuity has been invested into ever more clever ways of cheating. Famously, in 1770 the Mechanical Turk was presented as a mechanical chess playing-machine, when in fact there was a man hidden inside the cabinet that housed the 'machine' (Schaffer, 1999). In 1888, P.J. "Lucky Dutchman" Kepplinger invented the card cheating device bearing his name, "a contraption of wires,

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 036-062.
http://pub.ub.uni-potsdam.de/volltexte/2010/4270/ [urn:nbn:de:kobv:517-opus-42700]

cords, pulleys, an adjustable tube, a metal plate, a hook, a false sleeve cuff, and a hold-out slide" (Bowyer 1982:297) that enabled the wearer to exchange cards by crossing or uncrossing his legs.

Today, in the era of computer games, cheating seems to be more widespread than ever. Several magazines such as *Cheats and More* and *PSX Cheats and Codes Hacker* are dedicated entirely to publishing cheat codes for the newest games, and most other gaming magazines have a cheat section. There are also several book series that offer large amounts of cheat codes such as the quarterly *Codes & Cheats* series by Prima Publishing and the semi-annual *Secret Codes* series by Brady Games. In addition, there are enormous databases of cheat codes on the web, which can be accessed through websites such as gamefaqs.com.

The 'canonical' theorists of play, such as Johan Huizinga and Roger Caillois, have by and large ignored the phenomenon of cheating in favour of orthodox play. Huizinga touches upon cheating only briefly in the first chapter of *Homo Ludens*, while Caillois dedicates a whole chapter in *Man, Play and Games* to "The Corruption of Games", but there he is primarily concerned with the 'contamination' of play with reality, and mentions the practice of cheating only in passing, pointing out that once the "principle of play has been corrupted", it is "necessary to take precautions against cheats" (Caillois 2001:45).

Even those theorists who do take the possibility of breaking the rules into account, such as Brian Sutton-Smith (1997), Sutton-Smith and Kelly-Byrne (1984), Bernard Suits (1978), and Katie Salen and Eric Zimmerman (2004), mostly treat cheating as a marginal phenomenon. Only since 2005 has cheating in computer games begun to be the subject of academic research (Consalvo 2007, Kimppa/Bissett 2005, Kücklich 2004, Yan/Randell 2005, Zetterström 2005), however, this research is mostly phenomenological and does not take into account the theoretical implications of breaking the rules.

Towards Deludology

In order to make this apparent, I will start out from the hypothesis that it is the possibility of breaking the rules that makes a game playable. This challenges the assumption of some recent theorists of digital games that games are rule-based, formal systems (Aarseth 2004, Aarseth et al. 2003, Eskelinen 2004, Frasca 2003, Järvinen 2003, Järvinen et al. 2002, Juul 2003 and 2005, Klabbers 2003, Konzack 2002); this is not to say that rules are irrelevant for games, just that breaking the rules is just as important, if not more important than abiding by them. This also enables us to see that games cannot be regarded in isolation from play, i.e. the interaction of a human player with a technological game system (Newman, 2004).

I call this theory *deludology*, a term which has a double meaning in the present context. First, the Latin verb *deludo* is a negation of *ludo* – 'to play', and means 'to mock' or 'to cheat'. Therefore, in its primary sense, deludology can be understood as the study of cheats and cheating. In its second sense, deludology can be understood as a negation of 'ludology', a neologism for the study of games used by scholars who advocate the formation of a separate discipline of game studies, and who tend to regard approaches to games from other disciplines as "theoretical imperialism" (Aarseth 1997, Pearce 2004). Most importantly, however, deludology addresses the essentialism of ludology (Bogost 2006) by drawing attention to the fact that digital games are not just a technologically enhanced version of traditional games, but a medium in its own right.

This is not an attempt to revive the debate between ludologists and narratologists, but rather an attempt to begin a new debate that does not pit games-as-games against games-as-stories, but an essentialist and reductive view of games as formal rule systems against a more inclusive and multi-faceted view of games as assemblages of practices, conventions, technology, and processes of subjectivation. As Gonzalo Frasca (2003) has pointed out, "narratology is just

as formalist and reductionist a practice as ludology" (paraphrased in Bogost 2006:68). Deludology, on the other hand, strives to be neither formalist nor reductionist in its approach to games.

The deludological method responds to ludology's formalist approach by subjecting classical theories of play to an even more stringent formalism, George Spencer Brown's calculus of indication (1969). This method of fighting formalism with formalism requires some justification. It may seem disingenuous, if not outright hypocritical, to argue that a formal approach to games not only misses the point but also leads to a dangerous disciplinary isolation, while at the same time advocating formalism as a remedy for this state of affairs. However, there is no contradiction between these two avenues of approach because they can easily be seen to reside on two different levels.

While the formalism of ludology can be characterised as phenomenological, the meta-formalism of deludology can be described as epistemological. That is to say, while ludology strives to classify games by formal criteria such as rules, goals, obstacles, resources, rewards and penalties (Järvinen 2003, Juul 2005, Pearce 2004), deludology aims at formalizing the approaches to games, in order to reveal the tacit presuppositions of these approaches, and ultimately, to overcome the formalist bias of game studies. In this respect, deludology can be seen as similar to the practice of deconstruction.

This already indicates that the formalism of deludology is qualitatively different from the formalism of ludology. One of the most important differences between these schools of thought lies in deludology's use of the calculus of indication, which is based on a multivalent and contextual logic, rather than a binary, absolute system of logic. While Spencer Brown (1969:IX) bases his calculus on a distinction between two states, he asserts that "every duality implies triplicity: What the thing is, what it isn't, and the boundary between them". This already draws attention to the particular emphasis which deludology puts on 'liminal' states (Turner 1982), or, in Andrew Murphie's (2005) terminology, 'interstitiality'.

Spencer Brown's book *Laws of Form* is in many respects similar to a game: The injunctive mode, which is characteristic for the calculus of indication, entails a replacement of certainty with varying levels of probability, and therefore "every use of 'this is' is replaced by 'let's pretend this is'" (Schönwälder et al. 2004:31, trans. by author). The injunctions in *Laws of Form* are like the rules of a game – they can be either accepted or rejected by the reader, and while this is true for any philosophical text, Spencer Brown (1969:69) specifically encourages the reader to break these rules when he says: "It is not necessary for the reader to confine his illustrations to the commands in the text. He may wander at will, inventing his own illustrations, either consistent or inconsistent with the textual commands".

Deludology aims at using the theoretical concepts of ludology to different ends. Rather than attempting to formulate a general theory of games, deludology repurposes ludological elements to deploy a set of highly localised yet highly mobile theoretical concepts. While ludology endeavours to 'rule' the field of game studies with its territorial rhetorics, deludology strives to 'unrule' it by radically deterritorialising the field of digital games research. That is to say, not only is deludology a form of resistance against the establishment of theoretical hegemony, it is also an attempt to transform the striated (or 'ruled') space of digital games research into smooth (or 'unruled') space.

Play Theory and the Calculus of Indication

George Spencer Brown's *Laws of Form* is a complex and multi-layered text that challenges the reader to think outside the conventional Western system of logic, which is based on the binary opposition of terms and a linear mode of argumentation, whereas the system proposed by Spencer Brown is characterised by contextual logic and circularity. This does not only make the calculus of indication particularly useful for developing a deludic theory of play, but also for a meta-critique of play theory, as well as its historical development.

In order to accomplish this meta-critique, I will try to follow the 'injunctions' of the calculus step by step, which will also allow readers unfamiliar with Spencer Brown's work to gain an understanding of the way the calculus works through its application in the field of play theory. It should be noted at this point that I begin my 'historical' study of play theory at a relatively recent point in time, with the publication of Johan Huizinga's *Homo Ludens* in 1938. The book has played an important part in ludological thought, and ludologists are often credited with 'rediscovering' Huizinga's work, and for using his theories for the analysis of digital games. Sutton-Smith (1997) puts it succinctly when he points out that that "[n]obody has [...] had as much effect on humanistic play scholars in the twentieth century [as Huizinga]" (Sutton-Smith 1997:202).

Therefore, the development of game studies can be regarded as a sort of collaborative exegesis of *Homo Ludens*. Crucially, this seems to be one of the reasons why cheating has been disregarded in favour of 'orthodox play' in the field of digital games research, so Huizinga's influence can be seen to impose a certain moral bias upon his followers. No other scholar of play has enjoyed this widespread reception, and no other scholar of play has come close to achieving the distinguished status that Huizinga enjoys within the game studies community. All of these aspects predispose this eminent figure's work as a starting point for a thorough meta-critique of play theory.

Distinction: The Magic Circle

Laws of Form begins with the simple instruction to "[d]raw a distinction", followed by the equally simple instruction to "[c]all it the first distinction" (Spencer Brown 1969:3). The entire complexity of the calculus of indication derives from these simple instructions, similar to the way simple game rules, such as those of GO, often result in a surprising complexity of gameplay. Spencer Brown insists that it is the act of distinguishing itself that creates the two sides of the

distinction, so it does not make sense to ask what is supposed to be distinguished prior to making the distinction. However, once the distinction is made, the two sides of the distinction can be given names in order to make it easier to refer to them.

What Huizinga sets out to accomplish in *Homo Ludens* is precisely that: he draws a distinction, and then assigns names to each of the sides of his distinction. The names he chooses for the two sides of his distinction are 'play' and 'ordinary life'. As he points out, play is "a well-defined quality of action which is different from 'ordinary' life" (Huizinga 1949:4), a distinction which he affirms a couple of pages later by declaring that "play is not 'ordinary' or 'real' life" (ibid.:8). Huizinga does not make the act of drawing this distinction explicit, but it is plain to see that a distinction has been made because he repeatedly draws attention to the fact that play can be seen as a part of ordinary life – e.g., by pointing out that we can "understand play as a cultural factor in life" (ibid.:4) –, while at the same time insisting that 'play' is separate from 'ordinary life'.

A pertinent example of this rhetorical strategy is provided by his discussion of word play. Huizinga highlights the role of word play in the development of language, thereby demonstrating that play is always at least virtually present when we speak or write. Yet at the same time, Huizinga insists that play is "standing quite consciously outside 'ordinary' life" (Huizinga 1949:13). This pretence of erasing the distinction between play and ordinary life and then reinstating it is characteristic for Huizinga's argumentative strategy which repeatedly establishes boundaries between different phenomena, only to blur them again. From the point of view of the calculus of indication this makes sense insofar as once a distinction is made, it has to be maintained, and one way of doing so is to repeat the name of the distinction.

From the point of view of Spencer Brown's calculus of indication, Huizinga's repeated changes of perspective from seeing play as separate from ordinary life to regarding it as part of ordinary life and back

again can be seen as an acknowledgement of the 'pervasiveness' of the space in which the distinction is made. In *Homo Ludens*, 'ordinary life' can be regarded as the most shallow space s_0, that is the space in which the distinction is made, and 'play' can be seen as a space with a depth of 1, which is separated from s_0 by the act of drawing a distinction. According to Spencer Brown (1969:7), s_0 pervades every space deeper than itself, which means that 'ordinary life' pervades 'play', and one can choose to highlight either the continuity or the discontinuity between the two spaces.

By repeatedly crossing back and forth between the marked state and the unmarked state, Huizinga manages to highlight the 'hidden' third element within this binary system: the boundary between the two sides of the distinction. Huizinga refers to this boundary as the 'magic circle', and although he uses this term only a few times in the course of *Homo Ludens*, it has gained wide currency in play theory, and is often regarded as one of its basic principles. Salen and Zimmerman (2004:98), for example, use the magic circle as one of the foundation stones of their theory of play, and they highlight its power as well as its fragility:

> The magic circle can define a powerful space, investing its authority in the actions of players and creating new and complex meanings that are only possible in the space of play. But it is also remarkably fragile […], requiring constant maintenance to keep it intact.

Reading *Homo Ludens* through the lens of the calculus of indication thus allows us to remove from Huizinga's (1949:8) definition of play those criteria that are purely qualitative – most importantly the criterion of play being subject to "absolutely binding" rules – and retain those which are purely formal, i.e. the criterion that play is "different from ordinary life". At the same time, Huizinga's contribution to play theory is revealed to be a simple act of distinction – but one that has far-reaching consequences for the subsequent development of play theory.

Expansion: Paidia and Ludus

Roger Caillois' most important contribution to play theory is his discovery that "[m]any games do not imply rules". As he points out,

> [n]o fixed or rigid rules exist for playing with dolls, for playing soldiers, cops and robbers, horses, locomotives, and airplanes – games, in general, which presuppose free improvisation (Caillois 2001:8).

In the second chapter of his book, *Man, Play, and Games*, he classifies these activities as *paidia*: "spontaneous manifestations of the play instinct" (ibid.:28). This is one end of a continuum on which, according to Caillois, all games can be placed. The other end is *ludus*, which he defines as "a tendency to bind [*paidia*] with arbitrary, imperative, and purposely tedious conventions" (ibid.:13).

How can we express the distinction between *paidia* and *ludus* in Spencer Brown's terminology? In answering this question, I am drawing on the work of Bo Kampmann Walther, who was the first scholar to address the difference between the two categories from the perspective of formal logic in his article "Playing and Gaming – Reflections and Classifications" (2003). Walther points out that

> [w]hen it comes to play, the installation of the form of the play-world-non-play-world distinction must, performatively, feed back on itself during play: continually rearticulating that formal distinction within the play-world, so as to sustain the internal ordering of the play-world.

In other words, the distinction between 'play' and 'ordinary life' must be upheld through play by the players. In his brief summary of Caillois' argument, Walther notes the "temporal displacement" in the process of 'getting into the game'. Using the example of the video game HITMAN: CODENAME 47 (2000), he demonstrates that in order

to play the game, one must first "get into character", therefore "there is mimicry, and then there is agon". In Caillois' typology of games, *mimicry* (make-believe) is closely associated with *paidia*, while *agôn* (competition) is related to *ludus*. This underpins Walther's conclusion that "play is based on a first-order transgression and abides in a second-order complexity, whereas games are based on a second-order transgression and reside in a third-order complexity". This can be easily translated into Spencer Brown's terminology by regarding 'non-play' as the most shallow space s_0, while play and games are spaces with a depth of 1 and 2, respectively.

It should be noted, however, that Walther's model of play and games is strictly hierarchical with 'non-play' as the most shallow space s_0, which pervades 'play' (s_1) and 'game' (s_2), and 'play' pervading the space of 'game'. Therefore, in order to 'get into a game', one must always traverse the state of 'play'. While this is consistent with Turner's characterization of play as a liminal phenomenon, it does not seem entirely satisfactory for two reasons. First, many games, such as TETRIS (1989) or CHECKERS, do not require identification with a character, but begin in medias res, with no noticeable traversal of the state of 'play'. Second, Walther's symmetrical model implies that what is true for getting into the game is also true for getting out of the game. However, many games tend to end abruptly, especially games of the *agôn* variety, which are characterized by unambiguous winning conditions.

In the final analysis, then, the question is whether the form of the distinction between play and game is, in Spencer Brown's terminology, a 'division' or a 'cleavage'. According to Spencer Brown, division of a space results in separations of a state that are distinguished by nothing but the act of division itself. A simple analogy would be to distinguish between two sets of identical pencils by referring to one set as 'these pencils' and to the other as 'those pencils'. A cleavage, or severance, on the other hand, results in a separation on dif-

ferent levels, so that one can distinguish two individual states. In our simplified example, this could be achieved by referring to one set of pencils as the 'red pencils' and the other as 'the green pencils'.

Walther's model assumes that the distinction between play, game, and ordinary life is in the form of two cleavages: play is cloven from ordinary life, and game is cloven from play, as shown in part a) of Illustration 1. However, it seems to make more sense to assume that the space of 'ordinary life' is actually divided by the distinction between play and game, resulting in a structure where both play and game reside in two separate parts of the same space, which is twice removed from ordinary life, i.e. if ordinary life is s_0, then play and game are both part of s_2, as shown in part b) of the following illustration:

Fig. 1: The distinction between game, play, and ordinary life as cleavage (a) and division (b)

The most important difference between a) and b) is that in the latter, both play and game reside in spaces of the same depth (or what Walther refers to as 'third-order complexity'), while in Walther's hierarchical model 'game' resides in a deeper space than play. It should be kept in mind that, according to Spencer Brown, the form of a) is analogous to a 'qualitative' distinction, while the form of b) is analogous to a 'quantitative' distinction. Therefore, b) adequately represents Caillois' distinction between games and play, since he describes a development from *paidia* to *ludus*, in which the degree of 'ruledness' steadily increases until a threshold is crossed at which play evolves into a game. Conversely, a game can 'deteriorate' into play if the degree of ruledness sinks below that threshold. It should be obvious that this kind of movement is not possible within a cloven space, but only in a divided space because it isn't based on a 'qualitative' distinction.

Seki

The ancient Chinese game WEIQI, now more commonly known under its Japanese name GO, generates an astounding complexity of gameplay from a very small number of rules. The players take turns placing black and white stones on a square grid, and if a stone or group of stones is surrounded on all sides by the opponent's stones – and thus doesn't have any 'liberties' – it is taken off the board. These are the only rules required to play the game. Interestingly, it is quite frequent in GO for situations to arise in which it is impossible to decide whether a number of stones is surrounded by a group of stones, or rather surrounding the group themselves. This paradoxical form is called *seki*.

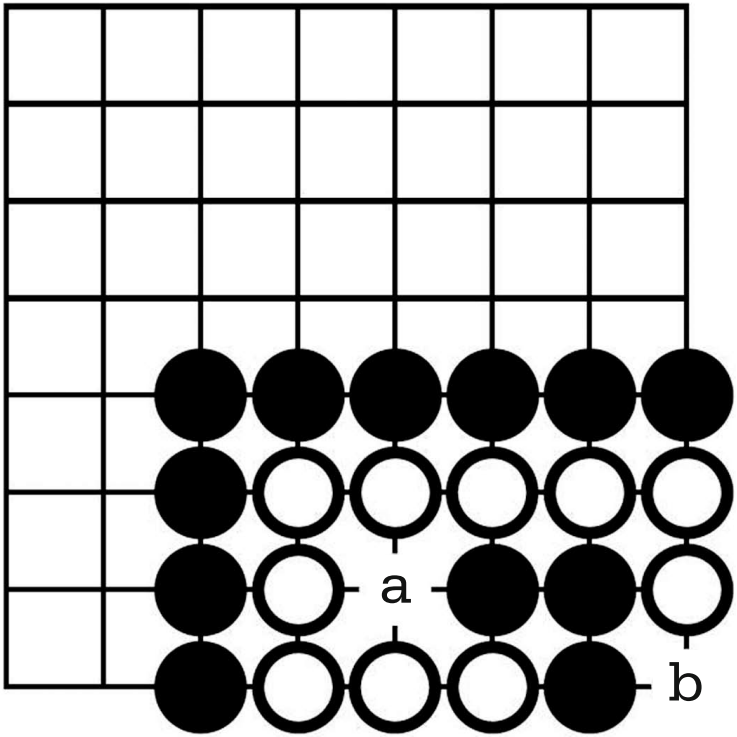

Fig. 2: A seki in GO

The seki can thus be seen as a perfect illustration of the way in which 'ordinary life', 'play', and 'games' are intertwined. In the previous section we saw that, rather than being contained in each other like a set of Russian dolls, play and games can be regarded as being intertwined in such a way that they are at the same time on the inside and the outside of each other. While this appears paradoxical at first sight, the figure of the *seki* draws attention to the fact that this structure can be reconstructed by simple means within the boundaries of a game. Thus, the game of GO serves not simply as an illustration of the theoretical model developed above, but also enables us to develop this model in a playful way.

At the same time, the figure of the *seki* can be used to understand the logic of gamespace, which is a precondition of formulating a semiotic theory of play that takes the possibilities of rule-breaking into account, and thus allows us to comprehend the way games operate beyond the confines of rules. As we will see in the following section, gamespace can be regarded in terms of 'ruled space' and 'unruled space', while play can be seen as a movement through, as well as a configuration of that space, and thus as a meaning-making process, i.e., a form of semiosis. The result of this configurative movement is a heterotopic space, i.e. a space "capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible" (Foucault 1986:25).

Ruled Space and Unruled Space

If we want to understand play as a semiotic operation, a meaning-making movement through gamespace, we must first define gamespace itself. It is one of the characteristics of play that it can be regarded as a spatialized form of semiosis. While there are a number of games without physical manifestations such as double-blind chess, even those games involve (virtual) space in a similar way as games that take place on boards, tables and screens do. Despite the fact that some games can be abstracted to such a degree that they

can be said to become 'immaterial', the materiality of gameplay is an important factor in the processes of subjectification which become attached to it – and this is particularly evident in games that involve a machinic substrate such as digital games.

At the same time, we can regard all games as machines, in the Guattarian sense, and as such they "cannot be limited to [their] materiality" (Guattari 1995:8). According to Guattari, there are "machinic systems, which are not themselves technological" (ibid.:9). Therefore, he introduces the term 'machinic agencements', which can be roughly translated as 'machinic assemblages' or arrangements, a category which "encompasses everything that develops as a machine in its different registers and ontological supports" (ibid.).

Methodologically, this view of games as machinic assemblages will also work as a deludological strategy, insofar as it allows us to critique Espen Aarseth's (1997) influential concept of 'cybertext', which posits games, or at least a subset of games, as semiotic machines. However, Aarseth fails to account for the fact that the connectedness of machines is one of the most important aspects of their machinicity, and his concept of semiotics is much too rigid to grasp the hybridity and fluidity of the processes he describes, as it disregards the cultural, social and political embeddedness of gameplay.

But before we proceed, let us return for a moment to the example of the *seki* given above. What is interesting about this paradoxical figure, apart from the way in which it blurs the boundaries between inside and outside, is the fact that it creates the need for special rules, and the need for an ongoing commentary upon these rules to make them intelligible to players. In other words, the *seki* creates a place within the gamespace of GO in which more rules apply than in other places of the same space.

This spatial heterogeneity is not peculiar to GO, indeed it can be found in most games, and is often used as a game mechanic. In BACKGAMMON, for example, the bar can be considered as separate from the actual gamespace, while at the same time performing an

important function within the game. In computer games, the importance of 'otherspace' is even greater, since playability and replayability often depend upon the presence of secret rooms, tunnels, and 'warp zones'. Significantly, computer game cheats frequently exploit the spatial heterogeneity of electronic gamespaces by offering shortcuts, and access to hidden areas which cannot be entered through ortholudic play.

I suggest the terms 'ruled space' and 'unruled space' to describe this phenomenon, although, in practice, gamespaces are almost always characterized by varying levels of 'ruledness', and ruled space and unruled space often overlap. Importantly, the ruledness of gamespace is never static, but is subject to change during the course of a game. GO provides a pertinent example of this variability of ruledness.

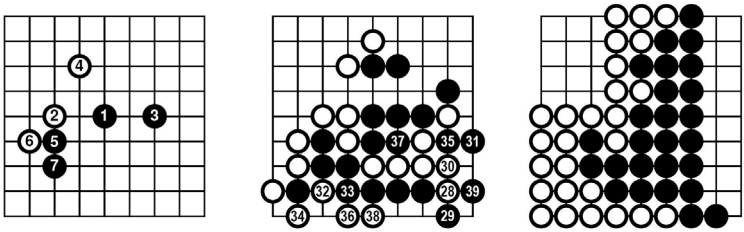

Fig. 3: The beginning, middle, and end of a game of GO

In this example, we can see that the gamespace of GO is almost entirely unruled in the beginning of the game. Players put stones on the board, trying to gain an advantage over their opponent, until patterns begin to emerge. Towards the middle of the game, a highly ruled space begins to emerge in the lower right-hand corner: White's group of six is threatened by Black, and an effective counter-threat is prevented by GO's 'no suicide' rule, which states that a player cannot put a stone in a position where it would have no 'liberties', unless,

as a result, one or more of the stones surrounding it are captured. After the players have agreed that the game is over, 'dead' stones are removed from the board, and the captured stones are placed within the opponent's territory. The result of the game thus represents an instance of a gamespace which is almost entirely ruled.

It should be noted at this point that the concept of ruledness deliberately exploits the semantic richness of the word 'rule'. While this concept is primarily intended as a tool for determining the differences in the rigidity of rules within gamespace, and the changes in rigidity that occur during play, I am also interested in providing a terminology that is connotative rather than denotative. The concept of ruledness is thus deliberately under-determined in order to allow for its deployment in other contexts and in other ways than those suggested here.

The terminological pair 'ruled space'/'unruled space' draws attention to the fact that ruled space affords a different form of movement than unruled space, just like a ruled sheet of paper suggests a different mode of engagement than an unruled one. While there is nothing preventing us from writing on unruled paper, or drawing on ruled paper, there are clear conventions of use that make certain forms of use appear more 'natural' than others. In the same way, ruled and unruled spaces insinuate, rather than enforce, certain forms of movement. In Spencer Brown's terminology, we could say that the mode of engagement peculiar to unruled space corresponds to the unmarked state, while the mode of engagement engendered by ruled space corresponds to the marked space.

Building on the metaphor of ruled and unruled paper, it appears only logical to equate ruled space with linearity, and unruled space with non-linearity, but that would be an over-simplification. Rather, ruled space and unruled space allow for different forms of linearity and non-linearity. In order to understand the different forms of movement facilitated by ruled and unruled spaces, we need to take into

account another facet of the semantic spectrum opened up by this terminology, viz., the meaning of the word 'rule' that is evoked by the phrase 'the king ruled the land', which draws attention to the fact that 'to rule' also means 'to govern' and thus allows us to recognize the close kinship between the question of ruledness and the question of power.

There is an undeniable correspondence between the concept of ruled and unruled space and Deleuze and Guattari's concept of smooth and striated space. Most importantly, for the purpose of developing a theoretical concept of ruledness, Deleuze and Guattari describe striated space as a hierarchical grid, "a system in which transversals are subordinated to diagonals, diagonals to horizontals and verticals, and horizontals and verticals to points", while smooth space is depicted as circumscribed by a "mutant line [...] that is without outside or inside, form or background, beginning or end and that is as alive as a continuous variation" (Deleuze/Guattari 2004:549), which evokes Baecker's (1993) description of an 'ourobouric' gamespace.

In conclusion, then, we can say that gamespace emerges as a space that is defined by the absence, rather than the presence of rules, and that areas of ruledness take the form of local minima, which arise emergently from the players' movements through gamespace. And even where ruledness gains a firm foothold in gamespace, such as in the paradoxical figure of the *seki*, ordinary life re-enters this assemblage and manifests itself in the form of contingency. It is this deludic movement of synchronous closure and openness that the figure of the *seki* describes perfectly.

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Gordon Calleja

Response

The concept of deludology builds on subverting the notion that rules are a stable constituent in games. It assumes a shared understanding of the concept of 'rules' and its applicability across media. But can we treat the 'rules' of a board or physical game in the same manner as rules in digital games, particularly digital games in virtual environments? Reviewing game studies literature it quickly becomes evident that rules are 'transmedial' (Juul 2005); the argument being that since rules are objective, we can program them into a machine which upholds them uncritically. Deludology problematizes the objective nature of rules, but I feel it needs to go the extra mile and get to grips with what rules actually refer to in digital games. Let me give a bit of context for this question.

Rules are commonly held as being a cornerstone of games (Juul 2005, Salen/Zimmerman 2004, Suits 1978), but when we apply the concept to a digital game like HALF-LIFE 2 (2004), a number of questions arise: is the speed at which our avatar runs a rule? The density of a wooden fence? Whether a door can be opened or not? What about the path we are allowed to take within the game's environment? Are these properties of the virtual environment a rule in the same way as 'ball crosses goal line scores a point'? Or 'light comes up on machine stops fencing bout' are rules? There are, of course, similar rules in digital games, but it is not evident that treating these as ontologically equivalent to the physical properties of the virtual environment is theoretically sound.

Although certain members of the digital games family are designed to foster engaging ludic activity, they also, importantly, afford a variety of other experiences that extend beyond the ludic. They are as much designed experiences as they are ludic artifacts. Although for ease of reference we call Grand Theft Auto IV (2008) a game, for

example, it would be more accurate to consider it as a virtual environment that simulates a city which includes a number of games embedded in it and a linear storyline that players can progress through upon completion of strings of game objectives. When two players meet in GTA IV's Liberty City, they can engage in pre-packaged games that have been coded into the system, or they can decide to create their own games within the virtual playground in the multiplayer 'free mode'. Our players may also decide to cruise the city and chat. In the latter case it would be analytically accurate to consider the interaction as a shared activity in a virtual environment rather than a game. This means that not all interactions with the objects we call games result in ludic activities.

Game-play certainly involves interaction with a set of structures, but it seems important to distinguish between different forms of structures implemented in digital games:

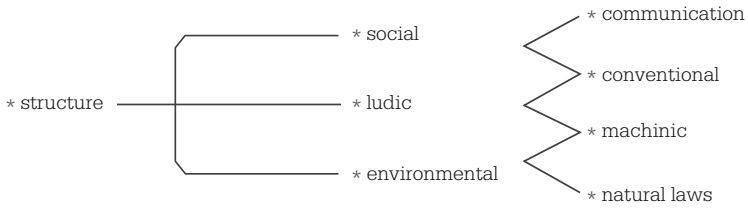

Fig. 1: Different forms of structures implemented in digital games

The notion of rules in the current paper combines conventional ludic structures (socially upheld and agreed upon), machinic ludic structures (programmed into and upheld by the computing system) and machinic environmental structures (also programmed into and upheld by the computing system but pertaining to the simulated properties of the virtual environment and its constituents). But the tactics employed by players to negotiate and subvert conventional ludic structures are importantly different from those employed to subvert machinic ludic and environmental structures. To give a simple

example, if, during a game of THE SETTLERS OF CATAN (1995) I am supposed to pick up 2 wood resources and instead pick up 3 without the rest of the players noticing, I could either have made a genuine mistake because I have unknowingly misinterpreted the rules, or I deviously swiped the additional resource in a blatant attempt to cheat. If I am caught out, the interpretation and subsequent negotiation of that action depends as much, and probably more, on the social setting and context (conventional social structure) as it does on the set of game rules we are playing with (conventional ludic structure). A more ambiguous example could be given where there is a genuine disagreement on interpreting the rules among the players which has not been discussed prior to starting the game. Compare this to me willfully altering the code in a game of Counter-Strike: Source (2004) so that all AKs do double damage. Which is still considerably different from modifying the code so that I have the facility to turn on an aimbot at a press of a key which allows me to do head-shots without fail. Yet another example, banal as it may sound, serves to highlight the difference between the board-game and digital game. Let's say I re-code Counter-Strike: Source so that a patch of mushrooms sprouts up in the terrorists' spawn area every time I head-shot someone. Once again the code has been modified, yet this time it has no discernable effect on game-play.

These different forms of what can be called digital game rules afford sufficiently different forms of subversion that it makes sense to consider them individually. It would also help the notion of deludology to be more precise in identifying which members of the game family it addresses. Digitized versions of board games have considerably different structures than, for example, extended virtual environments like GTA IV or MMOGs like EVE ONLINE (2003). Since deludology bases so much of its argument on rules, it seems to make sense to consider the specificities of the different members of the game family so as not to commit the error of over-generalization that the paper claims is endemic in the body of theory it seeks to critique.

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Martin Warnke

Logic as a Medium

Computer games are rigid in a peculiar way: the logic of computation was the first to shape the early games. The logic of interactivity marked the action genre of games in the second place, while in massive multiplayer online gaming all the emergences of the net occur to confront us with just another type of logic. These logics are the media in which the specific forms of computer games evolve. Therefore, a look at gaming supposing that there are three eras of computation is taken: the early synthetical era, ruled by the Turing machine and by mainframe computers, by the IPO principle of computing; the second, mimetical era, when interactivity and graphical user interfaces dominate, the domain of the feedback loop; and the third, emergent era, in which the complexity of networked personal computers and their users is dominant.

Every game, every application running on digital computers uses computational logic as the base medium of its performance. However, compared to later stages of computer programming and computer use, the predominance of computational logic governs the rules of the game of this chapter. The dispositive of this kind of computation is the schema of input, processing and output, IPO, in German known much more nicely as the EVA-Prinzip.

Since even in the most advanced application of digital technology input, processing and out-put takes place all the time, in ever faster succession, I will have to recall the specific restrictions, or maybe better: deprivations, which are typical for this era. The first is: in case that there is a reaction to the output of the computation which determines the next input, the succession of IPO after IPO should be so slow that there is no inclination to think of it as a closed loop operat-

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 064-078.
http://pub.ub.uni-potsdam.de/volltexte/2010/4271/ [urn:nbn:de:kobv:517-opus-42710]

ing in real time. Typically massive computing is done every time in between input and output, response time is no central issue. It is not time critical, as Claus Pias (2002) calls the genre of action games. The second deprivation concerns deprivation: there is no significant contact to the surroundings, no communication with others that is worth being called so. The automaton works in autistic isolation.

Computational Logic is the Medium, and IPO is its Dispositive

So what types of games evolved in this medium of computational logic, which forms are observable? One class of examples are the digital variants of the classical board and card games. CHESS, CHECKERS, and TIC-TAC-TOE, GO, SKAT, BRIDGE. Despite the fact that there is a succession of IPOs, the computer operations are totally determined and confined by Turing computability, sometimes under the influence of chance. The von Neumann and Morgenstern game theory directs the moves, computational logic provides for the overall functionality. Ideally spoken, a Turing Machine operates in autistic isolation from move to move:

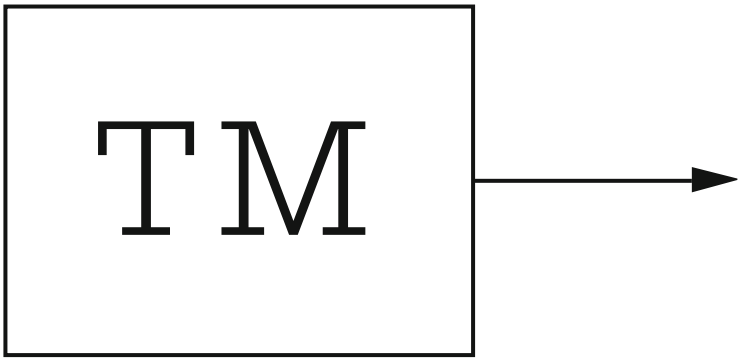

Fig. 1: A Turing machine working in a synthetical fashion: autistic

Out of the form of this medium, a style of these IPO-games emerged: it is the relentless perfectionism of computational logic, which becomes stronger with every cycle of Moore's Law. By searching immense numbers of possible moves in databases of positions, computers practice a seemingly error-free style of cold bookkeeping. This style is so strong that even World Chess Champion Gary Kasparov in 1997 falsely assumed that IBM's Deep Blue was unable to commit errors, thus giving up the game instead of trying to reach a remis, which Kasparov certainly would have done when playing against a human opponent.

But there is still another type of IPO-game. Pias calls them configuration critical and puts them into his category of strategy games. The most classical one in this respect is Conway's GAME OF LIFE (1970), belonging to the category of cellular automata, where the player prepares the board and just watches the configuration to evolve. The fun comes out of the guess which starting configuration is interesting und just watching its progression. The rules, by the way, are very simple:

- Any live cell with fewer than two live neighbours dies, as if caused by underpopulation.
- Any live cell with more than three live neighbours dies, as if by overcrowding.
- Any live cell with two or three live neighbours lives on to the next generation.
- Any dead cell with exactly three live neighbours becomes a live cell.

All depends on the seed, the initial configuration, the rest is done by computational logic. This game is so much due to computational logic that it is even possible to prove that it is equivalent to a Turing machine. That means: the game is the Turing machine. Or the Turing machine is the game. And some people find these games even more interesting, e. g. Stephen Wolfram (2002) tries to found nature

itself on the concept of cellular automata. In his book *A New Kind of Science*, he proposed to reformulate physics as a sort of GAME OF LIFE. Nature as a game. THE SIMS (2000) are a sort of GAME OF LIFE, too. You prepare and let things evolve. You are the creator of a world, including people, mostly bulimic, always autistic, that obey simple rules.

Fig 2: THE SIMS – an autist's get together

The genre of adventure games evolved from the misuse of computers to build the ARPANET (Pias 2002:199). The Mammoth Cave in Kentucky in 1973 found a digital counterpart within a computer installed to build parts of the ARPANET, and ever since, people found their joy trespassing databases, modeling caves or other complicated terrain.

All these games exploit the medium of computational logic. The forms that express themselves in this medium even form a style, and they still do today in ever new versions of the same dispositive.

Interactional Mimesis as a Medium

By grasping the arrow from input over processing to the output and bending it back to the input, the cybernetic feedback loop enters the world of computation.

Man and machine interact through a user interface:

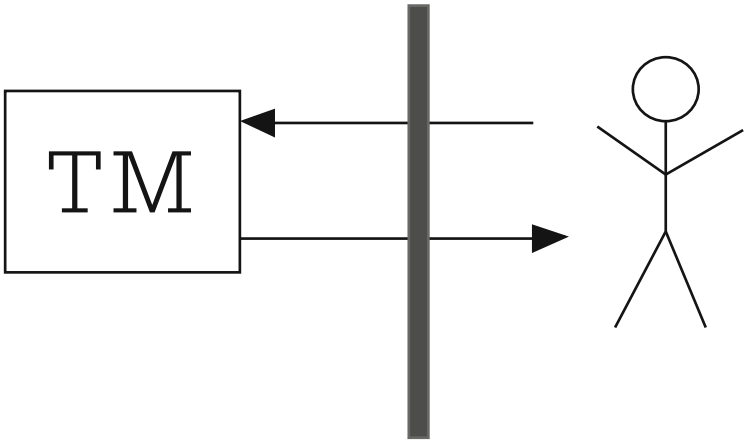

Fig. 3: Man machine interaction through the GUI

Alan Turing (1973) described the computer in its full range of capabilities computationally, but his view did not take into account user intervention, as the early machines actually did not do either. Interactive gaming was invented by William Higinbotham in 1958, opening a brand new field of computer use, misuse, and thus also of enjoyment (Pias 2002:13). In his TENNIS FOR TWO (1958), William Higinbotham presumably showed the first fully fledged video game. It was being played on an analog computer, telling us that the demands for the Tennis game were far ahead of digital times.

Simulating the physics of free fall under friction and impact, it gave users the opportunity to interactively control the game's parameters, the exact moment in time when one of the two players hit

the ball with the virtual racket. Though it was not an enemy but a partner – a distinction that sometimes vanishes in real life as well – the dispositive was typically cybernetic: how to hit the flying object in real time? It was so much fun for those who came to Brookhaven National Laboratory's annual visitor's day that they queued back to the open door of the lab to be able to play the game.

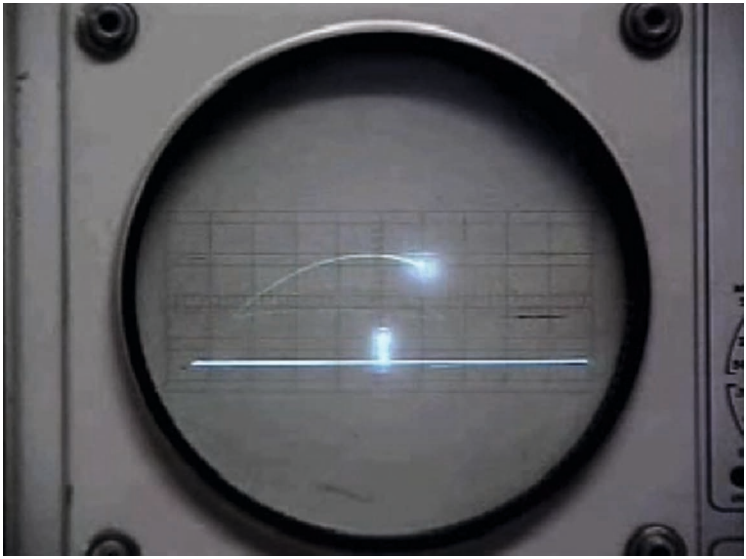

Fig. 4: TENNIS FOR TWO

That the computer being used was an analog one strikingly shows that the logic of this game was not computational complexity calling for a digital device but the real time mimicking of real world processes in a cybernetic feedback loop. Computing had to be fast in the first place here, not any kind of incarnation of a Turing computable function. It had to feel really real, and analog computing did just fine for that.

We are now in the realm of virtual reality, and what Myron Krueger (1983 and 1990) described as Artificial Reality; what he built in the late sixties as an environment that responded to the people that were in it is now being sold as commercial games, called Sony's EyeToy Play or Nintendo's Wii. The user mimetically enacts what happens on the screen, and this only works on digital computers once they are fast enough.

Computer sports games are closely related to computer animation, since there are avatars to set in motion on the screen. The term "mimetic" stems from antique theatre and denotes the dispositive that someone enacts what others have to feel (Kamper 1991). My favorite example of this kind of man machine interaction shows the chief animator of the heroine of *Finding Nemo* (USA, 2003), manic depressive Dorie, who pushed himself into a sad mood to better find the right facial expression for a fish suffering from mental pain. Have a look yourself, also at the fact that animator and animated are mimetically similar up to the shape of their heads:

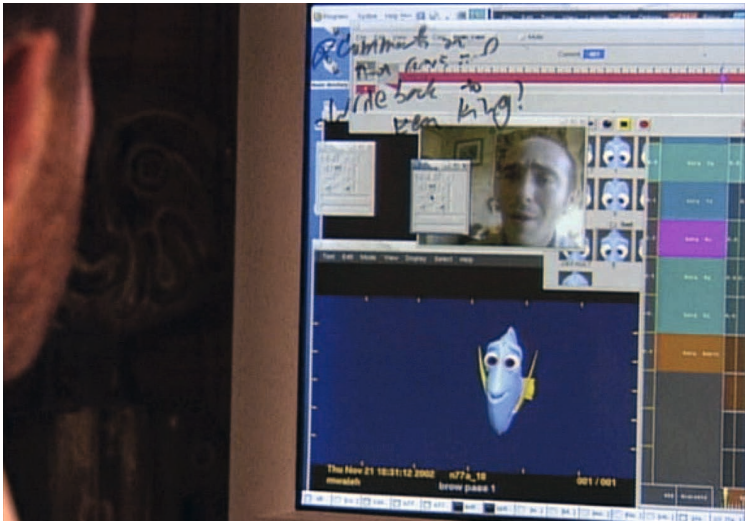

Fig 5: On Men and Fish

Mimetic enacting within a cybernetic feedback loop is the logic of this second set of games. Computation is no necessary precondition, maybe we will even experience a renaissance of analog circuitry for this type of gaming at some point. The form of these games is fast interaction over ergonomic peripherals, yielding wet hands and high blood pressure. Action!

Communicational Emergences as a Medium

Although nowadays there are several games with communicative elements, the overwhelming feeling of instantaneous conversation within a group of people meeting in the same room only emerges when playing a first-person-shooter like HALF-LIFE: COUNTER-STRIKE (2000). When I did this the first time, I experienced a flash-back that teleported me back again into the play-grounds of my youth playing cops and robbers.

It was actually a vision of Paul Baran, the inventor of packet switching, that became of eminent importance to the later Internet, when summing up his investigations on the basics of ARPANET. He wrote in 1964:

> An ideal electrical communications system can be defined as one that permits any person or machine to reliably and instantaneously communicate with any combination of other people or machines, anywhere, anytime, and at zero cost.
>
> It should effectively allow the illusion that those in communication with one another are all within the same soundproof room – and that the door is locked.

The commercialization of the Internet casts doubts on the "zero cost" vision, and caring parents cast their spell on "anytime", but the experience is exactly the one that Baran had in mind: telepresence, immediate communication. And indeed, the protagonists of an ego shooter

tournament do not care whether they talk over Voice over IP or over air with presumably little oxygen left in it after all that gaming: it does not matter anymore.

Lots of people at lots of machines communicate. It is impossible to distinguish between contributions of machines or humans, the user interface becomes foam-like.

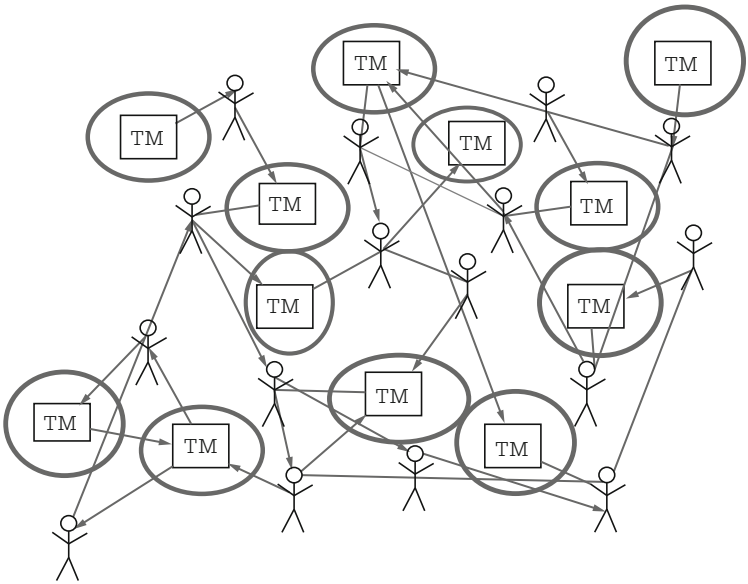

Fig. 6: Who is who we do not know: man and machine in foam

We arrived at the era of highly distributed communication spreading over the internet. Neither computational complexity nor closed feedback loops are the dominant dispositifs – although both of them are included – but the emergence of a communication system prevails. This is accomplished by being online. This now is the logic of the game. It is of such great importance that recent communication devices could do very well without the full computational power or all

of the ergonomic peripherals we got used to in virtual environments, but still being of utmost attractivity. Communication really matters, the more ubiquitous the better, it is the "anywhere" in Baran's vision.

This even provides the opportunity of blending real and virtual space. The first augmented reality applications arrived for mobile devices, and they give us an idea how virtual space will blend with real space, how, by being always on, computer mediated communication will boost gaming beyond Turing computability, beyond Wiener's feedback loop into the logic of the complexity of communication and its contingencies that is its medium.

What is the form of games in this medium of communicative meshing? It is community.

No one can still argue that computer games make people lonely. These games, like COUNTER-STRIKE or WORLD OF WARCRAFT (2004) meet a central need of mankind so much so that they are highly addictive. It is the need for community. It reflects the fact that communication reconstitutes society, and that the computer now fully has arrived in it.

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Rune Klevjer

Response

Martin Warnke's proposal that computer games have evolved within three different media or 'logics' is an innovative contribution to the discussion of mediality and genre. Like good speculative thought, it offers a perspective – however sweeping – that stimulates new thinking while at the same time connecting with established wisdoms on the field. Warnke's approach is decidedly medium-centered, and very much fitting within the theme of the conference. He articulates a rationale behind the often implicit (or vaguely expressed) assumption that online and multiplayer gaming is very different from single player gaming. Interestingly, he also constructs a model according to which real-time action games, in all their diversity, are seen as a separate medium, distinct from system simulations, strategy, and adventure.

The notion of cybernetic mimesis ('mimetic interaction') resonates with established ideas in game research literature on the significance of the 'cybernetic feedback loop' (Espen Aarseth, Ted Friedman), but with one important difference: Warnke's concept of cybernetic interaction is being exclusively associated with real-time interaction, and placed in contrast to the computational or calculating Turing machine that is seen as the underlying rationale or 'logos' behind strategy or adventure. Such a more narrow and exclusive concept of cybernetic interaction throws a sharper light on real-time graphics and real-time interaction as a particular genre form in games, even if it does not necessarily conflict with the broader and inclusive idea. It is on this point that I find Warnke's intervention especially interesting. He opens up a productive discussion on the unique nature of real-time interactive graphics in games, offering three contentious claims:

Can real-time graphics, from SPACEWAR! (1962) onwards, be subsumed under a more general and not necessarily *computational*

paradigm? Is real-time cybernetic interaction in computer games essentially about pure action – "wet hands and high blood pressure"? And finally: is real-time cybernetic interaction essentially about *mimetic* interaction? The two first claims seem to be interlinked. If we choose to take out digital computation as a defining factor of real-time games, from TENNIS FOR TWO (1958) to Nintendo *Wii*, we will be left with a much narrower range of interactions and experiences; there will be just 'action' in its strictest sense (as with pinball machines or mechanical arcade games), because there will be no world-simulation, and no world-experience, of the kind that only a digital computer can produce.

As for the mimetic part, the central claim is difficult to grasp in its brevity. We must assume that a notion of 'mimetic enacting' that includes playing TENNIS FOR TWO as well as animating Dorie in *Finding Nemo* (2003) is a broad one, possibly bordering on the metaphorical. At the same time, the phrases "someone enacts what others have to feel", and 'mimicking of real world processes' point towards something much more distinct. In any case, the question remains: in what sense would playing TENNIS FOR TWO be a mimetic activity? Is the mimetic dimension essential to its form? Or is it, in this case, in the game's title only? To this reader, Warnke's suggestion that 'virtual reality' captures the central rationale of not just Nintendo *Wii*, animation, and theatre, but also classic arcade-action (including pinball machines?) points to a notion of 'virtuality' (and mimesis) that seems slippery yet intriguing.

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Daniel Cermak-Sassenrath

The Logic of Play in Everyday Human-Computer Interaction

Communication, simulation, interactive narrative and ubiquitous computing are widely accepted as perspectives in human-computer interaction. This paper proposes play as another possible perspective. Everyday uses of the computer increasingly show signs of similarity to play. This is not discussed with regard to the so-called media society, the playful society, the growing cultural acceptance of the computer, the spread of computer games or a new version of *Windows*, but in view of the playful character of interaction with the computer that has always been part of it. The exploratory learning process involved with new software and the creative tasks that are often undertaken when using the computer may support this argument. Together with its high level of interactivity, these observations point to a sense of security, autonomy and freedom of the user that produce play and are, in turn, produced by play. This notion of play refers not to the playing of computer games, but to an implicit, abstract (or symbolic) process based on a certain attitude, the play spirit. This attitude is discussed regarding everyday computer use and related to the other mentioned perspectives.

Everyday computer use can be seen from a number of different perspectives. It can be understood as communication, simulation, interactive narrative and ubiquitous computing. This paper attempts to show that human-computer interaction and play share strong similarities. The initial question is therefore: How can play appear in everyday computer use?

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Computers are used differently than other machines by their users, and the interaction happens to have a lot in common with play. The notion of computer use is taken to mean everyday, purposive, explorative, creative "productivity application[s]" (Bolter/Gromala 2003:61), as opposed to the playing of computer games, the construction of hardware, or the coding of software. Computer users appear to play more than users of other technical devices and the computer lends itself to being played. Of course, computer users are not always playing and not with everything, nor in all activities in the same manner and to an equal degree; in repetitive tasks they are not playing as much as in creative ones. This play is not explicit, but is implied by explorative learning, experimentation, creative tasks and "internal drama created by […] self-gambling" (Dombrower 1998:186).

Necessary and purposeful actions, the production of goods and work temporarily take a back seat to play. This is a change of perspective which happens quickly and without external indications. In this paper, this perspective is described, discussed and related to other possible perspectives. If something is to be said about play, it should be clear which notion of play is chosen. This discussion adopts the definition of play of Huizinga, who describes it as

> an activity which proceeds within certain limits of time and space, in a visible order, according to rules freely accepted, and outside the sphere of necessity or material utility. The play-mood is one of rapture and enthusiasm, and is sacred or festive in accordance with the occasion. A feeling of exaltation and tension accompanies the action, mirth and relaxation follow (Huizinga 1955:132).

It remains to be shown where and in which form this play can be demonstrated in human-computer interaction.

This paper does not provide instructions on how computer use can be turned into a kind of action game, nor on how it can be organized on a low level to resemble play. Although some rules may result that may aid in designing future computer use, this paper is centered on recognizing how the computer is "a realm already shaped by the structures of games" (Murray 1997:129).

Play

According to Huizinga, play is identified by multiple features. Only the convergence of these defines play. They interact, build and depend on each other and together form an integrated unit. Freedom is a fundamental characteristic of play. Without freedom, play is not imaginable. Freedom is involved with three different aspects of play: freedom to play, freedom from the ordinary world and freedom of choice inside the 'magic circle' of play.

Repetition is another sign of play. Play is without end. It is terminated by outside causes. All play is unique, though at the same time it can be repeated. Play requires and produces a certain kind of order. This order originates from and initially expresses itself through rules. It is not limited to these rules, however, but manifests itself on a higher level in play's "rhythm and harmony" of "tension, poise, balance, contrast, variation, solution, resolution, etc." (Huizinga 1955:10).

A certain tension marks play as a process whose course and result are not known beforehand, and for which there is a reasonable chance for a successful outcome. This ambivalence can be described as a free and easy oscillation between different poles, especially between winning and losing and triumph and failure. Play must separate itself from the everyday world. This happens primarily in the heads of the players and secondarily through "material props" (Dunne/Raby 2001:28) such as jerseys and designated fields and courts. This feature is called secludedness or limitedness.

The purposeless nature of play is a characteristic which explicitly separates it from the sphere of need, compulsion and purpose and therefore from the context of the everyday world. Play expresses itself in concrete and visible actions as well as in a state of mind that is not at all concerned with material things. Play is, however, not to be confused with illusion, deception, fiction or hallucination (Scheuerl 1965:83). The player is intensely absorbed by play. This step outside of ordinary life is a phenomenon that is caused first and foremost by the player's own essential participation and not by sensory stimulation.

If and as long as these features of play characterize an activity, it is possible to be play for a player, but there is no automatism – the question of whether someone is playing can only be answered by himself. Play happens instantaneously from one moment to the next if the criteria are met and if the player decides to play. While playing, he continuously checks the occurrence of the criteria; as fast as play begins, it can also end if he decides to stop playing or when the criteria are no longer satisfied for him (Salen/Zimmerman 2004:94).

Play is primarily a perspective of the player: an idea, an attitude. Play can only be play *for somebody*. The play spirit is a mood which the player takes on and which simultaneously captivates the player. Play *is* not (in the sense of an artifact or product) but is always *being made to happen* (in the sense of a process).

What is the play spirit that makes an activity appear as play to the player? "To dare, to take risks, to bear uncertainty, to endure tension – these are the essence of the play spirit", writes Huizinga (1955:51). Suit's "lusory attitude" is a "state of mind whereby game players consciously take on the challenges and obstacles of a game in order to experience the play of the game itself" (Salen/Zimmerman 2004:574). For Bateson (1972:191), the play spirit is a "delimited psychological frame, a special and temporal bounding of a set of interactive messages".

Play cannot be bound to the execution of certain activities, the handling of certain objects or to the visitation of certain places. Of course, play has to do with external actions, but these are not everything. For both theater and the game of football, the concrete action is secondary to its meaning inside the play. The visible action appears as the result, expression and reflection of the primary perspective.

The sensual representation supports and enables play in many cases and also offers an additional incentive to play. The player's play spirit and the outward expression of play influence and motivate each other. In ideal play, both elements fit and complement each other (Schaller 1861:9 in Scheuerl 1965:110). It is obvious, though, that the more competitive games become, the more the outward expression is reduced. The player's thrill of acting is nearly completely replaced by the challenge of testing his playing abilities and by the competition.

When it is now stated that the user's interaction with the computer can become play, it is meant that it becomes play *for him*. In this context, the user enters the world of the computer as a player. The playful interaction emerges in explorative learning, for example. The use of computers for creative tasks supports this view, because while almost all activities can be viewed as play, creative processes are always playful. Their characteristics are similar to those of play: Freedom, a certain tension and relaxation, movement and mental associations, openness, a joy of discovery that focuses on a clearly defined goal, the emergence of something new as well as success and failure.

The interaction with the computer might appear to the user as a competition with the machine or with himself. The computer's high level of interactivity and its complex reactions support this impression. The course and outcome of the interaction are open-ended in many cases. Although everyday computer use is, of course, not designed as a competitive game, it might appear to the user as such.

When he regards the computer as an opponent or a challenge, a kind of internal struggle can develop between himself and the computer, based on his competence and confidence using the computer. The outcome or result of the interaction is often not known in advance.

In human-computer interaction, an explorative approach eclipses the methodical or preplanned course of action (Lunenfeld 1999:8). It finds and creates a place for "danger, adventure and transgression" (Dunne/Raby 2001:6). This interaction with the computer has, compared to the use of other (technical) devices, a clear affinity to play.

Scheuerl (1965:169) sees learning as a process to appropriate skills that are not realized through normal development. A learner learns only by doing something; he learns what he is doing. The only thing that can be called educational play with some justification is experimental play (idib.:54), or rather the playful exploration, such as with construction kits, which lets the player, driven only by his curiosity, try things out and make errors. This method can be seen as quite effective and successful.

The playful interaction with the computer cannot limit itself to neophyte trial and error. A beginner is not yet playing a game; he is still learning how to play and pick up the basic skills. Play can only occur wholly after the game is understood and its requisite skills are mastered. The more a player's skill improves and approaches mastery, the more free play can become. Explicitly educational games (for example under the title of 'serious games') have been proposed, but are conceptually debatable and not widely successful. If they are promoted, it is assumed that play can be utilized for learning, practice, exercise or training purposes.

If educational games are criticized here, it is not because it is doubted that players learn something. The critique is focused on the practice of telling the player one thing while aiming for another: The deception is not that the learning is hidden, but that the reason to learn is disguised (Scheuerl 1965:215). Play is not played to learn. A

game that is played as a means of or for the purpose of learning cannot be called a game at all. Learning through play is always an unintended, unnecessary by-product.

Play and creativity appear to stand in a close and reciprocal relationship and stimulate each other. In the same manner as explorative learning, creativity stipulates a situation of freedom, security and competence. For Kay (1972), the child who explores the world becomes a potential computer user; "children of all ages" could use the computer, led by their instinct to play and their creativity. In the field of art, an indisputable and deep connection between play and creativity exists, also found in the realm of technical innovation and development (Adamowsky 2000:242). The playful creative process is not limited to professional designers, painters or musicians, rather, it is increasingly evident in everyday computer use.

For an activity to become play, it must be suited for play; the more control and autonomy a person gains, the larger is the potential for play. – Is play in this context meant as protest, a means of self-defense and a way to attain goals in the ordinary world? It should be noted that media have always been used as means to fight for as well as against power. In these conflicting fields, the development of the interactive computer takes place.

The computer has been proven to be a medium of control and power and a tool to gain freedom and question authority. Since the 1970s, it has been obvious that the computer has been a tool not only to improve the world but also to redistribute power (Seeßlen/Rost 1984:17). The questions that concern the discussion in this section are those of the computer user: Can I play? Who or what impedes me? This conflict is a struggle for the control over the computer that is being fought on different fronts with different results. Playful interaction appears naturally on the side of freedom and challenges control. But play is not meant or understood as protest. Players do not aim to change the world through playing.

Narrative

First, the notion of narrative must be defined. Stories are taken to be detached from the actions of the readers or listeners and finite. They are often well formed according to classical literary principles and usually follow a plot. These properties characterize their special appeal for the readers or listeners, who can only participate by musing, comparing, reflecting and identifying.

It might appear self-evident to apply the idea of interactive narrative to the interaction with the computer and to offer its user a well-formed, satisfying and interesting experience. Therefore, it needs to be shown that stories are a valid way of looking at the world. Stories play an important role in people's lives. For Mateas (1999), they constitute a fundamental part of the "human experience": "[…] many argue […] [that] narrative is […] a fundamental organizing principle of human experience […]." Kay (1996) sees them as "our basic 'wiring' as human beings", and "[t]hroughout history, people have learned how to make sense of the world around them through stories." For Laurel (2004:74), people understand the world "largely through narrative construction. […] we look at the world with storytelling brains." Mateas consequently concludes that stories lend themselves to be used in artificial intelligence to understand the world.

If people can regard their current activities as stories and can structure them accordingly, then following this logic, this also applies to human-computer interaction. With narrative as a paradigm in human-computer interaction, the discussion centers not on constructing theatrical plays with the computer, but on everyday computer use. Well-known is Laurel's concept of *Computers as Theatre*. She aims at designing interaction to follow narrative guidelines. AI would be used to form the experience of the user "into the rising and falling arc of classical drama" (Murray 1997:200). Computer use would then be "both pleasing and amendable to artistic formulation", an "experience […] that it is enjoyable, invigorating, and whole" (Laurel 1993:120).

While it is evident that interactive narrative is not widely accepted nor used in human-computer interaction, it is also conceptually unclear whether it is especially appropriate or even possible at all. The distinct and new capabilities of the computer as an interactive multimedium are not recognized by narrative and cannot express themselves in it or through it. The computer appears to be more than "bardic work" (Murray 1997:10) and the continuation of the book and cinema in the tradition of the printing press by different means. It is disputable whether stories can be seen as a perspective to structure current actions, but this is the precondition for using narrative in interaction and for designing the computer, which is called an "instrument for action" by Manovich (2001:90), in such a way.

Until a few years ago, games and stories appeared as explicitly separated entities. There were few and unsuccessful attempts to associate them. In the last years, however, computer games have been published that increasingly seem to relegate the game play to the background. A high level of narration apparently compensates for the missing gameplay, bringing this separation into question. The ways in which game and story continue to oppose or even contradict each other are discussed in this section.

Participation in a game or story is primarily a question of perspective. The game emanates outward, towards the visible and the activity; the story provides inner reflection. A story is observed from the outside; its listeners or readers do not control its course or outcome. If they choose to act, to influence and change its course and outcome, they may turn it into an open-ended play (e.g., a roleplay).

In a story, the action is controlled by an author: Only he decides what is going to happen. Often, this control takes the form of the plot, which sets and keeps the narrative world in motion. A story's plot is the inner cause and motivation that neither depends on nor is able to handle external influences in any way. In games, the players are free from external control and are not subordinate to any authority

outside the game. There is no need for them to justify their game actions to anybody. Their interaction is the fundamental impetus that matters in the game and moves it forward; without interaction the game would stop immediately.

Whereas the world of the game comes into existence and is maintained through the actions of the players, the world of the story exists only as long as the listeners or readers do not act and interfere. When considering the development of computer games from the relatively trivial games of the 1980s to the complex and intricate games of today, it seems tempting to propose a "continuum between interactivity and storytelling" (Joiner 1998:154) onto which games can be placed.

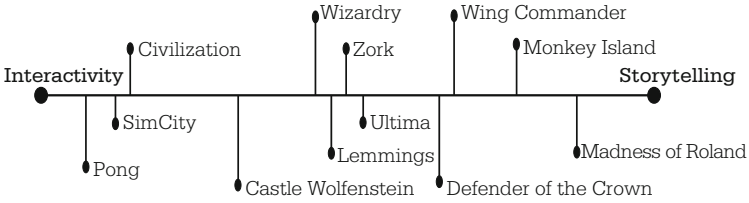

Fig. 1: Continuum between interactivity and storytelling (Joiner 1998:154)

What is missing from this view is the fact that the computer games shown on Joiner's continuum are games that are dominated by game play rather than plot in the first place. The pertinent story may be structured in simple pairs of action and reaction – as in MONKEY ISLAND (1990) – or might follow the interaction directly – as in DEFENDER OF THE CROWN (1986). Games function through providing a challenge. If a game ceases to rely on interaction in the first place, it stops being a game at all. The medial thrill of games as well as stories seems to lie in their extremes. They can converge towards each other, but risk losing their specific appeal in the process.

Calm Computing

For Mark Weiser, the development of the digital computer can be roughly divided into three phases, with ubiquitous computing being the third, following mainframes and PCs. Calm computing highlights a certain aspect of ubiquitous computing: "A calm technology will move easily from the periphery of our attention, to the center, and back." (Weiser/Brown 1996) This way of using the computer may be "embedded deeply, richly and tacitly in everyday life". The concept of calm computing describes a defensive use of technology that is integrated unobtrusively into the surroundings. Most of the time, it stays in the background of everyday life and only occasionally requires conscious attention. The power of calm computing lies in the periphery of perception, "what we are attuned to without attending to explicitly" (ibid.). The user makes effortless use of the technology that is hidden in his environment. Although the computer has long been accepted in society and has spread to all facets of life, its integration or disappearance can only be observed in a limited number of cases. In spite of a number of proposals for realizing ubiquitous computing and some effects it has had on the design of human-computer interaction, a general trend is not apparent.

Calm computing calls for a fundamental departure from a media use that requires attentive interaction. In contrast, a game demands the complete concentration of the player. A player directs all of his attention to the game he is playing. An obvious parallel can be drawn to the user who focuses his attention on his computer. When using a PC, a user is "not doing something else" (Weiser/Brown 1996). Play does not happen silently, inconspicuously, casually or in the background. A player willingly faces the challenge of a game, and dedicates all his effort.

Playful interaction with the computer is, in a certain sense, the opposite of calm computing. Whereas the user has to devote a considerable amount of attention to using the computer and to immersing

himself in its contents, in calm computing he focuses on the task at hand, paying no attention to technology. It is not applicable or advisable to employ ubiquitous computing in all situations. A disappearing interface that is no longer consciously perceived might diminish the psychological distance and therefore hinders critical reflection (Grau 2001). In digital art, there are a myriad of works that strongly bring the interface into the consciousness of the participant. This may also be one function of digital art (ibid.). Obviously, not all interfaces are suitable for all applications. Ubiquitous computing is not going to replace or supplant the attentive use of the computer by the user. Both perspectives will find their place in everyday computer interaction.

Communication

Communication is seen here as the purposeful transmission of messages between human beings. Meaning can be created in this process through individual interpretation of the participants only; meaning is neither transmitted nor hidden inside the medial text. When talking about communication with the computer, at least three aspects can be considered: entering commands by keyboard, Crawford's dialogical interaction paradigm and the exchange with artificially intelligent agents or robots. If the notion is just used as another term for interaction as in Suchman (1987), it does not bring anything new to the table.

Communication and play are regarded as different perspectives in computer interaction. Whereas communication aims at purposes beyond itself, play "contains its own course and meaning" (Huizinga 1955:9). Communication requires a distant, reflective use of media; play needs direct control and immediacy. Play can *use* communication, which happens quite often. Play is a "communication situation" (Manninen 2003), but cannot be reduced to that, of course. Players do not play to communicate.

What can be observed in computer interaction in connection with the communication metaphor is a deviation from the idea of direct control in favor of an indirect control of a computer or robot that is increasingly perceived as intelligent. This tendency removes the development of human-computer interaction from the concept of direct manipulation (Norman/Draper 1986). If the computer user deals with an agent or robot, he has to surrender immediacy. The more he surrenders, the smaller the potential possibility for play becomes. Play requires control, and in playing, the active component always outweighs the reflective component that happens to be so important in stories and in communication. Play must be done by the player. The communicative interaction with a robot does not invite play. When somebody has other people who play for him, he limits himself to the role of a spectator, as for example at a sporting event or the theater. The communication metaphor as perspective in designing the active or even playful interaction with the computer appears inapplicable in this regard.

Simulation

What are the characteristic properties of simulation? As seen here, its aim is to gain insight. Its approach consists of the transfer of certain aspects from either the natural or an artificial world, the dynamic or interactive experiment and the retransfer of the results. Simulation requires an extremely realistic representation of the actual to a virtual world (or from one medium to another); the representation is reduced in the process by removing some facets that are not relevant to the desired purpose. Completeness is not targeted. A simulation clarifies what is being simulated, inside which limits and under which conditions and preconditions. A simulation has to at least be dynamic. A picture, for instance, is not a (visual) simulation according to this definition. With such a dynamic simulation, observations and tests can be made. The simulation can even allow experiments to be conducted interactively.

The purpose of a simulation is the understanding of a situation, a process, a material, etc. A simulation functions only if the insights that have been gained can potentially be applied to the real world. This application gives the simulation meaning and legitimacy. If this is not possible, the simulation has failed. Not all transfers, representations and dynamic or interactive processes are simulations. Process control and illusion are examples for such processes. The computer appears in a certain regard as simulation because it employs models of reality that are dynamic and even interactive. What differentiates the computer from a simulation is its fundamental characteristic of creating reality. It is also used for simulations and as a simulator – but not exclusively, and not to such an extent that it could describe its nature completely or thoroughly. Not the gain of insight, but the *creation of reality* drives the user.

The certain dynamic that computers possess is not and has never been only a medial representation or visualization, but is in all cases part of the world and real life. The computer can neither be understood as a controlling device (as in process control), nor as an experimental or testing environment (as in simulation). Its use happens to be much closer to play, the creation of a new and sovereign world that has its own meanings, rules and special possibilities.

As it appears unlikely that computers are only simulations, it also appears improbable that games are only simulations. Computers as well as games have, of course, some striking resemblances to simulations, although they also differ fundamentally in important aspects. In simulation and in play, a remarkably accurate representation occurs in many cases. Simulations model their archetypes in a precise fashion so that relevant insight can be gained and transferred into the real world. Games take objects and activities out of the ordinary world and afford them new meanings that are often independent of their meanings in the everyday world.

A representation into play is not a facsimile but an allusion. Often, an initial situation of conflict instigates, explains or enables play, and the players recognize such a situation from the ordinary world. But play is not a substitute for such situations, and play does not depend on the everyday world. Objects and activities are drawn into play, but in the process, they lose their ordinary meanings and acquire new ones. The setting and the background story are examples of additional elements that initially have some attraction for the players, although this wanes as the play goes on.

SIMCITY (1989) is a well-known example of a game that seems to be a simulation and which in many ways acts as such. However, games have a different set of priorities than simulations. Games provide an experience for the players, whereas simulations produce insight for researchers. Games do not become games by simulation, and simulation is not a characteristic feature of play. Some simulations exist that happen to also be games, but games can generally be seen as simulations only in a very limited sense.

Consequences

The creation of the perfect medium with a complete and naturalistic representation is an old dream. According to Arnheim (1957:157), it leads to a mechanical instead of an artistic representation. At the very latest, postmodern art separated itself from this dream or has made it one of its themes. The pursuit of a highly perfect illusion was then taken up by mass media and mass technologies.

In mass media, there has always been and still remains an unabashed and also uncritical pursuit of realistic representations. The design of media is therefore not recognized as a creative process of choice and selection that differentiates them from the ordinary world, but as a hurdle that has to be overcome each time by the newest technological developments. The more the computer is seen as a mass medium, the greater the danger is that it takes up this tendency. But the new and exciting quality of the computer is not the

presentation of content, but the essential participation of the user. The computer is a medium of action, not of reflection; the main task of the representation is to facilitate interaction. For that purpose, a realistic representation does not appear to be especially useful.

A perfect medium would not solve all design problems but, in contrast, would prevent all design. Medial representations are not incomplete compared to the everyday world; they are in fact complete. A photorealistic representation has nothing to do with art. If art does not limit itself and select its means, it only imitates life and nature instead of creating them. The further development of naturalistic media will nonetheless continue for two reasons: It is and will remain a popular challenge to attempt to achieve reality through media, and the thrill of media appears to increase the closer it comes to the edge of the real world, albeit *without crossing it*. This edge cannot and must never disintegrate because this would terminate the game at once.

The notion of consistency can only be used relatively; something is consistent only with regard to something else. In designing human-computer interaction, consistency with the natural world or with an artificial world can be targeted. For novice computer users, a consistent representation might be helpful. Generally speaking, such a representation neither does justice to the specific properties of the medium, nor is it in fact consistent. The greater the experience of a computer user and the more confidence he acquires, the less important consistency becomes.

While the demand for consistency does not coincide with the demand for realism, at least two situations can be identified in which consistency is given up in favor of other design principles: One is a different expectation of the user, the other the higher effectiveness of another solution. In human-computer interaction, consistency is in itself not a valid design goal but aims at a highly effortless and smooth interaction. It appears that media cannot be media without relinquishing consistency, and that this is also quite clear to their users.

The interaction with the computer is not limited to the forms of interaction with other media and does not orient itself on naturalistic representations or consistency with the ordinary world, but leverages the new and unique possibilities that the computer offers. The abstraction in this representation is thereby seen as a means of design to indicate the possibilities for user participation.

As experiences with computer games demonstrate, a realistic (e.g., graphical) representation is not a precondition or substitution for play and is not even conducive in all cases. Examples that support this argument include the computer games of the 1980s, in which technical limitations forced the developers to concentrate on game play, the voluminous CD-ROM games of the 1990s, in which graphical extravagance could not hide the missing game play, as well as the current first-person shooters, in which cinematic elements are disabled by players who focus on the game play. These examples also indicate that the trade-off between representation and interaction will not disappear through future technical innovation but will remain an aspect of media design.

A medial representation is seen here as part of the world, not as its substitute. According to Svanæs (1999:180), the Apple *Macintosh* desktop metaphor functions not because of its naturalistic appearance or because of its high realism or consistency, but because it creates its own meanings, nearly completely independent of the everyday world. All media appear to be, to a certain degree, independent of the ordinary or natural world, as with telephone and film. Similarly, the virtual world of the computer is understood primarily not through references, comparisons and associations to and from the real world, but is seen as an incontestable part of everyday life and reality. In the computer, there are no false real objects, but true virtual ones. For Krämer (2000:85), the essence of media technologies lies in the creation of worlds.

When the experiences with computer games are transferred to the everyday interaction with the computer, it appears that no fundamental progress in the development of human-computer interaction is connected to (photo)realistic representations. A trade-off exists between intricate, naturalistic representation and interaction. For certain applications such as films, this is not a problem. But for interaction with the computer, a balance tipped in favor of representation appears inadequate. The demands to concentrate on interaction are correspondingly clear. The representation using the computer is a representation for action. This includes the desired focus on the fundamental aspects of a representation that is well aware of its limitations and that makes them clear to the user. An abstract representation appears more suited to such a task than a purely realistic one.

Conclusion

Play appears as a possible perspective in human-computer interaction as there are a number of features that are common to both activities. This play is an attitude of the player that does not aim for a concrete activity or for a tangible result. It cannot be limited to certain contents, times or places. It is not a method, a system or determined from outside play, but a willingly chosen perspective that enables and invites the player to experience his activities as play.

The playful interaction with the computer is not concerned with an outward expression of play, but with the confrontation with a challenge that can go beyond the necessary, for which a course is uncertain and the outcome unknown. The user sets goals and benchmarks for himself and tries to attain them by struggling with the computer. Play in everyday computer use occurs during experimentation and explorative learning; the more the computer is recognized as a medium that is used to undertake creative tasks, the clearer its relation with play becomes. Obviously, play does not dispose of the purpose

but overcomes it for the duration of play; play then dominates and forms the computer use. Useful and necessary activities that pass for non-play move towards the sphere of play and become play.

The idea of play as a perspective is not a new idea that has been brought about by the proclamation of a fun or leisure society, which now also encompasses computer use. The interaction with the computer has always been playful, and its promulgation in society has enabled this perspective to appear plausible to its many increasingly competent and experienced users. This interaction is, however, always standing at a crossroads between an efficient, controlled and purposeful use and playful, free and self-controlled interaction.

Without a doubt, computer use does often pursue goals and therefore lies outside the sphere of play. However, this computer use can still become play that may not nullify the purpose, but which overcomes it effectively. If play occurs in computer use, it is *despite the fact* that the computer is used instrumentally. In everyday uses of the computer, elements of play can occur, allowing the subjective perspective of play to be adopted and expressed.

> Certain activities whose whole *raison d'être* lies in the field of material interest, and which had nothing of play about them in their initial stages, develop what we can only call play-forms as a secondary characteristic (Huizinga 1955:199).

The interactive computer in everyday use appears as such a medium.

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Barry Atkins

Response

It is refreshing to encounter a paper focused on the computer industry and games that see a possible lesson, or lessons, to be learned for other forms of software development from entertainment software, which is often seen as the poor relation of other forms of computing. It is also heartening to trace the care with which the author is aware of the difficulties of making too large a claim for the potential benefits to other forms of development, and an awareness, although necessarily not explored in great depth in a paper with such broad ambition, of the politics embedded in the borderlands between play and other computer use. For those of us who have worked for employers who disable access even to Microsoft Solitaire, Minesweeper or Pinball because of a perception that the enabling of play reduces the possibility of useful labor, and consequently view the corporate playfulness of a Google or the Microsoft of Coupland's Microserfs with some envy, some of the local issues of power, authority and subversion that are touched on here are an everyday issue.

The explicit attention, for Cermak-Sassenrath, is on the computer that once would have been a beige box, and enables corporate labor – as is clear in his characterization of a game as demanding all the attention of a player, where lived experience would tell us that the screen relationship between player and game console (often located in shared social space and increasingly marketed and displayed to consumers as a social hub) differs and is of a different order. In focusing on the machine predominantly imagined in the office rather than the home, an interesting distinction is foregrounded: the extent to which the computer is now always already seen as a potential site of play, whatever its intention and function in the workplace. That this remains a live issue, and an urgent one, is also plain. In one very real

sense games work within the binary logic of computer processing architecture, and have taken that tool for labor and repurposed it for entertainment that sees the computer always a site of tension between productivity and the non-productive excess of our leisure practice.

To some extent, however, this is also subject to a form of cultural specificity that Cermak-Sassenrath does not highlight. The status of PC gaming in Germany is certainly of a different order from that of Japan, where the console is and remains the dominant vehicle for game delivery. In most of Western Europe and North America it is possible to map a decline of the personal computer as primary platform for game playing, which reflects a change not just in hardware advances, but of cultural shifts in the meanings ascribed to consoles once positioned as firmly for children alone. Rather than an error, however, this only points up the immensity of the task the author sets himself in taking on the notion of the computer and the computer game without narrowly defining his terms. In taking his lead from HCI, and using its categories and classifications in constructing his analysis of the lessons that might be taken from games to other forms of computing, he offers interesting observations that could only benefit from being broadened to application in a more general gaming context.

That personal computers are themselves no longer solely beige boxes, however, also points up the extent to which this is a time of rapid development in terms of the integration of computing devices into our homes and lives. Building on the work of Weiser, Cermak-Sassenrath sensibly foregrounds calm computing as a critical term (and even as an evolutionary stage on the way towards ubiquitous computing) and, once again, touches on areas that might reward more extensive unpacking. To see everyday computer use as somehow oppositional to contemporary game play would be to ignore many of the more interesting developments and innovations of recent years, however. There is something fascinating in the Nintendo Wii, for example, in that it both points up the innovation inherent in

its motion sensing technology and so highlights its status as technological artefact, while making a claim for simulatory potential that would imply an erasure of its interface. I swing the Wiimote as a bat and am invited both to be unaware of my act of formal control, and to marvel at the technological achievement in erasing that barrier to interaction. In that sense it is both calm, and not-calm in the moment of play, perhaps more accurately mapping onto Weiser's definitions than Cermak-Sassenrath allows. We can even see the Nintendo advertising for the Wii as positioning its hardware and software with care – cameras are focused firmly on social groups interacting as much with each other as with the software, with the Wii seen as a tool for interchange between players and not solely a cybernetic loop between player and machine.

Similarly, the increased availability of games on mobile devices has led to the mass experience of gaming software which is not demanding on the attention of the player, which can be switched off instantly and ignored in a way that traditional PC or console games could not. There is less of the ritual engagement with the game as event outside of other activities as we take our miniature consoles, or game enabled devices such as the iPhone, on to public transport or to public places. One can imagine an argument where the extent to which games software and hardware acts as a Trojan Horse to introduce computing hardware into our everyday lives, and our attitudes towards that introduction are another area where this touches on a politics of consumption. I can play PEGGLE (2007) on the iPhone supplied by my employer, but it is also a device that slaves me to the office through push email and 24/7 availability. What I, or any other consumer or gamer, may think of this is something that might be thought through before too many lessons from games are assumed to be applicable to more 'productive' computing. It is even possible that the status of game as non-productive might be a crucial determinant of its appeal that would see 'playful' productive software fail in the marketplace.

As with all informed thinking in the area of design, this paper explores the reality of use and begs questions about what we might learn from that use, particularly in its construction of a playful attitude or spirit that conditions our encounter and engagement with devices. It is possible even to see the games consoles as being something more invidious, perhaps, than mere examples of calm-computing, and the struggles of Sony and Microsoft to dominate the living room distribution of media through their games boxes as about the concealment of the very computer-ness of what is inside the casing.

These are, of course, debates that are not really touched on here, concerning the antithetical positioning in so many instances of play to work, and assumptions that lack of productivity itself is a key indicator of game-ness, whether we follow Huizinga (as Cermak-Sassenrath largely does) or look at other theorists of games. Cermak-Sassenrath's own characterization of computer use maps the territory: 'computer use is taken to mean everyday, purposive, explorative, creative [uses]' before inserting the crucial term 'opposing' use for games. What is crucial is the author's understanding, in relation to educational and serious games, that deception is not a sensible strategy and that as consumers games players are also conscious of the boundaries between play and labor, and the attempts that may be made to redirect them from one to another.

Certainly, we might all welcome the addition of the 'play spirit' to the design of the software which is such a feature of our everyday lives, and of the insights of game development applied to HCI with as much care as the other informing perspectives traced here. How this intangible, but crucial, aspect and elements of contemporary games might see application, however, might be harder to demonstrate.

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Michael Nitsche

Games as Structures for Mediated Performances

Video games structure play as performance in both the virtual and the physical space. On the one hand, the player encounters game worlds as virtual stages to act upon. On the other hand, the game world stages the player and re-frames the play space. This essay sets out to suggest some of the elements that are at work in this dualism of games as performative media. The two key elements here are the mediation of the game environment and the transformation of the player through virtual puppetry. Both cases will be argued with a focus on spatiality in performance.

Performance is rapidly evolving into a favorite key reference in game studies. Unlike earlier reference points – like "narrative" or "ludic" – performance is an inclusive discipline. It is been open enough to be accepted in different subfields of game studies. This includes the "performative character" (Aarseth 1997) of ergodic interaction in video games, which helps us to understand the textual formation of a game text; the technological and interface challenges in HCI and digital performances (Jacucci 2004); the idea of "computers as theatre" (Laurel 1991) that led to a fruitful discussion of other theatrical concepts for video game design such as Boal (Frasca 2001) or improve formats (Hayes-Roth et al. 1994); the role of the player in digital media as it develops from an active reader to a role-player (Murray 1997) to involvement in multiple roles (Nitsche 2008); and the development of new game AI (Mateas 2001). Here, performance features are established in the game through design choices such as the behavior of NPCs and AI systems, restrictions of player interaction, and level design, among many options. They allow us to view

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 110-129.
http://pub.ub.uni-potsdam.de/volltexte/2010/4273/ [urn:nbn:de:kobv:517-opus-42730]

games as performing technology (McKenzie 2001), which express something through their specific design. The interplay of technology and human expression also gave way for the development of "traditional" performances by means of digital media (Dixon 2007). From theory to criticism to interface to prototyping – performance studies have infiltrated game studies, and it is a safe prediction to see video games affecting performance practices in return, just as they have influenced other related media. But we cannot take the new symbiosis for granted. Any introduction of an established discipline into the field of game studies not only opens up new opportunities, but can also lead to misconceptions and mismatches in terminology and methodology. Thus, a short introduction into the use of performance studies in this context is necessary.

Performance and Games: A Love Story

The issue of game structures supporting mediated performances is part of a larger role of digital media at large and how they are interwoven with the fabric of our society. Starting in the late 1920s, architecture embraced the cinema as the new technology that allowed and enforced multiple perspectives for the spaces we live in. Addressing the growing symbiosis between architects and film makers, Sigfried Giedion (1995:176) stated that "only film can make the new architecture intelligible". The moving image became part of the spatial definition of the environment we live and form our social connections in. From the 1950s on, television has been largely accepted as the "medium of the socialisation of most people into standardized roles and behaviors" (Gerbner/Gross 1976:175). Finally, sometime in the early 2000s, we have seen the watershed shift of media dominance onto the computer. Thus, we might rephrase Giedion and argue that only digital media make the environments we live (and perform) in intelligible.

In this spirit, the argument will focus on two key points: (1) the role of mediation in the digital performance and (2) the bodily transformation of the player and the player's space through this performance. Both of them will be argued in the context of performative spaces.

One conception of ubiquity of digital media and video games has been that they allow anything anywhere. As Mitchell (1995:65) argued:

> So the social superglue of necessary proximity between performers and audience is losing its old stickiness, and the traditional architectural types and social conventions (going to the theater, cheering for your local team in the ballpark) that we associate with performance are coming unstuck. Speech, music, scenes, and text can now be transmuted into bits and entered into the network almost anywhere. These bits can be decoded to create a performance wherever and whenever a spectator chooses to plug in. Established distinctions between producers and consumers of entertainment (reified by the forms of theater and stadium construction) are breaking down. Soon, all the world will be an electronic stage.

This essay will argue against such an "anywhere/anytime" conception and uses performance elements to support its critique. It echoes McGonigal (2005:471), as she also criticized such a thinning out of performance communities. She argues for more focus on the physical presence of players and sheer size. "Massively more is a vision of digital social networks designed and deployed to produce more pleasure, more emergence, and more superpower, through community formation on a massive scale". While McGonigal proposes large-scale events staged in physical environments, such as flash mobs, to orchestrate these massive events, this text will propose mainly single player techniques in digital video game settings.

The argument is that video games can initiate performative activity but that alone does not automatically turn "all the world" into an electronic stage. Instead, the performative situation during play is

clearly defined in time and space by mediation and player engagement. The relevance of this kind of situated interaction with digital media has been emphasized repeatedly (Dourish 2001). In video games, a situated construction of the performance is a defining moment of the play experience as performance with/in/on a video game is happening at a certain time at a certain place and includes certain actions. Even happenings in the tradition of Allan Kaprow or performances of everyday life activities as Erving Goffman called for still depend on the process of performing itself. They only come into being through the creative activity of performing the action, bringing it to life. Ubiquitous computing and the availability of video gaming "anywhere/anytime" add a new perspective to games not unlike that of the breaking up of established performance situations by Kaprow and Goffman. Players can play video games outside the original theater situations, namely the penny arcades and the living rooms. Yet, this perspective still depends on the actual manifestation of the event; the play as performance. Unlike a flash mob, which stands firmly in the tradition of the happening, the play-as-performance in video games heavily depends on the mediation between different areas for expression. Play-as-performance in video games manifests in at least two locations: it affects the events in the virtual world as well as those in the physical play-space of the player. The former deals with performance issues in the game world itself, the latter with the player's transformation during play. Both will be discussed below and impacts will be exemplified in two projects.

Performing the Maze: COMMON TALES

An archetypical spatial design which structures a player's interaction with the virtual game world is the labyrinth. Its shape limits a player's activity through spatial limitations and forms the play experience through its design. It has been assigned numerous levels of symbolic meanings, but to describe the key element of mediation,

the focus here will be not on the spatial structure itself but on its presentation and the question of mediation of the virtual performance space to the player.

The experimental game prototype COMMON TALES included a sequence set in a small underground maze. During this sequence, the player controls a character trying to escape the antagonist, who chases the player character through the maze.

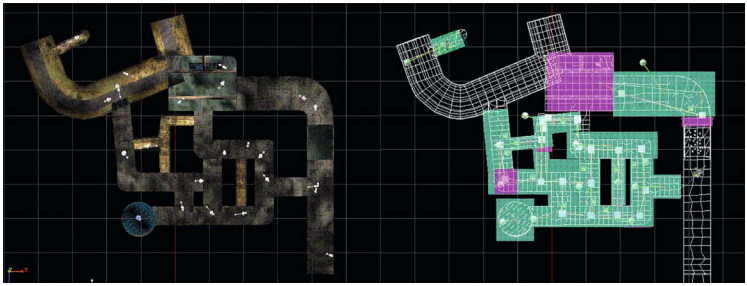

Fig. 1: Common Tales – the maze level; the maze textured and lit (left); the underlying structure with overlaid interactive triggers and node points (right)

The task was to obscure the relatively simple structural shape of the maze to generate a more complex play experience of the space. We applied spatial design as well as mediation strategies to achieve this goal. The set up was based on parallels in the construction of cognitive maps in physical and virtual environments. Players comprehend and navigate virtual spaces much like they read and understand their surrounding physical spaces (Darken/Peterson 2002). This parallel is based on the understanding that players apply real-world spatial understanding to their encounters with virtual worlds. We apply our spatial behavioral knowledge gathered from physical environments to virtual ones and traverse polygon worlds not unlike real ones. Parallels between game design and travel logs have been noted before, starting with Fuller and Jenkins (1995). However, these approaches

usually imply that spatial interaction and presentation of space follow the same dictum in games as in physical environments. They assume that one cannot be at two spaces at the same time, or that there is a single dominating viewpoint from which we reconstruct the space as presented. Breaking with these assumptions, the maze sequence in COMMON TALES set out to apply distorting techniques on the level of the mediation.

First, the sequence used teleportation as a means of complicating the player's understanding of the maze structure. The game's antagonist chased the player's character through the maze, and while the player's progress through the game level remained linear and continuous, the antagonist in pursuit was teleported through the structure and complicated the player's spatial prediction. Thus, it is difficult to read the antagonist's path and predict his spatial behavior overall. The space becomes more complicated as the behavior within it becomes a cognitive problem. This is an active reversal of existent design paradigms for level design (Vinson 1999, Steck/Mallot 2000) and aims at affecting the player's performance in the game world not for higher usability or efficiency, but to increase dramatic impact.

Second, we adjusted the cinematic mediation of the maze sequence to dramatize the virtual stage. The rules of continuity editing which dominates many narrative films suggest certain camera behaviors to ease an audience's reading of the evolving cinematic space. This includes, for example, the law of never crossing the line of action, the limited use of jump cuts, as well as specific degrees of differences between two different and consecutive camera angles (Katz 1991 and 1992). In COMMON TALES, players experience the maze through the eyes of virtual cameras that look onto their avatar as she passes through the sewer system. Depending on where the avatar is moving, a new camera can be triggered. For example, turning a corner would activate a viewpoint which showed the adjacent section of the tunnel the character just entered. Educated by film

and TV conventions, players are used to assemble the evolving cinematic space from those shots and orient themselves and their avatar within it.

Although COMMON TALES used the same underlying technology of space-dependent editing (Fig. 1), it diverted from the established rules to problematize the maze through its visual mediation. Camera positions were arranged in such a way as to complicate the space through its visualization. This included, for example, shots that crossed the line of action.

In addition, the maze sequence offered a parallel action. As the player controls the main female character inside the maze, the main male character (which is also playable in some stages of the game) is trapped in a life-threatening situation. To dramatize the connection between the two main characters, the game offers cutaways to the trapped hero. While these cuts allow for dramatic context, they demand a re-orientation of the player every time the camera cuts back to the maze location. Where the discontinuity of the maze-camera broke with cinematic tradition to fragment the space, the cutaways achieve a comparable fragmentation precisely by following established cinematic storytelling techniques.

The result of this concerted effort of complication through visual mediation was that navigating the simple spatial structure turned into a much larger task then the underlying virtual architecture suggests. We tested the level with game designers and producers in-house and found that our strategies worked almost too well.

In a reversal of the COMMON TALES set up, we tested the relationship between spatial zone perception and camera work in a later research project (Nnadi et al. 2008). In this case, we assigned certain camera behavior to certain zones within a much larger virtual outdoor level. Then, we tested whether these camera conditions would affect the recognition of different zones within the game world, or in other words, whether the performance of the camera affects the cognitive

reading of the virtual space. The experiments showed that – after a certain initial learning phase – players did perform much better in spatial identification when aided by our camera behavior.

Comparable visual strategies are applied to video games such as the modern PRINCE OF PERSIA (since 2003) or the GOD OF WAR (since 2005) series – not to distort but to dramatize game levels. The growing vocabulary of these mediation techniques and the learning phases in adjusting one's spatial reading of virtual worlds indicate that we might face a growing literacy on the players' side of such game mediation techniques. Players might literally grow into the new roles these games provide for them and – not unlike the development of film language before – learn to deal with their intricacies. In that way, the mediation of the game environments clearly shapes the performative situation during play. They become a third actor in the event, defining a player's spatial experience of the virtual stage.

Transforming the Player: Virtual Puppetry

Early discussions of theatre and digital performances often concentrated on text-based or relatively basic graphic worlds (Schrum 1999), or they pointed toward future possibilities. For example, Murray (1997:154) defined a player's transformation in reference to the transformation of the Brontë children into active authors of fiction and argues that

> [t]he transformative power of the computer is particularly seductive in narrative environments. It makes us eager for masquerade, eager to pick up the joystick and become a cowboy or a space fighter, eager to log on to the MUD and become ElfGirl or BlackDagger.

More recent studies acknowledge the role of the evolving technology and suggest a blurring of the magic circle, which is often used to demarcate the space of play and fiction from the non-play space

(Kristiansen 2008). In this case, a key point in the discussion of the player transformation is not found in the structural quality of the virtual world, but in the interfaces used to access these worlds.

From the limitations of the one-button-joystick connected to the Atari VCS to the use of video cameras as input devices and motion detecting controllers, the level of input complexity has changed significantly. With the growing role of virtual characters in game worlds, these controls have become closely interlinked with these characters' expressive range. We have arrived at the practice of virtual puppetry.

Avatars have been identified as various functions in video games: from a form of access point like a cursor to an expressive projection for some form of self-realization (Turkle 1995) to an identification plane into fictional worlds (Ryan 2006). In order to take their position as expressive means, Perlin (2004:17-18) has pointed to a necessary richness in the expressions of the virtual avatar:

> It is my contention that these efforts cannot move forward to merge film and games, and that we will not be able to find a way to create an intermediate agency that will allow the viewer to find their way into caring about characters, until we provide a way that characters can act as well enough to embody an interactive narrative.

Much of Perlin's more recent work focuses on the optimization of procedural animations for such expressive game characters. Like the elements of spatial game world design outlined above, this ultimately sees the performance as an expression through and within the game engine. While this is one valid approach, the reverse perspective needs investigation, too. One has to include the emergent play behaviors and the expressions that players bring to the game world which grow from their physical body.

The expressive range of the virtual avatar is certainly of importance, but it is only the virtual side of the performance. The way players can contribute their own body expressions is the equally important other side of this coin.

Based on our earlier work on puppetry interfaces for players of virtual worlds, Ali Mazalek, Sanjay Chandrasekharan and the author are currently developing a video game system at Georgia Tech which transfers a player's own movements to an avatar using a tangible interface (Mazalek et al. 2009). The main purpose of this system is to investigate the interconnections between a player's own movements and that of the virtual avatar. Its key research question is to see whether a player sees herself in the motion of her controlled game avatar and if so, whether this perception can be utilized to affect the player's movement memory. These effects describe an essential effect of the player transformation, as they allow us to measure the level of self-recognition of the player in the game character through the tracing of her movements.

Our experiments show that players can indeed project and identify their own body movements in an abstracted character representation. They remain capable of identifying their own movements even if their representation is heavily abstracted. Thus, we can quantify one form of cognitive projection from the player onto the virtual avatar and are able to explore the reverse level of transformation of the human player into the virtual movement body. The body memory of the player is activated during such a virtual performance and the animations are realized not only in virtual activity, but in the physical and cognitive processes of the player as well.

These interfaces remain experimental for the time being, but the range of motion controlled interfaces from the Wii controller to the upcoming Sony motion controller and the camera-based Kinect by Microsoft pave the way for this kind of direct player engagement which is based on a physical mapping of own body movements onto a virtual world. One significant effect of these kinds of interfaces is a clearer inclusion of the play-space into the overall experience. While our experiments trace the value of tangible interfaces for a recognition of self movement in an abstracted virtual world, our interfaces

also become performance devices in their own rights. The puppet interfaces we are developing are significant performance artifacts in the play space by themselves:

Fig. 2: Embodied Digital Creativity project; the interface reflects and shapes the performance of the player

These interfaces are part of a new invasion of the living room, one that not merely suggests more media streaming through more channels, but that engulfs the physical location as part of its interaction design. They transform not only our body and its animations, but turn our living spaces into performance places and remediate the architecture and interior design of our play rooms into parts of the game stage.

Performing in the Here and Now

As stated in the beginning, electronic media find us at the crossroads of where we can locate ourselves. Meyrowitz (1999:100) has argued that electronic media have broken down social distinctions, barriers of public and private, so that "[m]any Americans may no longer seem to 'know their place' because the traditionally interlocking components of 'place' have been split apart by electronic media". This essay provided a highly selective discussion of how structural elements of games support the performative situation and position of the player in relation to the game world. It suggests that the interplay of spatial design, its mediation, and innovative interface development support a possible relocation of the player in the performative situation. We may just find ourselves in those roles that the games provide to us.

This seems of most relevance in the field of social media, where countless players continuously follow paradigms of interaction and spatial design to express themselves and communicate with others. Whether it is a set path for a quest in WORLD OF WARCRAFT (2004) or the personalized imagery of one's facebook site, we play as performance for others. We find ourselves in newly structured performance spaces which promise familiarity and place-ness through involvement and mastering of the available options. Because we perform and transform ourselves and the places around us during our engagement with video games we are promised a new space; and because video games and related digital media shift into our cultural sphere they also increasingly affect our daily performances.

As the pioneer of human geography, Yi-Fu Tuan (1990:236), states: "Culture viewed as speech, gesture, and action is performance; and performance not only requires but commands its own kind of space". The more this communication is turning digital and the more we become accustomed to video game landscapes as experiential spaces and our living rooms as their physical counterparts, the more these performances will evolve into digital hybrids. To outline some shifting demarcation lines of these hybrid performances was the goal of this essay.

> When the music stops or when the curtain falls there is a moment of silence during which the spectators wait for their souls to return. Separated physically from the object of attention, audience involvement can nevertheless be total, which should encourage us to reevaluate the insight that separation is a precondition for becoming deeply absorbed (ibid:244).

Games offer structures and mechanisms that allow for this kind of absorption and they increasingly provide for performances in both worlds at once.

Acknowledgments

Work on COMMON TALES was supported by Sony Computer Entertainment Europe and research on the Virtual Puppetry project is funded by a NSF Creative IT grant. The author thanks his collaborators, especially Ali Mazalek, Sanjay Chandrasekharan, and Tim Welsh.

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GOD OF WAR (since 2005), SCE, Playstation 2.
WORLD OF WARCRAFT (2004), Blizzard Entertainment, PC.

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Gordon Calleja

Response

Nitsche makes an incisive observation relating to the transformation of interior spaces by gaming interfaces that bears repeating:

> These interfaces are part of a new invasion of the living room, one that not merely suggests more media streaming through more channels, but that engulfs the physical location as part of its interaction design. They transform not only our body and its animations but turn our living spaces into performance places and remediate the architecture and interior design of our play rooms into parts of the game stage.

As Nitsche points out, console gaming is already transforming the internal organization of media consumption. The performative needs and affordances of the new forms of interfaces that Nitsche discusses, such as the Wii and Kinect, are undoubtedly creating an increased potential for physically situated performance. On the other hand, Nitsche's rejection of Mitchell's argument of an "anytime/anywhere" performance seems based on a narrow slice of games and game related performances.

As Nitsche emphasizes in the concluding paragraphs of the paper, our playing in the virtual worlds provided by MMOGs like WORLD OF WARCRAFT (2004) constitutes a form of performance for others. Unlike the single player game world, such environments always imply an audience, whether the players are consciously aware of it or not. The possibility of being witnessed by others, or more directly, the performative interaction with others, creates a sense of performance that is "becoming unstuck" (Mitchell 1995:65). The MMOG situation is, in fact, a great example of the de-coupling of performance that Mitchell foresaw. I find Mitchell's characterization significant particularly because it comes right before the age of graphically massive

multiplayer games, whose persistent societies and sprawling landscapes gave the performances therein the placeness described by Tuan in the concluding comments of the paper.

But this de-coupling of performance is not only vibrant within MMOGs, but is becoming increasingly popular with the increasing ubiquity of multi-player gaming in general and with collaborative multi-player campaigns catering to small groups, such as LEFT FOR DEAD (2008), CALL OF DUTY V: WORLD AT WAR (2008) and BORDERLANDS (2009). The collaborative performances afforded by such games tend to have richer narratives since these can be dedicated to one group, rather than a few hundred thousand individual players.

The decoupling of physical embodiment from the site of performance these games allow is increasingly becoming a standard feature in contemporary games. It is true that the Wii and Kinect offer sites for locally situated performances that more closely align the off-screen with on-screen actions, but these are a relatively small portion of the gaming landscape. Their existence does not exclude or diminish Mitchell's argument of a displacement of performance from the physically embodied actor. Quite the contrary, I would argue that the increasing ubiquity of networked play emphasizes the importance of considering these forms of performances.

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Rolf F. Nohr

The Naturalization of Knowledge

Games between Common Sense and Specialized Knowledge

Reflecting on how and with what kind of consequences something artificial, something manufactured becomes naturalized in video games will be the central issue of this text. It deals with the question of how the video game hides its artificiality in terms of technique. In a certain sense this retrieves one of the fundamental questions of modernity and industrialization: How does the manufacturing of our environment become a naturalized, self-evident and indubitable process?

Technical mass media 'traditionally' tends to cloak its apparative and technical qualities partially or totally in order to become agents within a society. The symbolic would not be functional without its concealment. But by using this kind of generalization, we would pass over fundamental questions concerning video games, for instance the question of the significance of video games concerning digital devices and digital media within our culture, or the significance of the particular quality of the games' visual language. Furthermore, the impulsive role of video games in the development of technologies, networks or symbolic forms of action would be left out of consideration. And, last but not least, the whole set of problems concerning the naturalization of media, which seems to be embodied in video games in a very remarkable way, would not be appreciated enough. In short – we have to deal with the question of why we do not 'see' the apparatus, the politics or even the idea of playing while playing with our SING STAR (2004) equipment.

I cannot and I will not try to find exhaustive answers to the sketched complex of questions during this argumentation. I'd rath-

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er like to suggest some arguments that might help us work on this complex of questions. I would like to address briefly three of these forms of naturalization in the field of video games: the naturalization of play, the naturalization of the apparatus, and the naturalization of knowledge. The ambition of this text is less to clarify each of these forms in detail than rather to point out that the *invisibilization of the manufactured* is a continuous element that should urgently be highlighted in the media studies and the critical research and analysis of a playing culture.

Playing Action as Naturalization: Action in Rehearsal

A first starting-point for an approach to the naturalization of artificial and factitious features of video games can be found in the action of playing itself. We conceptualize playing as a form of action that is given by nature. Due to the fact that *game studies* have not provided a sustainable theory of action that is capable of integrating the range from cultural action to media action in a sensible way, I would rather like to concentrate on anthropological aspects referring to playing.

Ostensibly, *game studies* challenge the difference between *game* and *play* again and again with great pleasure – but in my opinion it hardly becomes aware of its consequences. Thus, in such a distinction, the play is deemed to be an ideal model of "action as rehearsal" [orig.: Probehandeln] or an action in form of "as-if" and therefore an opportunity to have a go at cultural or subjective actions in a playful way. The *action as rehearsal* is ostensibly the basic definition for playing.

Gregory Bateson, too, considers this distinction to be pivotal in his anthropological examination of the game theory. A game functions as a reference between the action and what is meant by it. Akin to playing animals that for instance 'simulate' a fight playfully, he considers the conceptualization of games within our culture to be an *as-if* relation. According to Bateson (1972:180), we experience the game

as an action that is substitutional for another action: "These actions in which we now engage do not denote what those actions for *which they stand* would denote". The problem that Bateson derives from this experience is the paradox of the game as a *framing*. Playing puppies for example rehearse real fights while they play around. But we do not see fighting puppies – we see playing puppies. However, the crucial essence of Bateson's approach lies in this: For him the game is a secondary process that refers to a primary process of action (ibid.:185). Thus, it is not conceivable without the primary process – and therefore not precisely distinguishable from it. The playing puppy that simulates the fight in an abstract way performs it just for trial and without factual consequences, but simulating the fight is not conceivable without the existence of fighting.

Thus, the 'framing' as a variant of trial action does not become evident as an answer to the question concerning play but as its *aporia,* because assuming that the secondary process of playing is always directly linked to the primary process of action would lead in the wrong direction. Because inversely, the existence of fighting constitutes the animal's play – in our simple example we can't even think of a distinction or a valuation between secondary and primary process; even less if we include the context of playing and acting in the sense of subjective and intersubjective levels of meaning. However, it is crucial that we permanently cloak the connection between play and 'seriousness'. Playing appears to be a part of nature, its non-performativity seems to be a matter of course and the distinction between symbol and object is self-evident. The relatedness of play and effective action becomes naturalized.

In short: Just because playing appears so natural to us, we overlook that the nature of playing is not only an acting out of an *as-if relation* – free of all consequences. The nature of playing wouldn't exist at all without the involved consequences and the potential of

real effects. So, while we are playing, we naturalize the concept that playing is 'only' playing and therefore not a formation of semantics and meaning with concrete effects.

However, it is not only games that are well-established forms of trial action within our culture. In an analogue perspective we can conceptualize all kinds of media as an archetypical form of trial action and of acting with discourses, symbols, systems and subjects with (ostensibly) 'no consequences'. In the genealogic connection between options of action, trial action and the medium, a performative system of meaning evolves within the ludic in which a formation of knowledge materializes. Its analysis not only gives information about the game and *knowledge-in-the-game* itself but also about media, forms of society and dominant regulative systems. This leads to the next level of naturalization:

Medial Naturalization: The Apparatus-Debate

It is certainly more plausible to work on the question of naturalization by choosing a perspective from within media studies. It is the disappearance of the produced and manufactured, the invisibilization of the technique and the technical dispositive in modern mass media. There is no camera, no microphone, no director, no Jonny Depp and no script, no dirty screen, no green exit-sign and no smell of tortilla chips when the cinema is darkened – there is only Captain Jack Sparrow.

Based on the sustainable arguments of the apparatus-debate we can expose the constitution of medial effects caused by the invisibilization and immediacy of technologies and instances of production. The main point of this debate of 1970s French film theory is the idea of a reevaluation of the concept of technology in cinema. The main theorists of the apparatus debate – Jean-Louis Comolli, Marceline Pleynet, Jean-Louis Baudry – tried to 'strip' the technology of

its neutral character. The cinema is analyzed as 'symbol generating' machine, as an ideological machine that is no longer a prerequisite of communication, but itself part of the meaning and message. Here we can see how the power of the play as a dispositive masks its ideological and technological inscriptions. At this point it is important to distinguish between 'power' and 'ideology'. In short I'll draw a distinction between power as an immaterial (and not necessarily bound to a person or institution) tool of (self)government and ideology as a characteristic of symbolic or technical artifacts. Terry Eagelton (2008) describes language as an 'ideological battleground'. For him, symbols are the 'real' material medium of ideology, because values or ideas can't exist without ideology.

In an overall view of the phenomenon video game we can identify a tendency of naturalization of the 'basic' technical system computer that can be seen in analogy to the – in the words of Comolli (1986) – "work of transparency [*la travaille de la transparence*]" of the cinema as an ideological system. Just as the dispositive and technical arrangement of projection, theatre and screen in cinema become naturalized in the sense of a 'window to the world' and as the process of performance and the 'status of the produced and manufactured' of the cinematic become cloaked, the video game similarly works on cloaking its own technical basis. This does not mean neglecting the fact that we act playfully with a machine, however. And it does not only mean that we neglect the symbolic code of the games, its particular artificiality and arbitrarity while interacting with the visual representations.

The efficiency of this process is guaranteed not by a total invisibilization of the technological but by a dialectic of "hypermediacy" and "immediacy" as conceptualized by Bolter and Grusin (1999). The technical basis of playing becomes immediate parallel to its total visibility. While playing ICEHOCKEY MANAGER 2009 (2008) we are immersed in the game – although we 'know' at the same time that we are working on an Excel-sheet.

This 'cloaking of the manufactured' rather means that every playing makes the 'productive tool' more familiar to us in the long run. It accustoms us to the processing of texts and images, adjusts our response time and dexterity to the machine and therefore reconciles work and leisure time in a totally 'productive-economic' way. Thus, the video game is a technological medium that is generated under economic production conditions and soaked with ideology. And this medium has a great potential to reconcile us with and to naturalize its artificiality. To have a short look on how this form of ideology slips through the experience of immediacy, we have to turn to the forms of knowledge in games.

My main point is that the major form of naturalization of video games takes place in the organization of knowledge transfer. So we need to look at the different forms of discourses and *fluid knowledge* in video games.

Discourse

In my opinion, the most essential point for approaching naturalization lies within the production of immediacy of the experience in games. For this, the concept of *sensualization* of abstract regulative knowledge and rationality of action can be introduced here and might stand for such productions of immediacy. 'Sensualization' is used here as a concept of naturalization of arbitrary, ideological or somehow produced and manufactured knowledge. The result of this immediacy is a form of knowledge which, mostly unseen and unrecognized by the playing subject, 'slips' through the sensualisation and application of a discoursive knowledge.

The theory of discoursive coupling emanates from the 'classic' definition of discourse: thus a discourse according to Jürgen Link (1998:50-51, trans. by author) is "a specifically-historic and special, regulated formation of propositions […] that are allocated to a specific and special thematic field". Discourses according to Siegfried Jäger (2004:23, trans. by author) can be understood as articulating

practices which "do not represent social circumstances passively but that constitute and organize them as a flow of social knowledge through time". A discourse is therefore to be understood as a 'somehow' regulated link or formation of utterances. The term 'utterances' does not mean description, grammatical sentences or speech-acts but the entirely individualized, contingent, anonymous, pure and tight materiality of something 'really' said at a certain time and in a certain place.

The video game is set upon a long tradition of sensualizing its abstract and logical rules, regulations and narratives. The invisibilization of the idea of acting without consequences and the immediacy of the technological basic structure only opens up the way for the sensualization of abstract and ideological knowledge. A game articulates discourses of knowledge and is at the same time embedded in discourses that exceed the game itself. A game does not only deal with one regulated and marked-off discourse about what it is 'telling' or what constitutes the genre that it belongs to. A game is rather surrounded by and soaked in most different kinds of knowledge, ways of speaking, forms of action and discourses, discourses about what the game is telling, about the culture, the economy as a regulative technique, the game as a simulation but also about media and its use. These forms of knowledge do not ultimately 'materialize' in the concrete form of a 'message', but in a diffuse 'swarming' of most varying forms of articulation and representation.

Of course, a discourse is not just the simple sum of all that has been said. Nor can a discourse embody everything that is utterable. Imperceptible procedures define what is legitimate to say in a society. Of course, the question is how such a procedure negotiates and stabilizes what is legitimate. In short: video games are part of a discursive machine which manufactures common sense. How do the different kinds of knowledge a subject activates in order to play a game intertwine with the author's intentions and the mediality of the game itself? I'd like to suppose a reductive structure to explain that:

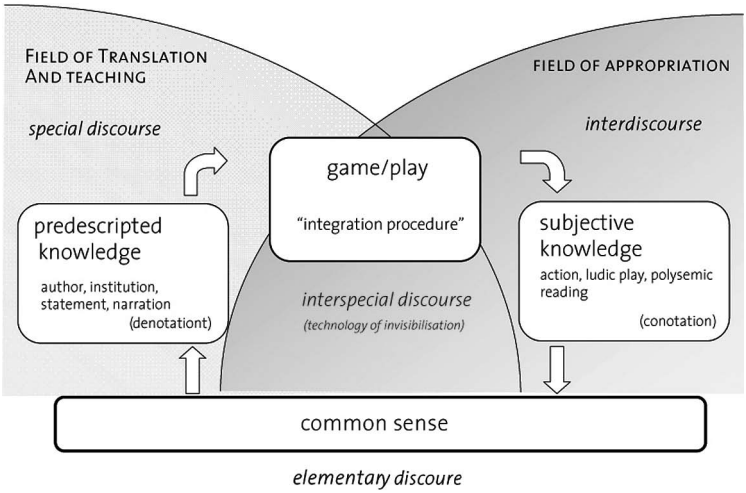

Fig. 1: The transformation of discursive knowledge

Various factors of differentiation shape, build or stabilize most different 'speech forms', statement forms and complexes of knowledge. Such a differentiation is based on the conviction that modern societies can be characterized by functional differentiation, that means by the development of distinguishable and specialized fields of knowledge and practice, each forming unique and distinct structures of utterance as specific discourses of knowledge. These places are dominated by specialized language forms – the so called *special discourses*. In short: in certain partial segments of a society characterizing itself by specific knowledge, this knowledge is expressed or 'said' in a special language: For example a language of sports or fitness but also of economic knowledge, of urbanism, of warfare and so on. The special discourses' methods of dissociation go together with integrating procedures that link these distinct spheres in a kind of 'compensation' or 'transmission'. These connective structures are traded under the term of *interdiscourses* within the critical discourse-theory according to Link:

> The most important function of such cultural interdiscourses is the production and the supply of connecting elements and by their application the production and reproduction of collective and individual subjectivity that allows to survive in highly differentiated societies based on division of labor without getting disrupted by various specializations and professionalizations all the time (Parr/Thiele 2004:265, trans. by author).

The legibility of such interdiscourses evolves from a kind of double coding. What is expressed has to be 'readable' in each of the two discourses. My proposal would be to conceptualize video games as such a 'procedure of integration' and therefore as an interdiscourse. According to that, the knowledge that is located in the enunciative-narrative part of the game could be characterized as special discursive knowledge. It tends towards a maximum of immanent coherence and to wall itself off against external discursive material (comp. Link 1998:50). This means that the knowledge (about certain yoga positions, about constructing a city, the use of weapons or tactically skillful moves in soccer games) is a kind of 'professional' and 'secret' knowledge, primarily to be described as denotative knowledge that has to be 'taught' within the play as an interdiscourse.

On the ludic side (the subjective player's) this knowledge establishes forms of appropriation, or more precisely, an intersubjective form of appropriation for the provided special discursive knowledge. This knowledge is now generated and shaped much more by connotation. 'Reading' the game can hardly cope with the requested domination of denotation, because the game/play especially emerges always by communication as well as by social and subjective practices.

Nonetheless, the proclaimed ambiguity does not imply a semiotic or textual polysemy or a generally critical form of appropriation but merely a discursive variation. This means that even the narratively most terminated game cannot be understood or read in a denotative

way. Therefore, the theoretical concept of interdiscursive linkage of knowledge in the transition between the enunciator and the player does not imply an arbitrary interpretability of the 'coded' knowledge. Actually it rather deals with the given open modulation of the text corpus within a medium or a public discourse field.

In contrast to special discourses, interdiscourses are complexes of knowledge that are not terminated but circulate variably and flexibly through all other discourses in a connective way. Then, the game itself would be an interspecial discourse. This interspecial discourse contains special discursive elements (denotative discourse elements) that occur in several interdiscourses (for example connecting statements of the body as an economic resource with the logic of regulation). So, the quite vague term 'naturalization of knowledge' in the model can now be described more precisely as a transfer from special discourses to interdiscourses. The link between knowledge and the subject within the game could be reconstructed as follows: The game avails itself of an existing social knowledge and transfers this knowledge as an '*offer*' in form of a '*knowledge-algorithm*' dedicated to the communication and the active appropriation by the player.

From this point of view, the interspecial discourse of the game as a 'black box' is rather a 'complex of simplification' than a complex of rationalization. But an evident and naturalized type of knowledge can only evolve on the basis of such a 'rationalization framework'. A knowledge that is implemented in the system of discourse transition 'slides' on the symbolic level 'below' the threshold of being suspected as something 'made' or 'constructed' and normalizes itself towards a (pretended) experiential knowledge. Besides the intended and negotiated knowledge also and especially the not-intended formations of knowledge generate a dominant effect in the game and play. So what are the effects of this permanent invisibilization of the manufactured on different levels?

If we outline all the three forms of invisibilization that I have mentioned, we can speculate about a complex *self-management* which lies within the video game. And the 'place' where this self-management takes place is the common sense.

Shaping the Self

The common sense of a society that all this is based on has to be understood as a concept of organization that ascribes rigidity against deviant behavior to knowledge. The common sense is the actual 'place' in which the naturalization of knowledge about and within video games gets organized and structured. This knowledge is not just 'marginal' knowledge about certain articulations or minor propositions, but a quarrel between elementary political and ideological values of a given society. Quite the contrary: the common sense – in all its vagueness – provides the reservoir for social orientation-knowledge. The subjective accommodation to discursive components of knowledge that circulate within special- and inter-discourses as well as within the common sense coincide with the concept of the subject as an 'adjustable' factor as it is described in discourse-theory. Each player of video games has to integrate themself into a cultural system of meaning in order to experience the pleasure of the game. They have to align and adapt themself to a knowledge prescribed by the society in order to 'conceive' the game entirely. You can only have fun with the game if you betake yourself inside a 'system of adaptation' that is 'rigid' in terms of technology and action.

The player subordinates themself to a matrix of meaning that is technical and reaches to symbolic and discursive levels at the same time. The player subordinates voluntarily to a process of optimizing his or her own actions by adjusting themself to invisible, naturalized and subjectively internalized patterns of action. Naturalization – this could be concluded as a quintessence – is not only an effect of cloak-

ing machines and devices but also and especially an effect of *self-management*. Today, providing social orientation-knowledge means providing 'abstract' patterns of knowledge and action for a digital culture on which the subject can adapt. The video game is the 'place' of enculturation (Neitzel et al. 2009).

Abstract, ideological and discursive forms of knowledge are re-processed here in order to be 'internalized'. This reprocessing (for example of norms and values) ensures itself by cloaking the fundamental intersubjective forms of validity: The adjustment of the subject to the regulative social norm masks itself with the adjustment to the constitutive agreement: the accepted rule, the framing of the video game as ostensibly free of consequences, the voluntary use of a medium. A good example for this is the component of work science within the video game. Thanks to the video game leading us playfully to the computer, we also establish methods for solving non-playful problems concerning computers.

But the function of the video game is more than just providing a playful mode of learning and self-governing. The play as such soaks the digital media in terms of regulation, the regulated interaction, the role-play, the participation and the abolishment of borders – the borders between sender and receiver, between I and not-I and between play and work. Maybe the claim of participation concerning technique and textuality of the digital medium is its strongest moment. On closer examination, participation does not mean participating in a game, in a magic circle beyond the real world, but participating in the world itself, in the work, the self-representation and the construction of identity that are transfigured into play.

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Rune Klevjer

Response

Rolf Nohr's focus on processes of naturalization is highly relevant to games and gaming practices. In a certain sense, this is precisely what computer games are; they are learning machines, which demand from the player who seeks to master the game that a specific domain of knowledge (in the hands as well as in the mind) be internalized and made second nature. Nohr's ideological critique shows how this can be seen as a process of naturalization through aestheticization, through a playful appropriation of knowledge.

Nohr's focus on the concept of *specialized* knowledge also seems very relevant. Compared to other leisure activities like, for example, football, television or film, gaming (at least a large and dominant category of gaming) is a more specialized field. Unlike people who do not like football or bother to watch much film, people who do not play computer games really have no clue what it is about or what is demanded from the player.

As I see it, Nohr's analysis invites two main points of criticism. Firstly, the analysis implies that two different kinds of appropriation are treated as parallel mechanisms, almost as if mapped onto each other: a process of translation between specialized discourse and common sense *also* works as a process of naturalization. However there is very little explicit argument – although there vaguely seems to be a parallel – as to how a movement from the specialized to the common is at the same time a movement from the manufactured and contingent to that which appears natural, invisible and inevitable. This mapping of one mechanism of appropriation onto another also seems to imply, rather problematically, that in computer game play, whereas the game industry represents specialized knowledge, the player somehow represents common sense; from a position located

in (at home in) the domain of common sense, the player's task is to translate the specialized into 'interdiscourse', thereby realizing the game itself into the 'interspecial' domain.

Secondly, the notion of play itself. Looking at play as a process of naturalization is a relevant and valuable approach. One could argue that play, by definition, is a strategy for coming to terms with, appropriating, and internalizing in a certain sense, that which may be alien, threatening or forbidden; through play, we are able to engage with something without engaging with it, naturalizing our relationship to it while not only avoiding (or minimizing) risk, but also, as Nohr points out, hiding or 'cloaking' the connection between play and seriousness, between as-if action and real action.

On the other hand, the relationship between play (which would include fiction, if we follow Bateson) and *ideology* seems ambiguous in Nohr's account. Is ideological naturalization, which presumably must be linked to the exercise of power, inevitably part of play *itself*, independently of any particular economic and social structures in a society? Is play being appropriated and framed as ideology (in videogames, in fiction, in cinema) or is play by definition an ideological framing? If the latter is the case, and if we follow Bateson's central argument that play is at the heart of the evolution of language, the operations of power through ideology become epistemologically inescapable. This is in itself not necessarily problematic (depending on your general critical leaning), but it tends to make the more specific characteristics of different media and genre discourses less important. On what level can we observe, as Nohr does, that the ideological operations of computer games work 'just like' Hollywood's convention of transparent storytelling? What are the unique aspects in how computer games reproduce, for example, regulatory norms of play and work, management and planning, warfare, or violence?

Karin Wenz

Narrative Logics of Digital Games

The debate whether to locate the narrative of digital games a) as part of the code or b) as part of the performance will be the starting point for an analysis of two roleplaying games: the single-player game ZELDA: MAJORA'S MASK and the Korean MMORPG AION and their respective narrative logics. When we understand games as abstract code systems, then the narrative logic can be understood as embedded on the code level. With a focus on the player's performance, the actualization of the possibilities given in the code system is central. Both logics, that of code and that of performance, are reflected in players' narratives based on the playing experience. They do reflect on the underlying code and rules of the game system as they do reflect on the game world and their own performance within. These narratives rely heavily on the source text – the digital game –, which means that they give insights into the underlying logics of the source text. I will discuss the game structure, the players' performance while playing the game and the performance of the player after playing the game producing fan narratives. I conceive the narrative structure and the performance of the player playing as necessarily interconnected when we discuss the narrative logics of a game. Producing fan narratives is understood as a performance as well. This performance is based on the experience the players made while playing and refers to both logics of the game they use as their source text.

"Once upon a time, the question that captured our collective imagination (and ire) was this one: Is a game a system of rules, or is a game a kind of narrative?" (Bogost 2009) – Narratology is a semiotic approach to the study of narrative, which analyzes the relation between a story (the underlying concept) and its realization in discourse. The

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 146-164.
http://pub.ub.uni-potsdam.de/volltexte/2010/4275/ [urn:nbn:de:kobv:517-opus-42750]

discourse can be a realization of a story in any medium. The question whether narratology is an appropriate approach to digital games is compared by Bogost to a scene from The Blues Brothers (1980) when "Elwood asks the bartender Claire at Bob's Country Bunker, 'What kind of music do you usually have here?' And she responds cheerfully, 'Oh, we got both kinds. Country and Western.'"

Ludology in contrast investigates digital games as games, which means the digital game is seen in relation to other types of games, its rules and structure are analysed and the activity of playing is understood as central for an understanding of the game.

Narratology as well as ludology are described by Bogost as two different formal approaches to games, not necessarily being exclusive. Bogost discusses different ontological turns in the study of video games. One of the turns he discusses is the end of the heated debate between narratology and ludology. Even though the dispute between narratology and ludododly came to a compromise in the meantime, taking ludic as well as narrative elements into consideration, most still conceive those elements on different levels as Juul states in *Half-Real* (2005:1): "a video game is a set of rules as well as a fictional world." The rules belong to the real while the fictional world is what makes the game unreal. Bogost (2009) concludes: "Whatever a game is, some part of it is more real than another. Here we can see a new turn in the ontology of games."

Game Studies is a distinct term used for the same research interests that ludologists have formulated. However, in contemporary game research, game studies cover a broader field than ludology. Torill Elvira Mortensen, a scholar of media and game studies, clearly states that while ludology focuses on digital games as specific forms of games and nothing else, game studies is a broader approach and can be understood as a generic term under which ludology can be subordinated. She describes game studies as an inherently interdisciplinary field. Joost Raessens and Jeffrey Goldstein (2005), the edi-

tors of the *Handbook of Computer Game Studies*, point to the fact that in order to study computer games, an extensive collection of scientific disciplines must be included, such as cognitive sciences, artificial intelligence, psychology, history, film studies, cultural studies and philosophy, which also includes narratology.

Narratology and Game Studies

One critique of an application of narrative theory to digital games is based on the difference between a reader or spectator and a player. Games need the player to actively engage with the game world and thereby construct the discourse. Playing includes the change of perspectives and the manipulation of the environment. Furthermore, the roles of the protagonist of the narrative and the player are conflated in digital games. The player is addressed in-game as a protagonist and as the player at the same time. Explanations and information given to the player in game are related to the background story but also to the rules of the game ("you first have to do x before you can do y") and related to the out-of-game situation of playing (press the x button on your controller). In Massively Multiplayer Online Role-Playing Games (MMORPGs), the players themselves comment on all three levels as well, as the following quote from a chat of the game AION (2008) shows:

- Player A:/locate Narvi
  Player A:/navigate Narvi
  Player A: wtf [what the fuck] was the command again?
- Player B: narv narv
- Player C: locate or loc imo [in my opinion]
  Player C: or try /tomtom :D
- Player A:/tomtom Narvi
  Player A: XD

The chat above shows the following: Player A is looking for a command to trace a nonplayer character in the game. The slash plus command as in /locate+name is her attempt to find the character on the map, which the game uses to support the players' orientation. Usually these commands do not show in the chat window. They are only visible to others when a command is used that does not exist in the game. Therefore the player asks for help. The suggestion to use /tomtom is of course a joke and presupposes the knowledge that the GPS system *TomTom* is widely known. Additionally, the use of the emoticon ":D", which represents a wide smile, underlines that this is a joke and not a serious answer. Player A reacts with an emoticon as well, which represents a crossed-eye smile: "XD".

This example shows how players play with the different levels of reference a game conflates. They enjoy this typical game element by confusing these levels intentionally. The diegetic context, the metadiegetic context, the player's actions as well as the external player's world are commented upon in game, which creates a metalepsis. Metalepsis is a term from narratology used to refer to the transgression between the internal storyworld, the external comment on this storyworld and the reader's external situation of reading. Britta Neitzel describes metalepsis as one of the central features of game play. She speaks of an ontological metalepsis, which lies at the fundament of gameplay and concludes that instead of being in control of the game characters and their actions, the player is controlled by them:

> Playing and the played, the level of representation and the level of the represented begin to be connected in a cicular, self-referential manner and to influence each other (Neitzel 2008:148, trans. by author).

This double role of the player, as an observer and external to the fictional world and as the main protagonist and therefore internal to the fictional world, is blending.

The debate where to locate the narrative of digital games a) as part of the code or b) as part of the performance will be the starting point for my analysis of the single-player game THE LEGEND OF ZELDA: MAJORA'S MASK (2000) and the Korean MMORPG AION (2008) and their respective narrative logics. When we understand games as abstract code systems which define the game elements, possible connections, paths and application rules for those elements, their narrative logics can be understood as embedded on the code level – the game structure (Pias 2002, Degler 2005).

The Logic of the Game Structure

The game structure and its narrative logic are based on the logic of game decisions. These decisions are primarily based on rules, strategies and settings for gameplay and secondarily on character, scenes and plot. Mersch (2008:32) describes gameplay as a dialogue with the machine and its interfaces. He states that teleology, rules and strategy are dominant in digital games. Narrative elements, however, are present in the background story, quests and cutscenes (Juul 2001:17). Narrative patterns are weaved into the game design and actualized by the player who follows the game rules. The discovery of alternative narrative paths and hidden storylines is an important element of gameplay. Finding hidden game worlds becomes more important than following a coherent linear story. This holds true for single-player games such as THE LEGEND OF ZELDA series (since 1987) as well as for MMORPGs. In both game types the hidden side stories can be found by exploring the game in ways that seem to be a deviation from the given tasks. By taking the time and yawing from the most obvious way to take, players are rewarded with side quests and/or additional rare items. Thereby the deviation from a task given seems to become a rule of a digital game itself. The different games of the ZELDA sequel follow different narrative strategies. While most games follow a linear development with one main story

line and a few hidden sidetracks, ZELDA: MAJORA'S MASK follows a circular movement. The game character is being transported back to the starting point over and over again after a period of three days (measured in game time), however, with additional knowledge about the game rules and new tasks to be fulfilled in the next time period. Circularity and the repetition of tasks are typical for computer games. Usually this could be considered a major difference to a narrative logic for which progression and change are central. The narrative logic of ZELDA: MAJORA'S MASK transfers the game rule "repeat an action as often as necessary to improve your skill or complete the task" onto the narrative logic of time travel. Being transported back to a moment in the narrative that is situated three days before but with the knowledge and experience gained beforehand is a central element for the ludic as well as the narrative logic in this single-player game.

In an MMORPG, the narratives usually consist of quests that have to be fulfilled. Not all of them are connected to one coherent storyline. Some follow a progression in an underlying story, some simply have the task to make the player familiar with the game interface and the rules and to help her to explore the game world further. AION uses cutscenes in addition to the textual information given in quests for the major storyline. The major storyline makes clear why the player's game character has to develop skills and become stronger to be able to defeat the enemy and protect the own faction. Depending on the faction chosen – the player can either start the game as Elyos or Asmodian, two factions which fight each other in the game – the storyline develops differently. Not only the perspective given in the background story of the game is different, but also some of the quests to follow and of course the cutscenes are adapted to the faction one plays. The cutscenes are integrated in such a way that they start to play at a moment the group one plays with finds itself in a safe place in game, so that the group play is not endangered by the cutscenes, which not necessarily all group members see at the same time.

Krzywinska (2008:127) shows for her example WORLD OF WARCRAFT (2004) how the worldness of a game is created by interplay of gameplay, player agency, and myth – using the term mythic structures instead of narratives. She shows how the choice which faction to join in a MMORPG affects the experience of the gameplay as the myths/narratives related to each faction are different. This also holds true for AION. Additionally – in comparison to WORLD OF WARCRAFT – AION uses cutscenes partly as reward for fulfilling a quest, partly to give information about the myths visually and not only textually. Each narrative seen in isloation follows a linear progression. Even though tasks have to be repeated several times, the narrative elements in the game follow one sequence. The repetition is based on the game rule "collect experience points to make your character stronger". The existence and availability of several quests mirror the co-existence of several narratives in the game. The sequence of which quest to finish first is a decision made by the player. When the player reaches a higher level in the game (which usually means that all quests in one game area have been finished), she is rewarded with new quests, bringing her to the next territory in the game. The narrative logic of those quests altogether can then be described as multi-linear. Many players decide to finish quests not by following their narrative structure but by the actions related to them. In case you have to collect items in one and the same area for several quests, all those items are collected first before handing them in and going on with the quests on the narrative level. Game guides offered by players even provide the fastest and most effective way to finish quests by neglecting the narrative structure of the quests completely. A narrative cohesion is then gained in AION only through the main storyline, which stays dominant for the narrative logic of the game by use of cutscenes.

Single-player games and MMORPGs can follow a different game logic. While single-player games are free in exploring new ways of storytelling (as ZELDA: MAJORA'S MASK does), they usually follow

a stronger linear narrative. ZELDA: MAJORA'S MASK teleports the player back to the start after the time of 3 days. Would MMORPGs follow such a narrative principle, the cooperation of players in the game would be disturbed. Therefore MMORPGs need to take into consideration that players cooperate in-game and need to be able to share a game world without those disruptions. As the cooperation is central, the narratives are much more fragmented than in a single-player game. The different chains of quests that can be followed do not provide one coherent narrative. Fragmentation is a typical feature of those narratives to support group or player decisions. The logic of performance has a deep impact on the narration.

The Logic of Performance

In digital games, the individual narratives are generated in play. Narration can be described as a playfield, which is activated/made possible through the players' performance (Mersch 2008:21). With a focus on the players' performance, the actualisation of the possibilities given in the code system is central. While the term narrative as part of the code refers to a structural element, the use of narrative as performance implies that narration is a process and dynamic. Opposite to Pias (2002) and Degler (2005), Juul (2001 and 2005) claims that the narrative logic of a game is inseparably bound to performance. Juul's example is time in narratives, which is structured according to story time and discourse time; the former refers to the time in which events told in the story happen chronologically, whereas the latter refers to the time and ordering of the narrative. Following Juul, the story evolves through the playing of the game and is therefore indistinguishable from its underlying structure. Several stories might be potentially possible – or one story with several endings and plotlines. Only the player's performance actualizes the story, which is therefore not a pre-given as it is the case in linear narrative media. In MMORPGs, an additional component lies in the interaction of players, who

can use the game world in ways not foreseen by the designers by producing *machinima* (game videos) and using the game as a stage not only for gameplay, but for theatrical performances in the game environment. This of course is a use of the term performance now for activities that take place after playing out of the game itself, but can still be understood as related to the gameplay.

The different possibilities of interacting with a digital environment have been described by Espen Aarseth in his book *Cybertext. Perspectives on Ergodic Literature*. Aarseth (1997) uses the concepts anamorphic text and metamorphic text to describe different functions of digital texts. The anamorphic text is a text in which a player has to change the text from an unsolved text to a solved text. This holds true for digital games. The player is usually confronted with a conflict (e.g. to save the world) and has to find a solution during her play session. Narrative and interaction are interdependent as the player's actions constitute the narrative. The narrative of a computer game establishes a conflict with a recursive structure. While background information given introduces the conflict, the solution has to be found in the interaction with the game. When the solution has been found, the problem is solved and the text is changed to a solved text. Digital games usually include several unsolved problems, which are all part of one major problem. The constant problem solving is what keeps a player active and engaged.

Metamorphic text, however, is transforming endlessly. The term metamorphic text is used by Aarseth to describe digital, dynamically changing texts. MMORPGs can be considered metamorphic in this respect as the gameworld is constantly updated and enlarged, but also as the players' activities in this game world change it dynamically over time. In addition to the inherent dynamic quality of MMORPGs both, single-player games as well as MMORPGs, function as metamorphic text by inspiring a whole net of fan narratives based on them. Each of the fan narratives is a rather static and linear text in itself as soon as the text has reached its final version, however,

the whole web of fan narratives, the constant metadiscussion about the fan texts as well as the discussion about the source texts can be understood as a metamorphic whole. Looking at their narrative logic from a structural approach, the game code includes narrative elements but the performative logics of games let those narrative elements appear as just one aspect of gameplay alongside many others. The underlying narrative logic of single-player games and MMORPGs is different as we have seen, which is reflected in fan narratives based on them. Producers of fan narratives such as fanfiction based on a digital game or *machinima* do not only treat the digital game as a source text, but additionally refer to their playing experience of the game, which highlights the importance of the performative aspect of their gameplay.

Fan Narratives Based on Games

Fan narratives based on digital games have been described as a metagaming activity of players (Salen/Zimmermann 2004:540). It is a sign of the intimate knowledge of the game, and of the desire to imprint oneself onto the text. Fan narratives rely heavily on the source text, which means that a reader of a fan narrative needs to know the source text at least to some degree. In the case of a digital game this does not only mean that the reader needs to know the main characters and the background story, but also about the game mechanics and rules. A fan text does not necessarily use the same setting and genre as the source text. While ZELDA is a sequel of role-playing games set in a fantasy world, some of the fan narratives use a different literary genre such as e.g. drama or poetry or different subgenres of fiction such as Science Fiction, Mystery, or Horror. Others keep the setting, time and genre of the original. Besides referring to different genres, a fan narrative can refer to different source texts of popular culture at the same time, the so called crossover, by e.g. combining protagonists and events from ZELDA with a storyline and characters based on *Lord of the Rings* (since 1954) as in the following example:

> Link was dropped on the said dwarf. The sudden appearence caused the rest of the counsil to draw their weapons. The stranger rubbed his head, and muttered, "magic should be able to provide a softer landing", before opening his eyes. Link was surprised to find several arrows, swords and axes aimed at him.
> "Uuh, hi?" he said weakly.
> "Who are you, and how did you appear in the halls of Rivendell."
> Link tried to answer but the dwarf he landed on, decided his live was more than being a pillow, "GETOFF."
> Link quickly stood up, "I am so sorry, I never meant to land on you, sir, I come from the land of Hyrule."
> "The land of I RULE?", a other dwarf said, "He is nuts" (Alex phoenix Wing 2008).

After this sudden introduction of Link in a scene of *Lord of the Rings*, Link's presence is taken for granted by the characters. Link applies his specific magic in the situations the group encounters in the following while the storyline follows the one of *Lord of the Rings*. Fanfiction gives an insight into the mechanics of interpretation, which is of course appropriation of the source text. Problematic when dealing with source texts is that the established textual content can be deduced from several sources and can also be interpreted in different ways as the example above shows. Which other source texts are used in the fan's narrative? The website fanfiction.net with its link to crossovers shows clearly which different sources the narratives based on ZELDA rely upon. Fanfiction.net names 191 crossovers between ZELDA and other sources such as *Harry Potter* (since 1997), *Lord of the Rings*, FINAL FANTASY (since 1987), *Transformers* (since 1984), *Naruto* (since 1999). Crossovers can include media such as novels, comics, movies, TV-series but also other computer games.

As fan narratives are texts which are constantly enriched with new storylines and told or retold through various media we face all aspects of intermediality. Intermedial relations exist between the

source text(s) and the fan narrative, but also between different fan narratives that are used as source as well. However, not only content of source texts is used and appropriated, we also find relations to the rules of the source text as in the following fanfiction:

> "Link, you played the Song of Storms... of COURSE it's going to start raining you idiot!" Navi yelled, shaking her head in disappointment. "Well, when I play the Song of Storms in Lon Lon Ranch, it never rains. How come it only rains when I play the song in Kakariko Village?" Link asked, completely dumbfounded. Navi sighed. "That' just the way Nintendo made it Link. SO STOP ASKING STUPID QUESTIONS!" (Zeldagirl91 2009).

The song of storms, as other songs played by Link in ZELDA, has a magical effect. Strangely enough this effect is not effective in the place called Lon Lon Ranch. Whether this was intended by the game designers or is a "bug" of the game can be questioned. It seems to be incoherent regarding the game mechanics and is therefore a topic discussed by players. Another remark in a fanfiction refers to the impact the player can have on the story:

> "Oh, hold on for a sec, guys", called an ominous, loud voice from the sky. Everyone looked up. "Who is that?" demanded Krypton. "Oh, just me, the Ocarina of Time player. Listen, I decided that I don't like Buttwipe's name, so I'm restarting the game. Sorry, guys", the player announced before the screen went black. When the screen came back into focus, Buttwipe was gone (Igor Lollipop 2009).

This example refers to the possibility of a player to start the game anew and thereby change the name of the avatar the player is playing with. In the case of ZELDA, even though the avatar always looks like Link, the player can freely name him. These two examples show how authors of fanfiction do refer to the game's rules and play conditions in their narrative. With these references a metafictional level is

created, a contradiction between the fictional world of the game and the fanfiction on one hand and the extra-fictional reality of the game designers and the player on the other.

Fan narratives based on MMORPGs choose *machinima* as their form of expression rather than fanfiction. While there are over 14,000 fanfictions related to ZELDA, we find only 2,500 on all WARCRAFT games. AION, a game that was released in the US and Europe in 2009, had 6 fanfictions shortly after its release, but already 45,500 game videos on machinima.com. MMORPGs obviously are much more perceived as a platform for performance than singleplayer games are. The characters function more as a tool to interact with the game world and other players and do not have a pre-given personality. This seems to ask for filling this empty puppet with an identity actively. The game is already perceived more as a stage to interact with other players than a narrative. This opens up a space for own narrations performed in-game. Some player characters in MMORPGs even gain a star status on the server the player plays so that the character can be used as a representative of this individual player or a guild reflecting on own in-game experiences. Guilds for example use those *machinima* to recruit new players, but also to make their guild well-known to the population of the server. This is a huge difference to singleplayer games. The interaction with other players online leads to a different game experience and therefore also to different fan narratives.

The ontological metalepsis of games has to be taken into consideration when analyzing the narration, but also the players' experience in game play, which is reflected upon in fan narratives and gives an insight into the narrative logics of games.

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Barry Atkins

Response

This is a paper that very sensibly begins with mapping out confusions and misunderstandings, and is careful in its definitions as it seeks to make its intervention in the discussions that surround narrative and games. To even use the word 'narrative' in a paper title is to invoke a history of contestation and debate, and this is certainly not naïve in mapping out that debate, however briefly. What we have here, then, is an invitation to rethink part of that debate in a particular context, largely circulating around the figure of Link and the game series ZELDA – and if ever there was a game that was both Country and Western, to borrow the example that Wenz in turn borrows from Ian Bogost, then it is ZELDA, games that wear their formal innovation as computer games on their sleeves even as they insist that narrative content has value, and that story is essential to their identity. In that particular fusion, the popularity of ZELDA amongst games players eclipses that of Country & Western among music fans, and were the contest ever to have taken place or still be waged, one can imagine both camps of ludology and narratology finding much to claim in it for their own cause.

But this is no formalist analysis of games as artifacts or simple revisiting of the history of a 'versus' that might be replaced by an 'and'. The questions Wenz raises include not only what we should study when we seek to understand the game artifact, but who we should study, and move beyond what might be termed the game text to its paratexts and metatexts. There is an inevitable risk in such a move, of course, and it is one apparent throughout this essay. Where the slippery boundary of where the game begins and ends lies is not always clear, and a sense of clear distinction of what can be fully claimed as either inside or outside the game perhaps still needs to be made.

For those looking at games at a detailed level as systems of affordances, then, this also raises a larger question of affordance – of how games allow, invite, or even demand repurposing by the player who (re)configures them through play. And in this it addresses the specificity of contemporary games – looking towards the crucial question of why they appeal through the possibilities they open up, as well as how they function and operate. Wenz's games are springboards to player action and invention, and she claims that invention for the game as much as for the player, seeing narrative generated through (or even outside) conventional game play, however separated and distinct from the authorial design or intention of the developer, as belonging to her reconsideration of game narratives.

With due cognizance of the seminal work of Henry Jenkins in this area, Wenz then moves on to thinking through the significance of fan culture and the insights it offers back to the practices of play across games, and on the playful practices of gamers. As students and scholars of video games (or computer games, or digital games) we are inescapably new media scholars, but there is a danger sometimes here in over-emphasizing the new in what we do. To stray into the pre-digital for a moment, and yet remain with those games that inescapably inform some contemporary digital games, it is easy to see that some games have always been open to fan-like behavior, if not to literal fandom. Miniatures wargamers certainly produce an extended world beyond mere rule set, and players of the tabletop RPGs that followed *Dungeons and Dragons* reveled in the participatory co-production of something that always exceeded the rules set to construct something additional to what had been before. Wenz is right in picking up the key element of the new, however, and emphasizing the nature of change brought about by online fandom. It is the internet that exposes and allows distribution, and in a time of Twitter and Facebook updates almost demands incessant distribution that changes the public expression of the fan, if not the essential nature of fandom.

A crucial point here is the observation that: "Fanfiction gives an insight into the mechanics of interpretation, which is of course appropriation of the source text."

Following from this argument it might even be possible to wonder if we may go further, and consider whether all forms of digital play are forms of appropriation that would trouble classical models of authorship. But there also remains something of a lack of specificity here. Game fanfiction might be a sub-genre of a larger phenomenon of fan fiction production, but it is certainly a marginal practice in relation to game playing in mass consumer culture. Wenz is right to point to the extent to which the playing of games through activity is of a different order to fixed forms of narrative in other media (although one may take issue with any automatic assumption of conflation of the 'role of protagonist of the narrative and the player'), but it is harder to see statements that have applicability to all games, or even a majority of games and game genres.

Effectively there is a lot to unpack here in Wenz's examination of narratives associated with games: game as text in co-production between player and authored software; game containing text (the primary battleground of ludological/narratological debate); game producing text as post-hoc narrativization of game experience; game inviting the production of text. It is in the consideration of the last of these that Wenz's examples and thought are most interesting, and we can imagine a fruitful area of further scholarship to be undertaken in this intersection of the fan cultures that surround games and their own status as game artifacts to be played primarily for their ludic pleasures rather than the media expression they allow. This is where Wenz treads a fine line between the game studies she is careful to summarize and refer to, and the increasing scholarship on *machinima*, where the game is seen as distinct from the media productions it allows or enables.

Serjoscha Wiemer

Playing on the Plane of Immanence

Notes on the Resonance between Body and Image in Music Video Games

In recent years computer games have been discussed by a variety of disciplines from various perspectives. A fundamental difference with other media, which is a point of continuous consideration, is the specific relationship between the viewer and the image, the player and the game apparatus, which is a characteristic of video games as a dispositive. Terms such as immersion, participation, interactivity, or ergodic are an indication of the deep interest in this constellation. This paper explores the resonance between body and image in video games like REZ, SOUL CALIBUR and DANCE DANCE REVOLUTION from the perspective of a *temporal ontology* of the image, taking particular account of the structuring power of the interface and its subject positioning aspects.

The constitutive relationship between human players and non-human elements of the gaming situation has been described in the past in different ways, as a logical relation, for example, or as a spatial structure or configurational practice. But too little attention has been given to the *temporal* nature of this relationship. We are all familiar with the concept of real-time, which points heavily to the relevance of this topic. It is an important but, in my view, still insufficient temporal category for describing the broad range and fundamental function of temporal structures that define the player-image relations in video games.

This question of the temporality of video games is a key aspect that I will address with reference to the temporal constitution of the video image itself. French Philosopher Henri Bergson developed a philo-

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 166-195.
http://pub.ub.uni-potsdam.de/volltexte/2010/4276/ [urn:nbn:de:kobv:517-opus-42765]

sophical approach to thinking of the 'image' in the realm of a temporal ontology in his famous essay *Matière et Mémoire* (1896), and in the 20th century his concepts were adopted for a theory of cinema by Gilles Deleuze (1992, 2005) and of video by Maurizio Lazzarato (2002).

The second aspect concerns the interface of games, the logic and structure of different interfaces and their relevance to the production of meaning in games. I am convinced that interfaces may be interpreted as specific cultural forms, which not only serve as a framework for the presence of meaning and content that occurs within the progress of the game, but that they also play a crucial role in the production of meaning itself. According to media scholar Lev Manovich (2001:64), the interface "acts as a code that carries cultural messages", while German media scholar Petra Missomelius (2006:89) described the interface as a "complex of meaningful contexts".

These theoretical approaches point forward to an understanding of user interfaces as a type of *cultural grammar*. User interfaces are able to constitute a semiotic space in which perception, action, and technology are linked together in an inter-connection of man and machine. Furthermore, it is the interface that defines the pragmatic dimensions of the exploratory, interpretive and configurative 'work' of a player (Eskelinen 2001), as well as the interlacing of the particular point-of-view and point-of-action of a given game, an interlacing that characterizes computer games as digital media products (Neitzel 2008).

Interfaces and Subject Positions

In computer games, we can observe the emergence of certain interface-styles and interface-conventions that are shaping specific gaming experiences.

1) Different input devices very directly affect the degree of physical involvement. This is currently a big issue in the context of popular life-style fitness games. The *Wii*-Remote is a good example, since it

is designed to register different real movements as game inputs, and to translate them into video game sensations. The interface-style is decisively shaping the experience of sports games, tennis, bowling, etc. (Gregerson/Grodal 2009:71-77). But even older sports games like Decathlon (1983) were able to bridge the gap between video games and real physical exercise. On one side of the spectrum we see physical action up to the point of intense physical strain – there is no absolute division between video games and 'real physical sports' – and on the other side of the spectrum there are input devices such as the legendary *Atari Mindlink*.

The *Mindlink* was never released, but it gave expression to a fundamental idea. Just by slightly moving the muscles in your head you would be able to control a game. Your movements would be read by infrared sensors and translated into movement within the game. The striking idea behind its fame was the promise that one could control a game just by the power of their thoughts – interfacing people with computers and videogames and leaving the physical boundaries of the living body behind (Crawford 2003:172).

It is likely that similar controller types are currently in development, since the basic idea seems to belong to the permanent repertoire of the desiring-function of video games: the wishful fantasy to create real images by the mere power of thoughts. It is precisely between these positions of 'real sport' and 'control by thought' that we can locate the micro-movements of the standard controllers, gamepads, keyboard and mouse. The dance mat as controller-device prefigures a different repertoire of movements and gestures than a guitar controller or a fishing rod.

2) Undoubtedly, the function and shape of the input is of great importance to the degree of physical involvement in games. Nevertheless, the specific nature of an interface is never determined only by the input device, but also by the detailed interplay of controller, game concept and the design and presentation of virtual spaces and reactive surfaces.

Interfaces predefine the forms that are filled by the players. They indicate a relationship with specific subject positions. First-person shooters can serve as an example: typically the space is presented with linear perspective in a manner that puts the focus on the player as the 'origin' of space by enhancing the power of the gaze as a key element of the spatial structure. This visual presentation is a common technique for evoking an immersive experience. At the same time it defines a typical subject position. Stephan Günzel (2009:342) described first-person shooters from a phenomenological perspective as a formal representation of an ego, 'I' or "Ich-Origo", others have argued that the first-person-view in games could be interpreted as the return of a transcendental, 'Cartesianesque' subject and the "myth of the autonomous self" (Shinkle 2003). There were also attempts to 'deconstruct' this formation as the embodiment of a colonialist-phallic gaze (Scholl 1997). There is still some room for controversial interpretations.

In strategy games, however, another point-of-view and other spatial representations are dominant. Here, the paradigm of the map and the representation of modes of spatial control are key elements of the common onscreen-interface. The map is a traditional means of spatial control – the bird's-eye view connotes distance, oversight, invisibility and control. Both aspects relate to the typical point-of-action of the players in strategy games, which is linked with the narrative figures of statesmen, managers, generals, or local warlords (Wiemer 2008).

The formal structures of the interfaces in first-person shooter games and strategy games, their way of operating, their forms of representation, of information management, etc. point to the function of desire of a powerful subject. A crucial element in the production of the formal equivalent of such a subject is the amalgamation of point-of-action and point-of-view where "to see" is "to control".

In the above examples, a connection between genre characteristics and interface aesthetics becomes evident. This is not just by accident, since the concept of 'genre' in video games remains fuzzy

and often misleading, if defined only be the narrative content, by the repetition of stereotypes or by typical game mechanics, rules or winning conditions, without looking at the typical interface conventions that are in operation.

Music Video Games

To go into more detail regarding the logic and structure of the interface, it is worth taking a closer look at music video games and their paradoxical implementations of the common control-paradigm of video game user interfaces. Many music video games can be understood as genre-hybrids. The notion of 'hybrid music games' links music video games with existing genres like puzzle games, fighting games and shooters.

Music video games can share similarities with musical instruments, with audio software, with electronic music production and with pure audio games. A theoretical presupposition of music video games is the existence of an interface that offers the possibility of player-actions and reactions related to musical-acoustic forms. Music video games offer the opportunity to respond to music or acoustic events and structures through meaningful action or to produce musical or acoustic events and structures in a playful way. SINGSTAR (since 2004) would clearly be a music video game in this sense.

A basic definition of a music video game could thus be: *a Music video game is a video game where the gameplay and therefore the player's interaction with the interface is meaningfully shaped by musical scores or sound figures or other kinds of musical elements within the structure of a game*.

I want to discuss three games in particular, though they represent no more than a small selection of the rich diversity of music video games: (1) REZ, (2) a machinima adaptation of Namco's fighting game SOUL CALIBUR called *Dance, Voldo, Dance* and (3) the DANCE DANCE REVOLUTION series.

REZ

REZ (2002) is a critically acclaimed rail shooter developed by Sega's United Game Artists division, conceptualized and produced by Tetsuya Mizuguchi. As a hybrid music game, it uses conventional shooter game elements and reshapes the shooter experience by allowing players to co-create sounds and music within the game as they target and destroy foes and interact with different geometrical objects found in the game. The concept of REZ aims to create a form of electronic synesthesia, enhanced by a so-called 'trance vibrator', a special type of controller which pulses in time with the music, similar to but stronger than the force-feedback effect of the *DualShock* controller. It is intended to make the players literally 'feel the beat' and to expand the sensation of the audiovisual experience into somatic and tactile resonances. Aki Järvinen, Satu Heliö and Frans Mäyrä (2002) mention REZ as a notable example of the sensual-flow gaming experience that can be provided by digital gaming products.

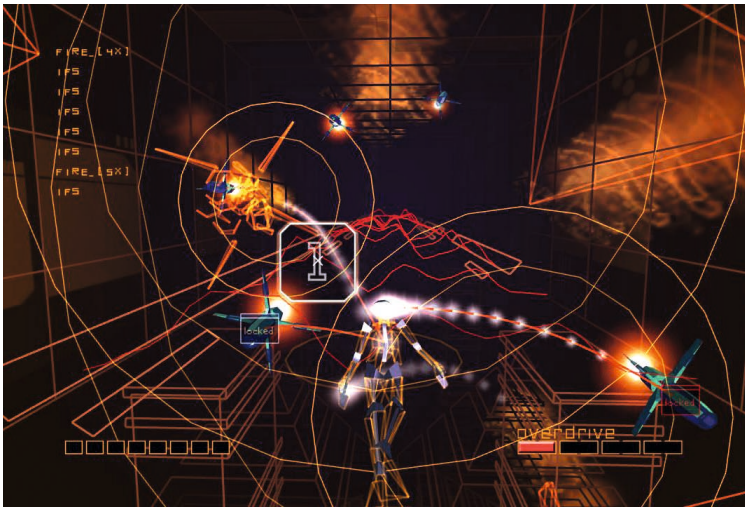

Fig. 1: REZ (www.xblarcade.com)

Voldo's Dance (SOUL CALIBUR)

The second example is SOUL CALIBUR (since 1995). It may be counterintuitive to look at SOUL CALIBUR as an example of a music video game, nor is it meant to be one by design. At first glance it is nothing but a fighting game. But the art of machinima, especially *Dance, Voldo, Dance*, makes it obvious that it contains a strong possibility of musical *expression* and *dance*. The machinima video features two players, both of whom control the character Voldo, using existing in-game animation to have the characters perform a synchronized dance to the song *Hot in Here* by musician Nelly. It is rumored that the idea for Voldo's dance was born when the creators noticed that the game's character animations and attacks could be triggered in sync with the beat of a song, and were impressed by this possibility.

The machinima video is the result of over a week of full time preparation and training and some effective post-production video-editing. If you look at SOUL CALIBUR from the perspective of a music video game, it all depends on the *performance* of the players. It is not just a matter of game mechanics or rules, but of the players kinaesthetic *interpretation* of the video game and its interface options. Voldo's dance is about using the controller in a virtuoso manner as a tool for expression and dance.

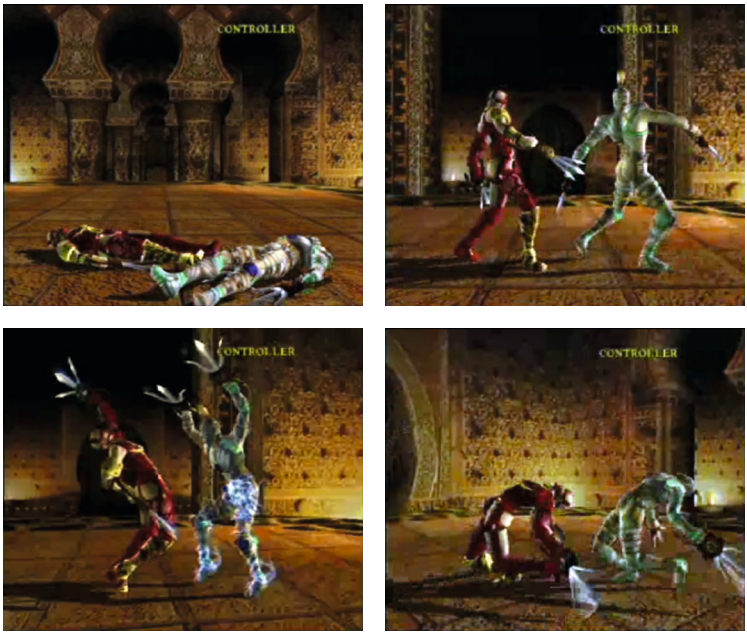

Fig. 2: Machinima video Dance, Voldo, Dance (www.machinima.com)

DDR – Bemani Games: Synchronization, Rhythm, CCC

A very different specimen is DANCE DANCE REVOLUTION (since 1998). It is an internationally highly successful dance game series, developed under the supervision of Konami. It has been marketed since 1998, first as an arcade game and later on all commercially important video game platforms.

DDR is a popular exponent of *Machine Dance Games*. Other well-known representatives of this type of game are PUMP IT UP (1999), CYBER GROOVE (2000), DANCE STATION 3DDX (2000), BRITNEY'S DANCE BEAT (2002), IN THE GROOVE (2004), and the open source game STEPMANIA (2006). These games are optimized for dance mats, which are equipped with sensor fields. *Machine Dance Games*

typically display on-screen icons that move toward a target area. If these are reached, the player must trigger the appropriate area on the dance mat with his foot or other limbs. The movement of the arrows reaching the target area and the movements of the players are synchronized with the music. The game measures the temporal precision of the player while he hits the appropriate areas on the mat according to the rhythm (Machine Dance 2009).

Machine dance is particularly interesting because of the remarkable logic of the interface. Many games follow a control paradigm with interfaces used as an instrument for regulating and influencing objects from a distance. In this respect, machine dance games are quite special. In DANCE DANCE REVOLUTION, the arrows on the screen show the players what step they have to perform next. It is as if the usual chain of command – to stay with the military metaphor – now follows a reversed order: the arrows are the commands and the player *obeys* by executing the required movements. It is not the player who controls the game and regulates the movements on the screen through the input device, rather, the game seems to control the player. Here it is not a matter of "being in control", but of "being controlled".

Fig. 3: Onscreen interface of Dancing Stage MegaMiX as part of the European version of the DDR series

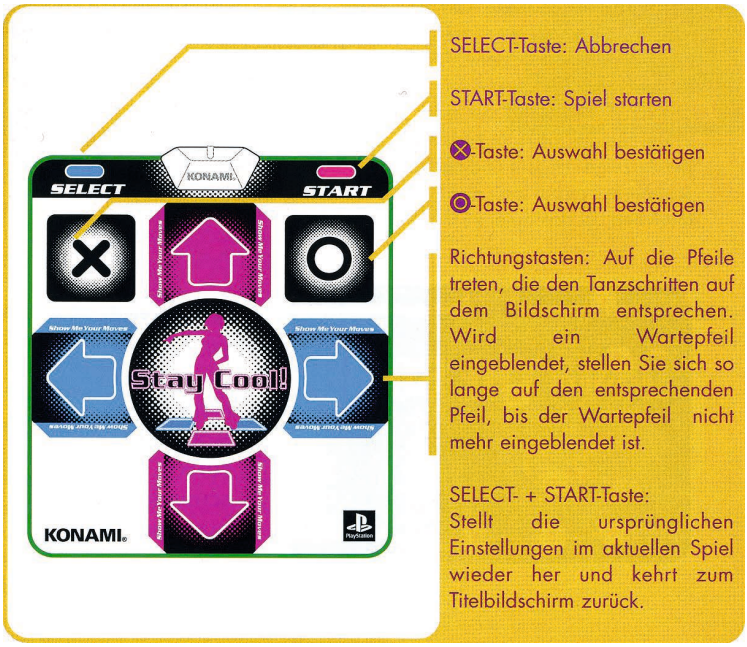

Fig. 4: Dance mat of Dancing Stage MegaMiX

Ideology of Control

Should machine dance be characterized as the willing suspension of subjectivity, decision-making and rational behavior? To be controlled, to be danced, to become a mere puppet, a remote controlled ensemble of moving body parts – is that what it is about? Could it be that we face here the pure "ideology of interactivity" without a mask? Game researcher Matt Garite (2003) described this ideology as follows:

> The world of the video game is nothing more than the on-screen rendering of programmed instructions and decrees. Players are 'schooled' by an aggressive bombardment of pixelated images and sounds. Every moment is a direct imperative, an attack that

> demands a response. As the game unfolds, the player's body is silently inscribed with and encoded by the command lines of the program [...]. But what is perhaps the most fascinating feature of video games is their effort to simulate the illusion of player control while simultaneously reflecting on screen the player's subjection to the game.

According to Garite, the on-screen video game-actions "are determined by the player to the same extent that the player's actions are themselves determined by the program" (ibid.).

Similarly, video game researcher Eugenie Shinke (2003) wrote, with reference to Lev Manovich, that video games force the user

> to adapt her/his movements to suit the demands of the interface rather than the other way around. Game controllers are a case in point, reducing the individual bodily gestures to 'forms that can easily be manipulated, mass produced, and standardized'.

Such readings of the interface strongly suggest the submission of the player to the power of the machine. Maybe then dance machine games celebrate this submission as a joyful and masochistic experience? And the players just enjoy their passive state as appendages of the game apparatus?

In contrast to such a reading, I would like to suggest a different interpretation and a reading of video games as ludo-diagrams and as variations of the movement-image. With reference to a Bergsonian concept of images, video games may be understood as a pleasurable connection between body and video image beyond a paradigm of command and control. From this point of view, both human players and non-human images and machinic objects are connected in a way that constitutes multiple relationships between perceptions and actions, where player and game *mutually receive sensations*, create perceptions, perform significant temporal cutting and reshaping, respond and *re-create* sensations into *new audio-visual actions*.

Ludo-Diagrams, Multimodal Images and Expressive Force

The term 'ludo-diagram' is used by Colin Cremin (2008) to describe video games as a kind of process-visualization. It can be understood as a sensual representation and expression of ludic functions in the process of playing. Ludo-diagrams are not merely visual, but are suitable for describing the *multimodality* of electronic images in video games. With digital computers, the visual aspect of the image is just one out of a range of modalities of the expression of dynamic data structures. And the visual expressions can easily be transformed into acoustic events and vice versa. Movement can become image, music can become movement and so on.

In coining the term 'ludo-diagram', Cremlin refers to the theory of the diagram developed by Gilles Deleuze in his analysis of the paintings of Francis Bacon. According to Deleuze (2003), Bacon succeeds in subverting the categories of identification and narrative in painting. Instead of a hierarchical view, which holds objects at a distance, the narrative space is dissolved by haptic and tactile qualities. Instead of a spatial arrangement of clearly demarcated objects, Bacon's paintings depict the movement of forces. Deleuze uses the term diagram to indicate the character of Bacon's paintings as the result of a specific balance of forces and sensations, and more precisely as the expression of motor and sensory qualities in the realm of the image.

The ludo-diagram would be the game viewed as a series of sensations: the expression and representation of movements and qualities of perceptions as a result or as a potentiality of the exchange between players and interface. Cremin (2008:4) writes:

> The diagram of the video game is a latent force brought to life by the ludo-apprentice. Deleuze describes the diagram in the work of Bacon as 'chaos, a catastrophe, but it is also a germ of order or rhythm'. On the painting, the 'diagram are the zones, line-strokes

> and color patches' upon which recognizable forms are created. […] The *ludo*-diagram is all of these things. The force, that distorts the figure in the video game is an invisible presence in the zones, line-strokes and patches: the possibility of the fact of sensation for the ludo-apprentice brought to life in the brush strokes of play.

The ludo-diagram can be described as a sensual expression and representation of ludic functions in the game. It is the video image seen from a pragmatic and performative point of view. If we look at SOUL CALIBUR, informed by its machinima-adaption about the performative potential of this game for expression and dance, then it is precisely in the ludo-diagrammatic dimension of the game that this expressive potentiality is revealed: it is where the latent force of the player-machine-connection is brought to life in a recognizable form and movement is transformed into audiovisual sensations, orchestrated in a shared rhythm.

Machines for Crystallizing Time – New Ontologies for New Media?

From an ontological point of view, video games can be seen as a variation of the video image. The video image can be defined as a fundamentally time-based type of image, a temporalized and dynamic image. Electronic video images are modulated to match the capacity of the human perceptual apparatus, and they are processual images. This also means that they are open to interventions and additional modulations in the process of their creation. (Real-time images in particular are not essential visual entities, but temporally structured configurations of data.) Each event within the frame of electronic images is the *expression* of an underlying temporal process.

In his book *Videophilosophie* (2002), Italian-French media theorist Maurizio Lazzarato describes video as a machine for crystallizing time (for a short English abstract of his approach cf. Lazzarato 2007). Borrowing concepts from the French philosophers Henri Bergson and

Gilles Deleuze, he conceives of video technologies and information-processing machines in general as based on the synthesis and modulation of 'contraction syntheses' of time. From this perspective of a temporal ontology, the electronic images are actually not interpreted as imitating the ability of the eye – in the sense of an optical capacity – but as imitating the very conditions of perception, memory and thought itself. Bergson's notion of the image is quite different from the usual understanding of the term and of crucial importance for Lazzarato's theoretical argument. For Bergson, images are defined not by their visibility, but by their *connection* with other images.

An approach similar to Lazzarato's theory can be found in Marc Hansen's work *New Philosophy for New Media* (2004): Like Lazzarato, Hansen builds upon a Bergsonian conception of the image in order to characterize the changed preconditions of the constitution of perception in relation to information processing machines. According to Hansen (2004:10), we must accept that the image,

> rather than finding instantiation in a privileged technical form (including the computer interface), now demarcates the very process through which the body, in conjunction with the various apparatuses for rendering information perceptible, gives form to or informs information. In sum, the image can no longer be restricted to the level of surface appearance, but must be extended to encompass the entire process by which information is made perceivable through embodied experience.

While Hansen focuses on the image as a concept of "embodied perception" (ibid.:3), Lazzarato emphasizes the temporal constitution and the ontological framework of the Bergsonian image. For Bergson (1911:4-5), even the human body is thought of as an "image" –

> an image which acts like other images, receiving and giving back movement, with, perhaps, this difference only, that my body appears to choose, within certain limits, the manner in which it shall

> restore what it receives. […] So the body is but a privileged image, providing for the exercise of choice among possible reactions.

If the body is "privileged" within a universe of images, it is because it has the capacity to be a 'centre of action' and of 'indetermination', which means it is not only capable of 'pure perception', but also of establishing an *interval* between perception and action. Images then are thought of as *nodes of activity*, which perceive and transmit movements. In this sense Bergson's 'pure perception' is a mechanism of unfiltered and instant transmission of movements. In contrast to this, however, the 'actual perception' is always based on the performative capacities of a body. The interval is the necessary minimal distance that a body requires to perform any action or 'actual perception', an interval between the incoming movement and its transmission, the minimal response-time.

Concerning Bergson's ontology, 'action' is not understood as the intentional act of a subject on an object, but as a mode of the chain-linking of images and perceptions. Action, thus, is as a process that unfolds mutually between the player and the game. Actions and perceptions, from this point of view, are not exclusive to the human side. The concept of video as a machine for crystallizing time points to the idea of machinic perceptions and actions. This point of view implies a shift in attention from the subject to the process, from human action to human-machine situations and assemblages between formerly separated entities. This goes along with an interest in the conditions of non-human agency and efficacy, separated from anthropocentrism, which has gained critical attention in recent years among a growing group of theories. For example, it is intensely discussed in the field of 'speculative realism' or object oriented philosophy (Harman 2005) and within the actor-network theory (Latour 1993), where Graham Harman (2009:14) and others discover a conception of a 'democratic' ontology, where

> [a]toms and molecules are actants, as are children, raindrops, bullets, trains, politicians, and numerals. All entities are on exactly the same ontological footing.

In the field of game studies, Ian Bogost (2008:22) articulated some of these concepts, following the lines of Harman's ontology, asking whether it is possible to develop a phenomenology of the gaming situation "from the perspective of the computer rather than the game or the player". It still seems rather vague, however, which conclusions may be drawn from this ontological shift in perspective with respect to game analysis or even game philosophy.

Actions and Situations

French philosopher Gilles Deleuze applied the ontological concepts of Bergson's theory of the image to cinema, and took it as a base for developing his own concept of the movement-image. In *Cinema 1: The Movement-Image*, Deleuze (1992) gives a radical interpretation of the first chapter of Bergson's *Matter and Memory*, which he adopts and extends to include the 'new' cinematic images of machinic production. The *movement-image* itself is described by Deleuze with reference to his philosophy of immanence. According to this philosophical point of view body, image, and matter share the same plane of immanence. He suggests a perspective where there is no transcendental gap between mind and body, no ontological difference between thought and material action. The nodes of activity, the chain-linking of humans and non-human entities is then described as a 'machine assemblage'. This idea is extended to a concept of ontological unity, one-ness or univocity:

> An atom is an image which extends to the point to which its actions and reactions extend. My body is an image, hence a set of actions and reactions. […] External images act on me, transmit movement to me, and I return movement […] this infinite set of

> all images constitutes a kind of plane [plan] of immanence. The image exists in itself, on this plane. This in-itself of the image is matter: not something hidden, but on the contrary the absolute identity of the image and movement. The identity of the image and movement leads us to conclude immediately that the movement-image and matter are identical. The material universe, the plane of immanence, is the *machine assemblage of movement-images*. (Deleuze 1992:58-59) (For a critique of the tension between univocity and multiplicity or 'manifold see Badiou 2003.)

Recently, video game researchers like Alexander Galloway (2006) and Souvik Mukherjee (2008) referred to Deleuze's theory of the image to bring new concepts to the theoretical analysis of video games. To be precise, they use the concept of the 'action-image' to describe video games as action-based media. The action-image, according to Deleuze, is a subtype of the movement-image, which describes the general flow of actions and perception in cinema. There are many different variations of the movement-image, and the perception-image and the affection-image are two other important subtypes that share a strong link with the action-image. Within Deleuze's film theory, the action-image emphasizes the role of the sensorimotor scheme as a temporal structure of cause and effect.

Concerning Bergson's ontology, 'action' is not understood as the intentional act of a subject on an object, but as a mode of the concatenation (chain-linking) of images and perceptions. In video games, it is important to think of action as a process that unfolds mutually between the player and the game. Action should not be identified with a single event, but can be understood as a "multiplicity that is both different as well as repetitive" (Mukherjee 2008: 228). The elements of the action-image include virtual and actual events and are temporally extended. The repetition, the rhythm, the sequence, the possible and actual operations are some of its main components. Furthermore, it

is important to see that action is a two-way relation. As Mukherjee suggests, we should take into account the machinic agency, thus "the action occurs from the machine perspective: the code responds to, and creates, situations of action" (ibid.:229).

Shared Rhythm, Hybrid Subjectivities and Libidinous Play

With this theoretical framework, music video games and their interface structures can now be read differently: if we play music video games, it is crucial, as in almost every action-based video game, to adopt, internalize and modulate our movements and gestures to the standards of the interface. By forms of tactile, aural and visual feedback, the player and game-apparatus are brought into some kind of mutual perception. User interfaces are able to constitute a semiotic space in which perception, action, and technology are linked together in an interconnection of man and machine, constituting temporal manifestations of a "cybernetic continuum" (Millington 2009:622).

The characteristic feature of music-games as a variation of the movement-image can be seen in the resonating mode and the intensity of the linkage or interconnection between bodily movement and the moving images, that is, in *the sensation of movement as image*.

The logic of the interface demands that the body be opened toward the framing of the ludo-diagram. With this, there is a tendency toward the active production of a 'new body', a temporally constituted, dynamic and hybrid subjectivity beyond the paradigm of command and control. The ludo-diagram reveals the co-creation of expression as a result of the interfacing of human and non-human forces. The specific pleasures of the interface are to be found in the resonating interval between body and image, where there is a "becoming-music of the image" (Pisters 2003:218) and a becoming-image of the body and its sensations.

In music video games we can see the multimodality of the action-image (i.e. the constant mutual translation of actions and perceptions, of sound, movement and image into complex audiovisual situations), its sensorimotor relations and its strong link to somatic experiences more clearly than in many other variations of video game aesthetics. In this respect, games like REZ can be seen as examples of a general feature of video games, namely their transformation of interface experience into sensual perception and aesthetic pleasure. As Järvinen (et al. 2002:23) put it, games

> often provide their feedback in audio-visual and bodily sensations that become part of the enjoyment of gameplay experience. […] In other words, audio visual sensations function both as a feedback mechanism and as a form of aesthetic enjoyment.

Eugenie Shinkle (2003) compares playing REZ with "being at a rave"; for her the game is centered on "visual and auditory overstimulation, bodily and autonomic responses". She then describes REZ as affirming a kind of "dynamic subjectivity" opposed to the "Cartesian-esque subject" of first-person shooter games – "[n]either vision nor rational response is privileged here" (ibid.). The perception of REZ is shaped by intensity, and affectivity, a kind of synesthesia and affection that is linked to the body without drawing on it merely as a 'natural' resource. On the contrary, the linkage of technology with bodily, affective sensations points to the historical specificity of affect and technological, embodied subjectivity. (Further studies would have to clarify the relation between the 'flat' ontologies of speculative realism, actor-network-theory and similar philosophical projects and the historical constitution of hybrid subjectivity; in the end the experience of a "cybernetic continuum" can be seen, as Millington (2009) argues, as the result of a specific socio-technical constellation, where power structures, biopolitical strategies and mechanisms of the control society are leading the way. But this is another line of argument beyond the scope of this paper.)

A crucial aspect of the interface which has to be taken into account here with regard to the temporality of the gaming experience is rhythm and musical form. A reading of music video games like DANCE DANCE REVOLUTION as exercises of a pure paradigm of control, as suggested by Garites critique of the 'ideology of interactivity', is going to miss the ambivalence and ambiguity of the aesthetic function and logic of the interface.

If we play DDR, it is not sufficient just to wait for the arrow as a visible command that indicates the next correct move. Instead, we need to listen to the music, open up to feel the rhythm and look out for possible resonances with it. To the degree that we have to 'obey' the arrows on the screen, we should also follow the music and its rhythm. There is something like a rhythmic conjunction of the separate elements of the game apparatus or dispositive, including the body of the player.

In this respect REZ and machine dance games exceed the action-image (as a regulated sensorimotor scheme of action and reaction) and approach a rhythm of "pure perception" (Bergson). They constitute a simultaneous play of action and reaction, a joint motion of image, sound and body: the temporality of the image follows movement on a fundamental level, that is, movement and image assert themselves in the feedback-situation and tend to merge in a liminal space of perception. The body is perceived as a movement, which – in real-time – is directly constituted as an image, as a perception of the movement-image. The body is at this level 'image', insofar as it is actualized as a quality of movement. Based on Bergson's temporal ontology, one could speculate about the equivalence of this situation with the concept of 'pure perception'. At the same time, the resulting pleasure of the music video game feedback situation could be described as an almost childish pleasure or 'jouissance': "It moves. I move it. It moves me. I/It move(s)!"

What can be observed about machine dance games, from this point of view, is a pleasurable synchronization with the machine, a simultaneity, a common oscillation in the connection of the player's own body movements with the game. It is not a simple succession of command and obedience, but rather a sensorimotor coupling of machinic perceptions and actions with the player's perceptions and actions – brought together at the temporal level in the form of a somehow 'shared' rhythm.

Dance machine games like DDR, where controller-action, screen-movements within the frame and player-movement are synchronized in such a 'shared rhythm', offer a subject position that is clearly distinct from those offered by first-person-shooters or strategy-games. There is a position of power, control and mastery constituted by the synthesis of views, space and movements that is part of the basic definition of what shooter games and strategy games as genres are about. In comparison with this, music video games include different subject positions and other options of pleasure. Shooter and strategy games tend to offer an interface that is based on governing and mastery. They offer a strong position of active control, an imaginary ego or "I", similar to the traditional concept of a powerful Cartesian subject. In contrast to this, music and dancing games tend to offer a subject position that is defined by the responsiveness and openness of the body. At the same time they also emphasisize what can be seen as a general quality of video games, since they began to evolve as a cultural phenomenon: to be a testing ground for new and unexpected interconnections of human and machine in sensual and libidinous play.

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- "Benutzerführung und Technik-Enkulturation. Leitmediale Funktionen von Computerspielen" (with Britta Neitzel and Rolf F. Nohr), in: *Leitmedien. Konzepte – Relevanz – Geschichte*, ed. by P. Gendolla, D. Müller and A. Ligensa, Bielefeld: Transcript 2009, 231-256.
- "Ein ideales Modell der Vernunft? Überlegungen zur Regelhaftigkeit und strategischen Rationalität des Schachspiels", in: *Strategie Spielen. Medialität, Geschichte und Politik des Strategiespiels*, ed. by S.W. (with Rolf F. Nohr), Münster: LIT 2008, 136-161.
- "Strategie in Echtzeit. Ergodik zwischen Kriegsspiel und Wirtschaftssimulation", in: *Strategie Spielen*, 213-248.

Gordon Calleja

Response

The paper makes an indispensable contribution to our understanding of the relationship between man and machine during game-play. An interesting consideration provided by the paper is a nuancing of the notion of the cybernetic feedback loop (Hayles 1999) or cybernetic circuit (Dovey/Kennedy 2006) from a cyclical, single-channel process to a characterization of the game – player connection as a bi-directional and simultaneous process.

It would be interesting to see a more thorough application of this foundational concept to further examples of games. The paper claims a distinction between dance games and first person shooters (FPS) and strategy games that needs more fleshing out to be convincing. First of all, if we consider modes of control and subject position it is crucial to not lump FPSs and strategy games together. The difference between strategy games and dance games is largely evident. Strategy games, especially if we are talking about turn-based strategy games, do not couple the player with a single in-game entity. The player in strategy games tends to occupy an abstracted position not rooted within a single location in the game-world; issuing orders to multiple entities which respond with a latitude of interpretation that FPSs and music games cannot afford. The image on the screen in this case is not absorbed into the body as a site of immediate expression of movement, but an abstracted nudging of entities to and fro.

The sharp distinction between FPSs and dance games that the paper makes with regards to action and interface might not be as straightforward as presented. If music games like DANCE DANCE REVOLUTION (since 1998) instruct the player to move in a particular way through direct commands, FPSs instruct the player indirectly through the ludic structures (socially agreed upon rules, environmen-

tal affordances, systemically implemented rules and goals, etc.) of the game. There is a difference in the communication of these instructions, but the difference may more be attributable to the kind of ludic structures typical of these two genres and the manner in which these ludic structures are communicated. In DANCE DANCE REVOLUTION (DDR), there is a far tighter coupling of rule and action than in an FPS game. Placing a foot on the right arrow at the right time yields points while missing it does not. In an FPS game, even the more tightly constrained and rule-bound kind such as COUNTER-STRIKE: SOURCE (2004), input by the player does not have such immediate guidance and quantification, particularly to the un-initiated. But these seemingly trivial actions have far more meaning to the experienced player who is adapt at maximizing an opponent's mistakes. A simple pressing of the R button starts a reload action that takes a few seconds to complete. If this is performed when an enemy is nearby (even if they are not visible), it gives a clear signal both of the reloader's location and vulnerability. To the inexperienced, the sound might mean nothing.

There are two points I am trying to convey with this in relation to the present paper. First, we need to acknowledge that a consideration of the action-image within games is always informed by the ludic structures that are written into the environment or upheld by the social group that inhabits it. A player's interpretation of visual representation integrates the knowledge and affordances of the ludic structures of the game that might not be obviously visible or accessible to the casual onlooker. These ludic structures shape our actions in ways which the visible image on the screen by itself does not always impart. The edge representing a corner into an area where I expect enemies in COUNTER STRIKE: SOURCE prompts me to jump just before I reach it since this drastically reduces the chance of getting shot in the head, which in this particular game could be fatal. In other games were head-shots are not registered, or not as fatal, a ledge

leading to a corner has different meanings which shape the (experienced) player's actions. For the knowledgeable player, the ledge is as clear a sign for action as the arrow of DDR.

Just to clarify, I am not here agreeing with Garite's (2003) perspective of game control. Wiemer is absolutely right in being critical of such a restricted view of game interaction. Garite ignores the vast potential for expression and interaction that games allow. In fact, I would even go so far as to say that Wiemer could well bolster his critique of Garite by considering how the different ludic structures of games restrict or liberate movement. Garite clearly misses the diversity of games out there and the idea that a good portion of such games afford expression far beyond what their designers intended.

The second point follows from the first in appealing for a stricter application of the action image to actual game examples. There is a conceptual problem with the equivalent treatment of a *machinima* like Voldo's Dance and REZ or DDR. The last two are instances of game-play. The first is an instance of a recorded *performance* using a game. The disposition of the players in the last two takes into account the ludic structures of the game and interacts with it as such. In the case of the *machinima*, players are not playing the game at all but acting within the environment to the beat of an external track which is overlaid upon the performance in editing the *machinima*. We need to distinguish between game-playing and using game technologies for other ends. The analysis of Voldo's Dance is either an analysis of an audio-visual, non-ergodic text *or* the analysis of a performance intended for an audience. This is particularly problematic in a paper which focuses on the experiential nature of game-playing and, once again, stems from a lack of acknowledgement of the stance that players are adopting towards the ludic structures.

Whilst close analysis of the image are essential to such a distinctly visual medium, we need to remember that the game-image conveys a further layer, or set of layers, of information that traditional, non-

ergodic images did not include. These ludic layers form an important part of the game-playing experience and shape the interpretation and internalization of both image and action.

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DANCE DANCE REVOLUTION (since 1998), Konami, Arcade.
COUNTER-STRIKE: SOURCE (2004), Valve, PC.

Jochen Venus

Simulation of Self-Action

On the Morphology of Remote-Controlled Role Playing

Computer games may be defined as artifacts that connect the input devices of a computer (such as keyboard, mouse or controller) with its output devices (in most cases a screen and speakers) in such a way that on the screen a challenge is displayed. On the screen we see pictorial elements that have to be manipulated to master a game, that is to win a competition, to solve a riddle or to adopt a skill. Therefore the characteristics of the representational function of computer games have to be contrasted phenomenologically with conventional games on the one hand and cinematic depictions on the other. It shows that computer games separate the player from the playing field, and translate bodily felt concrete actions into situational abstract cinematic depictions. These features add up to the situational abstract presentation of self-action experience. In this framework computer games reveal a potential as a new means of shared cognition that might unfold in the 21st century and change the being-in-the-world in a similar way as cinematic depiction did in the 20th century.

On a first glimpse, it seems quite obvious how to answer questions concerning the logic and structure of video games. Video games are technically well-defined artifacts. They are programs that check and control the input and output devices of a computer (devices such as keyboard, mouse, gamepad, screens, and speakers). Video games connect these devices in such a way that on the screen a challenge is displayed, which can be met by time-, event- and/or configuration-critical inputs (Pias 2002). Pictorial elements have to be manipulated in a time-, event- and/or configuration-critical way to master a game,

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 196-211.
http://pub.ub.uni-potsdam.de/volltexte/2010/4277/ [urn:nbn:de:kobv:517-opus-42770]

i.e., to win a competition, to solve a riddle or to adopt a skill. Thus it should be fairly easy to describe the logic and structure of video games; they observe the functionality of the algorithms that put the devices into relation with each other constituting a virtual playing field and the respective codes of practice.

Video Games as Artifacts and/or Experiences

Such as the above mentioned notions of hardware, software, and codes of practice are only useful to describe the technical scope of video games. They do not contribute to an understanding of the gaming experience. And the gaming experience is crucial when we want to come to terms with the logic and structure of video games, because unlike other technical artifacts that fulfill purposes beyond their application, video games have no other rationale than just the experience of their application, the aesthetics of the gameplay. *Video games are technical artifacts that attain their aims in the experience of their use.* In other words: Video games are aesthetically motivated and have to be understood in this perspective. They are produced only for the sake of the experience of their execution, and if we want to understand the logic and structure of video games, we should concentrate not on the technical *scope* but on the technical *purpose* of video games, and that is the gaming experience. Devices, programs, and rules are only necessary but not sufficient conditions for the actuality of the gaming experience. A video game has to be played in order to produce that experience. And in the course of playing not the devices are the focus of attention but the consistency of the aesthetical agency, the pictorial elements, diagrams, moving images, sounds, written and/or spoken texts, and last but not least the bodily felt performance of input activities like button mashing, the fine control of analog sticks, or the physical gesturing with motion-sensing controllers. The rationale of video games – the gaming experience – cannot be reduced to the logic and structure of devices, programs, and rules.

Yet, the gaming experience is not easy to observe because it is not a physical fact that can be gauged with measuring instruments. The gaming experience is a *gestalt* in the medium of situational self-awareness, and that means that it is subject to an infinite variety of singular situational circumstances, which cannot be reduced to a common denominator. The gaming experience is elusive, ambiguous and never the same. It changes drastically the more the player gets used to the gaming mechanics and adopts the requisite skills to master the game. Most video games provide different difficulty levels. These different difficulty levels and the use or non-use of cheats make up relatively different gaming experiences. Moreover, the gaming experience varies along with the different types of expertise. Casual gamers have different expectations and skills than heavy gamers. Thus, to talk of a general gaming experience in respect to a particular video game is nothing but a hypothetical construct. However, it is an inevitable one, because if we would not have any general expectations as to what the purpose of the given technical artifact is – namely, a certain kind of gaming experience – we would not have any situational framing and motive to use it. The general gaming experience (however vague and open to specification) is the *validity claim* of the artifact known as video game. It is a necessary idealization, one that should be treated as such.

The general gaming experience is a regulatory idea that shapes the design of video games as well as the expectations of gamers. It emerges historically on the basis of singular game experiences, technological innovations, empirical observations of consumer adoption behavior, and the public discourses in which game experiences are communicated (the discourse of advertising, the discourse of video game critique, the media violence debate, the discourse of Game Studies, and others).

Thus it would stand to reason not to consider the logic and structure of video games but the logic and structure of their discursive framing. And I do believe that this indeed is a fruitful option clarify-

ing the discursive repertoires from which certain descriptors of video game experiences are drawn. It would show how the public discourses of the digital, the cinematic, and the strategic, the public discourses of addiction, violence, leisure time, education, adolescence, and so forth shape our notion of the general gaming experience.

On the other hand, a discourse analysis does not exhaust the conditions of the possibilities of the general gaming experience because it points only to the momentum of its contingency and social constructedness. Beyond this contingency and constructedness, it has to have some sort of fitting with the individually perceived gameplay. The aesthetic experiences are not just epiphenomena of the public discourses. On the contrary, they are constraints to the discursive drift. If our perceptions of our gameplay were only epiphenomena of the video game discourse, if we would only perceive the very properties of gameplay as they are addressed by the public notions of the gaming experience, then we could never experience anything that exceeds our expectations. Video games only could either fall short of our expectations or just barely meet them. And this is obviously not the case. Some video games set new standards of what a video game experience is all about and exceed all of our learned expectations. We may even perceive ourselves as not yet ready to appreciate the general gaming experience that a particular video game offers to us. Moreover, most gamers are convinced that public notions of general gaming experiences are inappropriate; hence, the motive to deconstruct these notions as contingent and socially constructed. So the general gaming experience in terms of the validity claim of a particular video game, hypothetical as it is, has to be more than just a discursive effect.

As a regulatory idea, the general gaming experience emerges on a historically changing background of particular notions that are open to debate and deconstruction, yet at the same time it transcends the realm of mere discursivity. At the risk of arguing slightly paradoxically, the general gaming experience could be described as a

noumenal gameplay that cannot be actualized entirely in a singular gaming session.

The general gaming experience is the gaming experience as it is in itself independent from the individual gameplay. Like the Kantian 'thing in itself', the general gaming experience conceptualizes a negativity that we encounter by the impossibility to realize the general gaming experience as a whole. Although we perceive a kind of completeness in each gaming session, we still know at the same time that this is only a particular aspect of the general gaming experience, an aspect that is conditioned by our particular skills, needs and gaming knowledge in the very moment of playing.

If this is true, the aesthetics of the general gaming experience can only be a general assumption, maybe a tentative guess, but not a positive definite statement because we can only encounter aspects of this general experience but not the experience as a whole. An inquiry into the logic and structure of video games would then be an experiment with different perspectives rather than a methodologically secured routine. It would not result in the assertion of a structured whole and a logically closed functionality but in the disclosure of formerly undisclosed experiential perspectives.

Perspectives by Incongruity

A paradigm of this kind of perspectivist inquiry into the logic and structure of video games may be derived from the perspectivism of the American literary theorist and philosopher Kenneth Burke (1945:503-504), who explicates the logic of perspectivism by the logic of metaphor:

> Metaphor is a device for seeing something *in terms* of something else. It brings out the thisness of a that or the thatness of a this. If we employ the word "character" as a general term for whatever can be thought of as distinct (any thing, pattern, situation, structure, nature, person, object, act, rôle, process, event, etc.) then we

> could say that metaphor tells us something about one character as considered from the point of view of another character. And to consider A from the point of view of B is, of course, to use B as a *perspective* upon A.
>
> It is customary to think that objective reality is dissolved by such relativity of terms as we get through the shifting of perspectives (the perception of one character in terms of many diverse characters). But on the contrary, it is by the approach through a variety of perspectives that we establish a character's reality. If we are in doubt as to what an object is, for instance, we deliberately try to consider it in as many different terms as its nature permits: lifting, smelling, tasting, tapping, holding in different lights, subjecting to different pressures, dividing, matching, contrasting, etc. […].
>
> By deliberate coaching and criticism of the perspective process, characters can be considered tentatively, in terms of other characters, for experimental or heuristic purposes. Examples may be offered at random: for instance, human motivation may, with varying degrees of relevance and reward, be considered in terms of conditioned reflexes, or chemicals, or the class struggles, or the love of god, or neurosis, or pilgrimage, or power, or movements of the planets, or geography, or sun spots, etc. [I deal] with such perspectives as an 'incongruity', because the seeing of something in terms of something else involves the 'carrying-over' of a term from one realm into another, a process that necessarily involves varying degrees of incongruity in that the two realms are never identical.

Along these lines of thought, an inquiry into the logic and structure of video games would begin with the question of choosing which incongruent perspective to apply in the process of perceiving the general gaming experience in terms of something else. Two of the most prominent incongruent perspectives in the Game Studies discourse would certainly be the perspectives of gameness and narrativity. Considered in the light of Burkean philosophy, the debate

on whether video games are essentially games or narrations would instantly appear as pointless. We would have to acknowledge that video games are neither conventional games nor well-established narratives but that they reveal their gameness and their narrativity respectively when perceived under these perspectives, and it would be clear that this is not a mistake, that there is no such thing as the video game perceived in itself, that the general video game experience is just a regulatory idea that constitutes the intersection of incongruent perspectives by which the complexity of their aspects can be perceived.

The challenge of game studies then would be to put an existing perspective into perspective, not to argue against any particular perspective but to enrich the notion of the general gaming experience by the application of a series of incongruent perspectives.

Immersion and Remote Control

So far, to a large extent the public discourse on video games has revolved around the notion of *immersion*. For the time being, it seems to be the single most significant perspective on video games. And, indeed, if we compare video games with other representative arts and ask for their single most significant feature, the unique feature that marks the essential innovation of video games, most people point out the immersive character of video games. And so it is justifiably appropriate that in the games studies discourse the topic of immersion may well be the most often described and theorized perspective on video games.

The almost classical reference, of course, is *Hamlet on the Holodeck* by Janet Murray (1997:98-99):

> The experience of being transported to an elaborately simulated place is pleasurable in itself, regardless of the fantasy content. We refer to this experience as immersion. *Immersion* is a metaphorical term derived from the physical experience of being submerged in

> water. We seek the same feeling from a psychologically immersive experience that we do from a plunge in the ocean or swimming pool: the sensation of being surrounded by a completely other reality, as different as water is from air, that takes over all of our attention, our whole perceptual apparatus. […] [I]n a participatory medium, immersion implies learning to swim, to do the things that the new environment makes possible […] the enjoyment of immersion as a participatory activity.

Now this perspective, regardless of the conceptual critique it has attracted, is remarkably illuminative. No one would deny that video games enable experiences in which our remote-controlled acting with pictorial elements captures our attention in such an intense way that our whole notion of being-in-the-world is absorbed by the perceivable features of the virtual playing field. The absorption of our attention is so complete that we forget about the abstractness of the pictorial elements we are manipulating. The 'here and now' of our situation facing the screen with our hands on the input devices and the situational abstract 'there and then' of the pictorial elements we are manipulating becomes an integral fictitious 'here and now', just like in sports activities or board games. And this is a fruitful perspective in so far as it highlights the difference of being immersed and standing, so to speak, outside the pool. The metaphor of immersion points to a main structure of the video game experience; namely, the dunking into it on the one hand, and the bobbing up out of it on the other. We then can compare the conditions of immersion (and emersion) in different media; we can compare the seductive surfaces that invite us to dive into the medium and we can compare the moments of aversion to jump right in. We would notice that the threshold of immersion corresponds with its intensity, and that video games have to deal with a much more complex *rite de passage* than most other media. We would have to acknowledge the importance of the seamless series of cinematic headings, tutorials, and actual gameplay to

overcome the aversion of immersion. So the perspective of immersion is quite illuminating in terms of the structure and logic of the general gaming experience.

On the other hand, along the line of a perspectivist approach – the notion of the general gaming experience that is provided by the perspective of immersion – may be enriched by an incisive incongruent perspective on the same subject. And if we consider the logical properties of immersion, we can deduce the logical properties of an incongruent perspective fairly easily. The perspective of immersion highlights the *loss* of frame-awareness. A counter-perspective then would point to an *increase* of frame-awareness, an increase of artificiality, abstractness and reflexivity. If video games can provide the sensation of being surrounded by a completely other reality, could they as well, on the other hand, provide the sensation of being deprived of any reality, the sensation of being purely artificial? The sensation of remoteness to ourselves?

To my mind, the perspective of immersion points *ex negativo* to the incongruent perspective of remote control. In simulated action games, we experience ourselves not only immersed in the playing field but by the same token we are deprived of ourselves. We are deprived of our alter ego, the avatar (Klevjer 2007, Sorg 2010). And this deprivation operates by the logic of remote control. If we concentrate on the aspect of remote control, we discover primarily the following: In contrast to conventional games, video games separate the player from the playing field, and they translate bodily felt concrete actions (the button mashing, the fine control of analog sticks, the gesturing) into situational abstract cinematic depictions of totally different actions. This adds up to an alienated and situational abstract presentation of self-action experience. Our remote-controlled roleplaying lets us sense action; we experience self-action, but in an odd, somewhat stylized way.

Along with Lambert Wiesing (2005) (who has emphasized the experiential remoteness of media content), one could argue that, just like pictorial media establish a situational abstract view and allow the

direct communication of *pure visibility*, computer games establish an 'artificial sameness' of general self-action experiences and allow the direct communication of *pure self-action*. If we play a first-person shooter, for example, we get immersed in the virtual reality of pictorial objects that behave in a certain way, but we do not get immersed in the action of shooting. On the contrary, we encounter the action of shooting in an alienated, stylized way allowing for the artificial presence and communication of a certain shooting experience.

By comprehending the incongruity of immersion and remote control, we gain a richer perspective on the general gaming experience, in so far as we can describe both the fascination of diving into a different reality and the artificiality of the gamic depiction of self-action experiences.

Media Analysis as Profiling

The discursive enrichment of media perspectives is a process that can be traced back in media history. Whenever incisively new media technologies emerge, we get confronted with new structures and practices to differentiate between our 'here and now' and a general, artificially specified "there and then" that is situationally abstract. And these new structures always have to be socially adopted. Lacking the adequate conceptual schemes in the first place, the public discourse cannot differentiate between the portrayal of a practice and the practice portrayed. Particularly with regard to the portrayal of objectionable behavior, this must lead to hysterical reactions. Like the reading revolution in the late 18th and the film debate in the early 20th century, the video game controversy of the last decades indicates conceptual difficulties in grasping the nature of new media forms. By the coaching and criticism of an open series of perspectives, the aesthetics of the new media form becomes more and more distinct. There seems to be a new and unique type of iconic resonance, a mutual shaping of the empirical performance of the player and the virtual acting that is exposed on computer displays. The general gaming experience thus

amounts to an artificial portrayal of the phenomenology of practices, an artificial presence of self-action. In respect to video games, we are but at the beginning of the historical process of socially adopting its aesthetics of mediatization. *Immersion* and *remote control* are only two of the possible perspectives to come to terms with the general video game experience that have to be coached and criticized by co- and counter-perspectives.

As Kenneth Burke (1945:504) puts it, real facts "possess *degrees of being* in proportion to the variety of perspectives from which they can with justice be perceived". Thus, the general task of games studies may well be defined as a broadening and enrichment of the perspectives on video games so that they, too – like the above-mentioned suggestion – can become real facts as reflected and configurable realities.

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Biography

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Rune Klevjer

Response

Jochen Venus' paper is a piece of two parts: first a methodological statement, which I would imagine could also work as a separate contribution, and then the main part, which deals with the question of immersion and action.

The methodological argument is in itself an interesting contribution to the field, however brief and tentative in the present version. The key idea, "the general gaming experience as a regulatory idea", addresses a central question of computer game theory: what is the object of study in game analysis, and what is the methodological status of the knowledge that is being produced? Venus' answer, in my understanding, is that our object of study, unless we simply want to describe the game software as an object in technical terms, must be a hypothetical construct, a regulatory idea, an idea of a *general gaming experience*, which we hold up as the aesthetic purpose of the technical artifact. The general gaming experience, Venus argues, is the core validity claim of a computer game; without it we would not be relating to a game as an aesthetic artifact, approaching it with a certain set of assumptions and expectations. Still – and this seems to be the key point for Venus – this gaming experience must be understood as a heuristic tool, a pure negative. *The* gaming experience, seen apart from any actual and particular gaming experience, cannot be captured in positive terms, all we can do is experiment with different experiential perspectives, different *metaphors*; "The assertion of a structured whole" will forever be beyond our grasp.

The concept of the general gaming experience is a promising idea, attempting to wrestle out a domain of 'logic and structure' while acknowledging the slippery nature of the computer game as an ideal artifact. One could imagine a number of different objections to this

approach, much depending on one's own position within the general methodological problematic of hermeneutic self-reflexivity. My own view would be that Venus' position is too weak. Even if we expand from merely technical description into the domain of the experiential and the aesthetic, I do not see why we should not go for an 'assertion of a structured whole', which would be governed by the imperative to reach beyond what is "conditioned by our partial skills, needs, and gaming knowledge in the very moment of playing" – in other words, which would go beyond associative or metaphorical thought, beyond literature.

In other words, I would argue that the game as an independent object (independent of our experience of playing it) is part of the defining validity claim of a computer game, and part of the central promise to the player. A commitment to the aesthetic object as a structured whole draws attention to the tensions, ambiguities and unresolved conflicts between different dimensions of the gameplay experience. It also implies that a given perspective may be judged as entirely misapplied or irrelevant. In contrast, a 'perspectivist' inquiry, it seems to me, would invite ever new perspectives to add to existing ones, none of them irrelevant or ill-fitting but some less productive than others.

On the other hand, the notion of 'perspectivist inquiry' as suggested by Venus could be quite flexible, so that for the purpose of theoretical analysis and debate, the difference between a negative and a positive formulation of (general) gaming experience may not necessarily be of great consequence. Venus' assertion that *immersion* is "the single most significant perspective on video games" would certainly indicate that 'perspectivist' should not be taken as 'anything goes'.

In any case, the way in which Venus links the concept of immersion to *self-action* and *remote control* seems to be a promising approach, and I would agree with its basic premise: the experience of

being immersed, understood as analogous to being immersed in water, is a key element in computer game play, and – I would also add – a key differentiating factor in terms of genre. The central questions in addressing the dimension of immersion, as Venus also implies, have to do with agency and player position: Who acts? Where am I? The notion of remote control points to the experiential duality of being immersed while still acting from the outside, in a strange way, as if – in Venus's words – 'being remote to ourselves', in a "certain shooting experience".

What I would want to question, in spite of the brief format of Venus's argument, is, firstly, the seemingly general nature of his concept of immersion. When he advocates that we should 'compare conditions of immersion in different media', the implication seems to be that different media simply show variations over the same basic principle, the same basic experience that we call 'immersion'. This leaves the question open as to whether, or to what extent, immersion in games is of a different kind because it is linked to agency, and as to whether immersion could mean something rather particular and unique in games that simulate perceptual and embodied presence through real-time 3D. It would also be interesting to know if the notion of remote control is meant as a unique computer game phenomenon or if it would also capture the kind of 'remote' mimetic play that we find in for example board games, in which players act from outside a miniature world while at the same time also act – in a certain 'alienated' sense – from within the world.

Secondly, I would suggest that the notion of *telepresence*, or teleimmersion, could capture a similar dynamic as immersion vs. remote control, but in a different (and possibly complimentary?) way, by conceptualizing the there-vs.-here or immersed-while-alienated as an unavoidable constant rather than as a field of experiential movement and fluctuation.

Finally, I find the comparison with a *cinematic* depiction as suggestive as it is unclear. While the notion of the 'situational abstract' seems relevant and productive (and would be, as far as I am aware, an original contribution to the field), the comparison to cinematic depiction seems to suggest quite a radical understanding of 'remote control' – pointing not only to an alienated or distanced 'morphology' of action but to the lack of action (or 'self-action') altogether, so that only disconnected moving images remain...?

Mark Butler

On Reality and Simulation in an Extra-Moral Sense

The Playful Logic of Life and Death in Liberty City

This paper is a critical examination of the relationship between reality and simulation. After a brief theoretical introduction, it unfolds its argument on an empirical level, using a thick game playing description of GRAND THEFT AUTO IV. This in-game experience serves as material for the subsequent analysis, in the course of which defining characteristics of computer game playing are formulated. Finally, on the basis of this analysis, the paper postulates the hypothesis that playing computer games like GTA IV promotes competency in deconstructing simulations and implements a cyclic logic of recreation.

In his text *On Truth and Lie in an Extra-Moral Sense* from 1873 Friedrich Nietzsche characterizes our relationship to the world as an illusion or, as one might also say, as a simulation, with reference to the etymological root of the term in the Latin word *simulare* and its medieval usage to signify an illusion, pretension, or imitation. Following Nietzsche's line of thought, we are always in an illusion (i.e., a simulation), because of the metaphorical leaps that occur between the spheres of sensation, perception and conception. He argues that words are produced by a twofold process of metaphorization, which doesn't follow a necessary causal relationship: "A neural stimulus is first transmitted into a picture! First metaphor. The picture is again contoured into a sound! Second metaphor" (Nietzsche 1988:879, all trans. by author). And the word is finally transformed into a term by its generalization. Such is the case, for example, when the word 'game' is used to refer to the whole set of rule-based sys-

in: *Logic and Structure of the Computer Game*, ed. by Stephan Günzel, Michael Liebe, and Dieter Mersch, Potsdam: University Press 2010, 212-236.
http://pub.ub.uni-potsdam.de/volltexte/2010/4278/ [urn:nbn:de:kobv:517-opus-42787]

tems of play, as opposed to a specific artifact, thereby suppressing the concrete uniqueness of each single game. Our relationship to reality is never direct, but always two steps removed, mediated by images and structured by symbolic cultural conventions. This contingent formatting of reality is obscured by the fact that in western thought we tend to forget the genesis of the symbolic terms we use to reflect on reality in real sensations as well as imaginary perceptions, and to think of them as eternal truths.

Nietzsche sums up his position: "What is thus the truth? [...] [T]ruths are illusions, of which we have forgotten that they are illusory, metaphors that have been worn out and have become sensually powerless" (1988:880-881). He stresses that on the one hand, the truths (which are condensed in terms) have lost their power of sensory presence, while they offer, on the other hand, a mathematical precision that allows us to create wondrous conceptual architectures – and machines, as one can add with a view to our current simulation culture. The abstraction process that he describes, the increasing distance from the sensory relationship to the world in the course individual development as well as cultural history, comes to a head in Alan Turing's (1936) "universal machine" – a simulation engine made of symbols, a meta-game that can implement any conceivable recursive rule-structure.

In addition to being the epitome of the abstraction process that Nietzsche describes, this abstract machine also marks a qualitative turning point in our illusory relationship to the world and opens up an expansive unforeseen field of play. The affinity between computers and games was present from the beginning, but it only began to blossom in the 1960s, after the digital medium's immense potential for play was awoken by the first generation of computer hackers at MIT and their development of SPACEWAR (1962) (Levy 1994:50-69). Since this ludic reappropriation of mainframe computing, the use of the highly abstract and senseless binary code to generate multi-

sensory and highly meaningful worlds has grown exponentially, fully exploiting each new generation of processor- and memory chips. In the course of this development, the constitutive role of symbolic structures and their logic in the production of our illusory reality has been highlighted. The diffusion of digital simulation technology into everyday culture over the last four decades marks a qualitative shift in our relationship to symbolic systems and the world they mediate. Just as Nietzsche postulates that illusion is primary for our relationship to the world, one can view digital simulations as primary for the cultural reality of the 21st century. Simulation, in the current situation, "is not derivative and inferior but primary and constitutive" (Haraway 1997:134).

Life in a Simulated City

The central example that I have chosen for this paper is one of the most successful products of the cultural industry: GRAND THEFT AUTO IV from Rockstar Games. In the latest installment of this series, the developer team returns to its original *topos*, Liberty City, and creates a completely new version of it. While in previous episodes this virtual city was a generic *bricolage* of multiple American cities and their popular representation (Bogost/Klainbaum 2006), the Liberty City of GTA IV is modeled on New York at the beginning of the 21st Century. To achieve this, the developer team did extensive field research to map the diverse characteristics of the city – traffic and weather patterns, the demographic distribution and diverse habits of the inhabitants, police presence in the wake of 9-11, etc. The result is a *gesamtkunstwerk* – the most complex commercial simulation of a city that has ever been produced.

Liberty City is the first of the two protagonists of the game. It has its own *ethos*, which is condensed on the web site of the game in diverse slogans such as, "Welcome to Liberty City. Proving there is no such thing as society" – an ironic play on the "neoliberal govern-

mentality" that has successfully established itself in New York and around the globe since the beginning of the 1980s (Bröckling et al. 2000). The second protagonist of the game is Niko Bellić, into whose virtual skin the player slips. In the following I will present the process of *becoming Niko* and the "procedural rhetoric" of this "persuasive game" (Bogost 2007), using two thick descriptions of game play from my field diary to highlight its performativity and as material for the subsequent analysis.

The narrative frame of the game world is set up in the animated introduction. The role the game offers me is that of a Serbian immigrant, who is just arriving in Liberty City by ship. Niko/I has/have left behind his/my war-torn country, which is plagued by unemployment, and followed the e-mails of his/my cousin Roman to the so-called country of limitless possibilities that he continuously praises in our correspondences. This pipe dream begins to burst the moment Niko/I step off the ship and his/my drunken cousin greets him/me in a rundown taxi, acting like a complete fool. It's obviously better that Niko/I drives/drive, whereupon the interactive game play begins and the program teaches me the controls. (The left analogue stick is for steering the car, the right analogue trigger for accelerating, etc.) I quickly dive into the game, because the control scheme is familiar from prior episodes, and let myself drift through the virtual world in order to familiarize myself with it.

The main difference between GTA IV and its predecessors lies in the richness of detail with which all dimensions have been designed – the driving physics, the streetscape, the architectural facades, the luminous and acoustic atmospheres, the host of virtual commodities and marketing campaigns, the gestures, behavior and facial expressions of the characters, etc. The procedural animation of the figures is especially worth mentioning. The game engine uses

the Euphoria-middleware from Natural Motion, which generates movement and behavioral patterns in real-time. This dynamic animation approach results in the emergence of unforeseen situations that even surprise the game's designers, and precludes an exact repetition of scenes.

I enjoy the ride through the city and finally arrive at Roman's apartment, where the illusions he sold me via e-mail finally disintegrate. His so-called 'mansion' is a vermin-infested dump. After a scripted fight, which is shown as a cut-scene, he departs for work, leaving me alone in the hole he calls home.

Fig. 1: Roman's apartment

At least he has a TV. I turn it on, recline on the sofa and acquaint myself with the new world: "Welcome back to *I'm rich!* The show that puts avarice firmly on the national agenda as we zealously

and emphatically discuss things rich people have, you'll never afford, and anyone with good taste would never want. In this week's show we've got *très* rich people who inherited truckloads of money and spent it ostentatiously. We've got flashy criminals, who've bribed congressmen to be allowed to live as they want and get plump business contracts. And we'll get down and dirty with fab politicians, who've siphoned off 50 per cent of the gross domestic product of poor countries to buy speed boats, servants, snakeskin sofas, and incredible surround sound sanitariums!" The beginning of my life in Liberty City stands in stark contrast to the glamorous world presented to me on TV, where a grotesque representation of the American way of life is paraded before my eyes, as I sit in the dilapidated apartment with only $25 to my name.

At this point, I would like to cut to a later entry in my field diary:

I have been in the game for 22 hours 14 minutes and 47 seconds, which equals 27 days 19 hours and 30 minutes in the simulated world. Much has happened since I arrived. I saved my cousin from Albanian credit sharks, dealt with his debts to the Russian mafia, and earned over $85,000 through diverse odd jobs. According to the game's statistics I have killed 322 people in the course of these activities – 4 of them in close combat, 67 by driving over them (usually by accident, during a car chase) and 272 with the 6792 bullets that I have fired off. Since being in Liberty City I have been arrested twice and have died 16 times. But these small setbacks have not stopped me from achieving the highest level of enthusiasm, according to the feedback of the program. I want to know how my destiny will unfold and decide to step out of my penthouse. I throw a quick look in the mirror before I leave to examine my outfit and make sure that it fits my mood.

As I step out into the street, I decide to call Carmen, whom I met through an online-dating-service. She's in the mood for a date and tells me to pick her up in the next hour. A limousine drives by, and I think, "A perfect ride to impress her!", whereupon I rip the door open and pull the driver out. As I slide in behind the steering wheel and drive off, the radio plays a jingle: "From Africa to America – when your country begins to feel like it's been overthrown by a bunch of war-crazed lunatics, it's time to tune into the funk on IF99." On the Northwood Heights Bridge, as I'm snaking my way past traffic, my hood flies off after I graze another car one time too often. I decide to change my ride, fearing the disapproval of my date. I slam on the brakes, jump out, and sprint to a stylish sports car. Since it's locked, I smash in the window with my elbow and hotwire the vehicle. The radio starts up with the motor: "Weazel News: Today the president suspended *habeas corpus* and saved freedom!" I switch to the rock channel, because I can't stand the constant terror paranoia, and put myself back on course for my romantic rendezvous. Disappointingly, Carmen calls off our date because she is tired of waiting – she feels jilted and I sink in her favor.

Trying to ignore my feeling of frustration, I concentrate my attention on the sleek new sports car, which is the exact opposite of the oversized and sluggish limousine. The driving experience is fantastic: rapid acceleration, hair trigger brakes, and unbelievable maneuverability.

Fig. 2: On the bridge to Algonquin

I immerse myself completely in the new automobile feeling and sail across the bridge back to Algonquin, slipping though traffic effortlessly, as Iggy Pop's *I wanna be your dog* pipes out of the stereo, until this automobile idyll is rudely interrupted by the vibrating of my mobile phone. As I fiddle to suppress the incoming call, highly annoyed by the permanent social pressure of modern telecommunication, I accidentally graze a police car, whose driver immediately fires up his siren and alerts his colleagues. I slam on the gas, but he follows me in a high-velocity chase. In the heat of the moment, as other patrol cars approach from all sides, I decide to drop a hand grenade out of the window. This lets me lose my immediate pursuer, but I'm still not out of the danger zone…

The Phenomenal Logic of Computer Game Playing

One of the central attractions of playing a game like GTA IV lies in the possibility of slipping into a virtual identity, of taking part in a digital role playing game and entering the ludic sphere of *as if*. Play-

ers use the computer as a medium of inebriation and daydreaming. During play, the visual, sonic, and vibratory patterns of the game produce an "altered state of consciousness" (Ludwig 1972), and the players imaginatively step through the looking glass into the simulated reality. They shift their psychological presence into the fictive world, the phenomenon of immersion that also occurs while reading a novel or watching a movie. Of course, computer games are interactive, in contrast to novels or movies. The different identities that the player assumes don't result solely from the appearance and characterization of their game figure, but also, and for the most part, from the set of interactive possibilities that their digital persona offers. The simulated identity is programmed into the *virtual embodiment* that the player takes on (Beck 1997:248-252, Ihde 1990:72-80, Butler 2007:102-106), the spectrum of possible actions that the game offers, as in the case of my becoming Niko, where my role is defined by the ability to steal cars, go on dates, tune the radio, and toss grenades out the window, among other things.

The immersion in a computer game requires a learning process that must be repeated with every new program. Players must practice the possibilities of their virtual embodiment – this is the disciplinary dimension of digital play; they must internalize the structural logic of the program in order to participate in the game successfully (Pias 2002:110-117). This is the prerequisite that must be fulfilled before player and computer can be part of the same information circuit, exchange symbolic messages along multimodal feedback channels, and form a cybernetic unit. Only then is it possible to dance with the code. Players who have mastered the controls of a game expand their body scheme to encompass the digital incarnation and its symbolic logic so that they can control it telekinetically. In the most intensive phases of play, self-reflexivity is dissolved as thinking and doing meld with each other in a state of flow. This experience is accompanied by an affective coupling between players and their simulated selves. The interface – which encompasses the monitor, speakers, controller,

as well as the underlying calculations – disappears with its use. In the term of Martin Heidegger, it becomes *zuhanden* (ready-to-hand) and connects the sensitive body in front of the screen with the data body in the virtual world.

Computer game playing is not only telekinetic but also telepathic, in the sense that players are connected to their digital incarnations and feel from a distance. The affective logic of game playing encompasses a fundamental dimension of uncertainty and fear. This is the source of its "thrill" (Balint 1959) – the anxious pleasure that the player experiences as heightened vitality. All games live from their novelty and unpredictability, which mobilize the player's dopaminergic system, their brain's pleasure, reward, motivation, meaning and learning circuits (Arias-Carrión/Pöppel 2007, Blakeslee 2002). In the most intense phases of play, an existential threat in the virtual world can evoke further physical reactions. The simulated thrill can increase the player's pulse and release adrenaline, for example, evoking a 'fight or flight' reaction. Next to the different nuances of anxiety, from nervous anticipation through claustrophobia to panic, current computer games stimulate a wide array of further emotional spaces. Virtual reality – defined as sensory experience of and interaction with data structures (Krämer 1998:32-33) – is a downright laboratory of the sensible and imaginable. A tentative list of game playing's affective spectrum encompasses: joviality, curiosity, covetousness, aggression, zealousness, stress, melancholy, courage, care, and calmness, as well as the joy of perception, experimentation, and creation.

The process of computer game playing can be analytically divided into three dimensions, using a formula that I have derived from the methodological distinction between the "real", the "symbolic", and the "imaginary" that Jacques Lacan makes in his cybernetic psychoanalysis (Lacan 1997: 7-15, 63). In the *real rush* of digital play *symbolic messages* are exchanged between program and player that produce an *imaginary illusion* (Butler 2007:170-177).

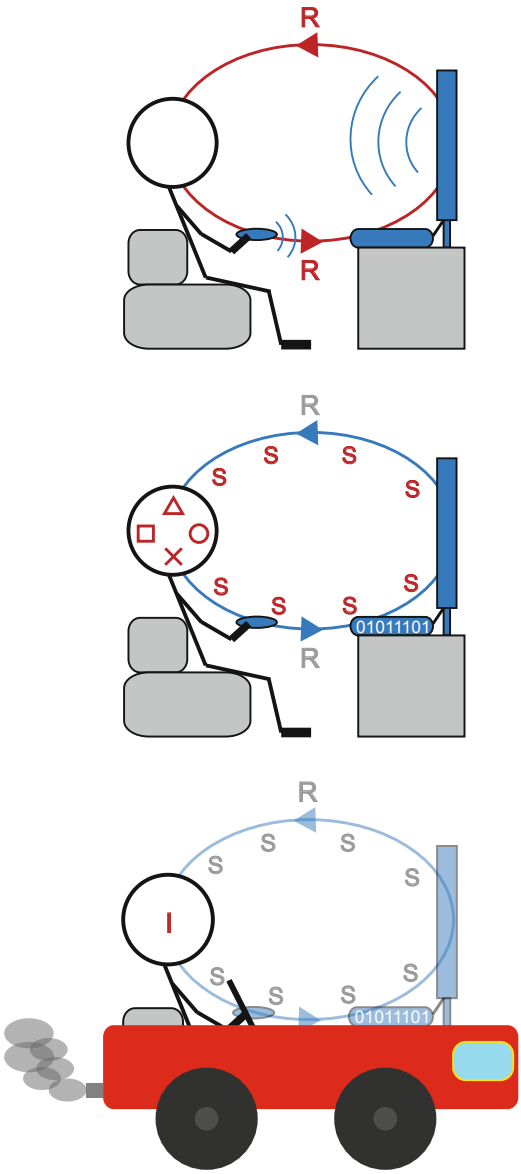

Fig. 3: The real, symbolic, and imaginary dimensions of computer game playing

The term real refers to the temporal dimension, the stimulating progression of the digital simulation. The symbolic is the register of the signifier, the structural logic of the binary code that defines the ontology of the virtual world and must be internalized by the player to play successfully. And the imaginary is the dimension of the signified – it encompasses the player's phenomenal experience of the program's performance at the perceptible contact surface of the interface.

Computer game playing is, like every form of play, a schismatic experience that oscillates between the poles of inebriated flow and reflexive awareness, between self-loss and self-reference (Adamowsky 2000:51). The player dives into the virtual-imaginary illusion and is embodied on the other side of the screen, which leads to affective participation. The complementary experience is the moment when the symbolic underpinnings of the simulation are blatantly obvious. This occurs, for example, when a player hasn't mastered the controls, tries to do something that hasn't been programmed, or is killed in the virtual world. During the course of play, the particularity of the game repeatedly calls attention to the fact that a given simulation is always a selective world model. Even with GTA IV's high degree of freedom, which has set a new benchmark in this regard, there are numerous activities that have not been programmed into the game and therefore do not exist. It is not possible, for example, to have a sex change or to organize a protest against police brutality – at least not until someone modifies the code. The symbolic structures that generate and delimit the simulated possibility space as well as the logic of their interrelatedness are more than apparent for the player.

In the process of play, the player's experience of the game oscillates between the two poles of intensive inebriation and reflexive awareness. The simulation is perceived alternately as an "imaginary illusion" and as a "symbolic fiction", to use a distinction made by Slavoj Žižek (1997:127-141). With these two terms it is possible to analyze a fundamental characteristic of computer game playing, al-

though this paper prefers to call the latter a 'symbolic construct' for reasons of clarity. My field report of GTA IV is double-voiced, because it encompasses these two different relational modalities. The passages that bear witness to my deep immersion and intense involvement in the game encompass a trace of the simulation as immersive illusion, in which I act as if the virtual world were reality, while those that attest to my distanced reflection on the game refer to the simulation as a contingent digital construct that could have been designed in a myriad of other ways. This difference corresponds to a distinction between experienced players and novices that I have found when questioning them about their game playing biographies (Butler 2007). The more experience a player has, the more they speak about the symbolic structure and logic of a game. While neophytes fervently report on the imaginary illusion, experienced players tend to speak more about a game's symbolic architecture and mechanics – for example, the fact that standing Carmen up lowers the parametric value of Niko's relationship to her, which dictates whether he can use her services as a nurse. This finding points to a fundamental learning process of computer game playing: the more someone plays, the better they become at deconstructing digital simulations.

The Recreative Logic of the Digital Doppelgänger

The question posed by media effects studies concerning the impact of computer game playing on the player isn't wrong, even though the answers given often are. This is especially true with regards to the postulated power of games to produce violence, which is condensed in the discursive figure of the 'killer game'. This position fears that players will mistake everyday reality with the imaginary illusion of a game like GTA IV. The approach of this discourse is correct in the assumption that virtuality – defined as the modal logical space of the possible, but not necessary (Deuber-Mankowsky 2001:46-47) – is not an illusion without consequence. But, as this paper argues, the experience of playing a game like GTA IV is markedly different from

the increase in aggression that media effects studies often postulate. Whereas milestone empirical studies only show a minute correlation between such games and aggressive ideation or behavior (Kutner/Olson 2008), there is a much more common effect: players learn how a game is put together while playing it. Dedicated players deconstruct the program until every algorithmic interrelationship has been uncovered. Through this process, they not only gain competency in seeing the symbolic underpinnings of the digital simulation but also become able to clearly delineate the virtual world from their everyday life. Furthermore, this deconstructive digital experience can also affect the relationship to the non-virtual world, the imaginary reality that is also formatted by symbolic constructs, as Nietzsche and others have pointed out. This potential efficacy of digital simulations on non-virtual reality is paradigmatically shown in the experience of playing GTA IV, where the entire game world is a biting satire of New York City and contemporary American culture.

The game unfolds its critique through ubiquitous gestures of parody that expose cultural fault lines through imitations with an ironic undertone. It doubles the non-virtual world in a grotesque reflection and foregrounds its illusory nature. This mimetic principle of the deconstructive double condenses itself exemplarily in the virtual "mediascape" (Appadurai 1996:104) of Liberty City, as in the episode of *I'm rich!* or the different radio jingles that were presented in my field report. The parody that these virtual media convey is aimed at their non-virtual counterparts. But the denuding mockery doesn't stop there. These channels are also used to address myriad topics of the non-virtual world ranging from computer games and their critics, through growing social inequality and the dysfunctional privatized health care system, to the dangerously deregulated financial industry. GTA IV spares nothing and no one from its acidic humor – it even ridicules its own ironic stance in this jingle for Radio Broker: "OD on irony. OD on insecurity. Do you think we actually care about you? We're wrapped up in our own little microculture."

The satirical simulation directs the player's attention to the object of its ridicule, contemporary capitalist culture, and brings it into focus. While the parody and the laughter it produces are generated in the virtual world, their targets are on this side of the screen. The game simulates an *ethos* in dire need of renewal. GTA IV is a digital implementation of "carnivalesque" strategies that David Annandale (2006:89-102) found in the precursor game, GRAND THEFT AUTO: SAN ANDREAS (2004), building on Mikhail Bakhtin's analysis of the medieval carnival and its transposition to literature. These strategies throw a critical light on existing power relations and cultural conventions, calling them into question with universal laughter – in the case of GTA IV the symbolic structure of everyday life and the social Darwinist struggle within the logic of the neoliberal dispositive. The carnivalesque laughter opens up a festive space of freedom, in which fears can be overcome (the despair of poverty, the disciplinary threat of authority, or the horror of death) and an "unofficial truth" can be experienced (Bakhtin 1984:90) – a foolish truth, a popular truth. This other truth embodies a playful relationship to self and world, in which power is dethroned and inner as well as outer censure is suspended.

Like the carnival, GTA IV speaks in "concrete sensual" symbolic forms, as Bakhtin puts it (ibid.:57), or, in Nietzsche's words, in the language of myth (1988:887). As Niko, the player takes on the role of the carnival king and experiences the alternation between the regal fool's rise to power and his inevitable fall. The fundamental game playing dynamic oscillates between phases of empowerment and disempowerment, which structurally correspond with the aggrandizement and debasement of the festive figurehead. The vital feeling of freedom that the player experiences while performing transgressive acts during intense phases of game play has its counterpoint in the moment of simulated death. Then all colors disappear from the screen and the player must watch Niko's demise in slow motion.

Fig. 4: Niko's simulated death, after holding on to a grenade for too long

These scenes mock the player, who inevitably emerges from the imaginary illusion and has the option to defy virtual death, reload the symbolic construct, and initiate a further iteration of the simulation. The quintessence of the carnivalesque truth – "the pathos of shifts and changes, of death and renewal" (Bakhtin 2003:124) – condenses in this cyclic rise and fall of the foolish sovereign.

The virtual embodiment is a digital *doppelgänger*. A simulated persona such as Niko, with its potentially endless reincarnations, has no original and embodies the same carnivalesque structure that Bakhtin found in the literary double: he is a parody of the protagonist. "In each of them (that is, in each of the doubles) the hero dies (that is, is negated) in order to be renewed (that is, in order to be purified and to rise above himself)" (ibid.:128). This cyclic logic of regeneration is fundamental for play, whether it takes place during a festivity or computer game playing, and is the foundation of the modern characterization of these activities as recreative. Play is the sphere for the recreation of self and world *per se* (Winnicott 2005:67-76). The term 'recreative' contains a lingual trace that marks a genealogical continuity, linking GTA IV not only with the medieval carnival but also with archaic board games like the Egyptian MEHEN (4th millennium BC) – an analogue simulation of the soul's journey through the

netherworld and its subsequent rebirth (Rothöhler 1999). Similarly, the player who dives into Liberty City uses the symbolic construct of the game as a vehicle for a virtual-imaginary journey to the other side of the looking glass, in a recursive process of symbolic death and recreation. Simulated arenas of experience, like the one offered by GTA IV, are necessary cultural institutions, in which the symbolic order of society can be broken, everyday illusions suspended, and affective intensities that will never be fully civilized safely enacted. Or to paraphrase Nietzsche: we're riding on the back of a tiger, caught up in dreams, and the tiger needs room to play.

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Barry Atkins

Response

There is always an attraction for us, as academics, in the tales we tell of our game experiences, and there is something particularly compelling in the account we are offered here. Butler is both an engaging storyteller and a scholar obviously engaged in analysis of some sophistication, and this is a fascinating account of his time 'in' Grand Theft Auto IV (2008). His positioning of that experience in relation to the thinking of Friedrich Nietzsche is also illuminating, and he certainly conveys the sheer exuberance of GTA IV, and captures its essential joie de (virtual) vie. This essay, therefore, has much to recommend it to the student of games or even the player of GTA IV able to revisit his or her own played experience. As a more formal response to an essay such as this, however, it is perhaps most useful to focus on the use of both methodologies and terms in Butler's approach of the game artifact.

I would argue (with full recognition that I need to recognize my own specific location as a reflective individual playing subject) that there is a crucial difference between Butler's assumption that he is spending time 'in' Liberty City and GTA IV, and my own that I spent time 'with' GTA IV and Liberty City. To a degree this is a question of how we as individuals both see questions of immersion, and the language we use to describe that experience. It certainly has implications, socially and politically, where games (and Rockstar games more than most) receive interrogation as potential 'murder simulators'. As one of Butler's subtitles tells us, he has been engaged in 'life in a simulated city', where I would claim only to have been engaged with a simulation. Nor is this mere academic logic-chopping – at its heart is a crucial argument regarding the nature of computer game play that echoed (along with discussion of game narrative and ludology) throughout the conference where this paper was presented. On

the one hand a simulation remains a simulation, judged on that basis by a player who in no sense sees a transition through the screen into 'being in the game-world', and on the other an effective simulation offers a sense of immersion that is described (if not, I would argue, thought) as a movement through the intervening screen towards what Butler boldly describes as embodiment in the game world.

Of course, Butler is already aware of the issues of being in the game-world, and sensibly engages in established academic practice to maintain the position of the unbiased but engaged observer. His autoethnography, with its field notes and its declared oscillation between activity in the game and his reflection on those actions, is clear and effective. We can trace and follow a practice which many would do well to emulate – for once the experience of play is not reduced to the operation of rules or reduced to a description of the content of the visual field. Instead the focus is, as it should be, on experience. And if there is one element of games that has not to date had sufficient or adequately subtle analysis in the literature, then it is the experience of play. At the same time Butler also establishes the authority from which he can claim to speak from experience as both player and researcher. A potential problem lies not so much in the declared subjectivity of the self-aware researcher, but his punctuating claim that what had preceded was a truly 'empirical report' rather than a form of accounting for one's engagement with a game that continues to need qualification before simply claiming the legitimacy ascribed in our culture dominated by the discourses of science towards empiricism.

Of course, this always leaves the individual academic researcher something of a hostage to fortune. A more traditional academic position might well leave the first person singular well alone, and retreat from any obvious reflection in claiming the supposedly neutral high ground of the detached and impartial observer. But Butler is right in rejecting such a stance for his own clear engagement. Where things become a matter of contestation, however, is in their expression of

that 'I'. It is taken for a given, for example, that we see ourselves as players as the I who engages in the cut-scene narratives of the game – that 'I' am Nico, that 'I' do not just engage in the activity of play, but that I fully inhabit the role offered to me. I would suggest that this is not a universal, or even a necessary, experience of play. To be forced to perform a close up execution of one NPC, for example, certainly drives a wedge between some players and their fictional vehicle in the game world.

When Butler rightly looks to the attraction of computer games he says that 'one of the central attractions […] lies in the possibility of slipping into a virtual identity and taking part in a digital role playing game, of stepping into the sphere of 'as if' he might even be conflating two separate pleasures. Certainly computer games offer an opportunity for role play (although the disappointment of MMO role players with the scarcity of general players who role play has led to the establishment of specialized, and far fewer, specific role playing servers and may speak to how marginal this pleasure is), but this is not to imply that the playing of role is essential to the defining 'as if' of games. We need not adopt a role, or surrender ourselves to an immersive imperative, to behave 'as if'. It may by more useful to think of the defining pleasure of games as resting in their continual posing of the questions 'what happens next if I' where the I is the player, not the protagonist, and exposure to in-game danger or threat is the enabling possibility for the imagination (and performance) of action. When Butler invokes Csikszentmihalyi and 'flow' it is possible he may be mistaking unrelated phenomena. Flow is not about the adoption of role, but of absorption in action, and it is arguable that should we become absorbed in being in the world then we would not be able to act effectively in the game.

Highly competitive players of online games such as HALF-LIFE: COUNTER-STRIKE (2000), for example, do not play 'as if' they were in role, but as if they were playing a highly competitive game/simulation where some rules have real-world analogues (an approximation

of physical properties for example) and some do not (respawns, game modes, scores). Similarly, whether I choose to run over pedestrians or shoot pigeons or even to just go swimming for hours in GTA IV does not depend on my adoption of the role of Nico, or even of the role of some unnamed shadow alongside Nico, but of my knowledge and understanding of the spaces GTA IV offers me for possible action in the game world. Some of this may also be necessary: to act in the world of the game I must know it is a game. Were I to act 'as if' the game were anything but a game I would be engaging in truly psychopathic behavior well before I reached Butler's declared body count. And because of the way in which the popular press can leap upon any apparent confusion for game world (and by extension game action) and real world action we might want to be cautious of the care with which we describe and imagine this distinction beyond acknowledgement of mere oscillation.

To some extent it is all too easy to see why we might treat game spaces such as Liberty City as if they were effective simulations in which the oscillation between immersion and non-immersion described by Butler is possible. Butler is right to point to GTA IV as 'the most complex commercial simulation of a city that has ever been produced', but we should also take care to point out how limited a statement this actually is. There may be much to do in Liberty City, particularly compared to other game city spaces, but it remains farcically restricted in its possibility were we to imagine a simulation of a city that modeled and allowed access to even a fraction of its spaces and activities. We are firmly in a game here – if Liberty City is a bricolage, it is a bricolage of games as well as of cities where we stumble over minigame after minigame that constantly alert us to the crucial distinction that we are not living but playing.

To engage in autoethnography, to keep field diaries and to reflect effectively on our play, and to concentrate on our game experience when we write about games is all laudable and, here, accomplished well, and Butler's is one of the most seductive accounts of the plea-

sures of games that has been published recently in the field. Perhaps the only note of caution is that we need to ensure that we do not become too involved in the practice of playing, and that we are always alert to the fact that we are playing a game and not just a role, and that even if we consider ourselves immersed, we are immersed in an activity of play, and not in another world.

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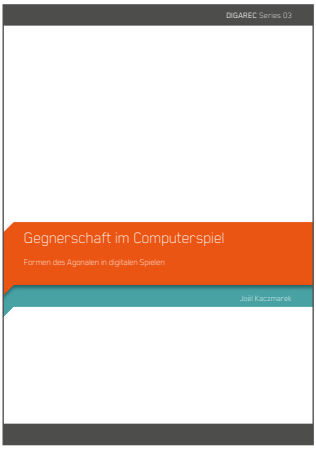
Gegnerschaft im Computerspiel
Formen des Agonalen in digitalen Spielen

2010, 125 Seiten

978-3-86956-010-6
ISSN 1867-6219 (print)
ISSN 1867-6227 (online)

http://opus.kobv.de/ubp/volltexte/2010/3391/
urn:nbn:de:kobv:517-opus-33917



Gegnerschaft im Computerspiel widmet sich der Betrachtung der verschiedenen Gegnerschaftsformen in Computerspielen als Ausdruck ihrer Interaktivität, wobei eine dreiteilige Typologie generiert wird, mit der die Gegnerschaftsarten eines jeden Spieles abgedeckt werden können. Hierbei wird unterschieden zwischen dem „Wettbewerb“ (dieser zeichnet sich durch Chancengleichheit der Teilnehmer bei einer auf dasselbe Ziel ausgerichteten Bewegung aus), der „Feindschaft“ (bei der die Spieler unterschiedliche, häufig konträre Ziele verfolgen und eine gegenseitige Tötungsbereitschaft aufweisen) sowie der „Umgebung“ (bei der die Spieler nicht gegen einen realaen Feind, sondern gegen die Hindernisse der Spielwelt antreten). Darüber hinaus werden im Verlauf der Argumentation Kriterien herausgearbeitet, anhand derer sich die unterschiedlichen Formen von Gegnerschaft identifizieren lassen.
Aus medienwissenschaftlicher Sicht spielt die Betrachtung der konzeptuellen Einbindung von Gewalt in den Spielekontext eine zentrale Rolle. Auf diese Weise wird versucht, die Interaktivität des Computerspiels anhand von agonalen Spielelementen zu systematisieren. Es soll in Gegnerschaft im Computerspiel jedoch weniger eine pädagogische, als vielmehr eine analytische Herangehensweise an das Computerspiel vollzogen werden.

Universitätsverlag Potsdam

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Zentrum für Computerspielforschung
Digital Games Research Center

Universität Potsdam

ISBN 978-3-86956-064-9
ISSN 1867-6219 (print)
1867-6227 (online)

Universitätsverlag Potsdam