DIGAREC Series 01

Conference Proceedings of the Philosophy of Computer Games 2008

ed. by Stephan Günzel, Michael Liebe and Dieter Mersch

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with the editorial cooperation of Sebastian Möring

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Content

Keynotes

Ethics and Politics

The Magic Circle

Preface

Computer and video games are *the* success story of the digital era. High levels of use among children and young adults are practical and clear evidence of this notable status. Computer games are also, finally, being recognized as objects of cultural value and as generators of innovation and economic growth by members of the political and public spheres as well as by traditional media players. The fact that computer games have become the object of scientific research is further proof that they have "grown up:" Game studies, which explores the nature of computer games in terms of social, philosophical and cultural theory, is still a very young discipline. And yet, as an academic field, it helps us reflect upon the development of the medium in a larger context and delivers the criteria and concepts necessary for a differentiated analysis of digital games.

The Medienboard welcomes this emerging input from the academic sphere. This scientific contribution gives us all a better understanding of computer games as "cultural objects," and it does so in an impartial manner that allows us to gain a deeper understanding of their impact. This is why we actively support productive and ongoing exchanges among researchers, games developers and other media professionals. In May of this year, our initiative in this field led to the second "Deutsche Games Tage" (German Games Days) in Berlin. The events offered the games universe a comprehensive forum by bringing together the "Konvergenztag" (Convergence Day), the "Quo Vadis" developers' conference and the "Philosophy of Computer Games" research conference.

In a joint effort by the Department for Arts and Media at the University of Potsdam and DIGAREC (the Digital Games Research Center – an interdisciplinary research center associated with universities in Oslo, Copenhagen and Modena), international speakers and scientists were invited to Potsdam to discuss the ethics, aesthetics, phenomenology and politics of computer games. We were very happy to provide financial support to the "Philosophy of Computer Games" conference and to link it with the regional media industry, because we consider it very important that science and research continue to accompany the rapid development of digital games. Berlin-Brandenburg has a very high concentration of creative professionals working in digital media. Indeed, this is where innovative ideas are generated and where the borders between game design, film direction and animation are becoming increasingly fluid. In fact, the production process in Berlin-Brandenburg is evidence that convergence is already a reality. The capital region offers an exciting and vibrant creative environment for international games research as well.

We're looking forward to further research conferences in our region in the future. We wish the new DIGAREC series a wide and interesting readership and promise to continue our support for a productive and ongoing dialogue between research and the media industry.

Petra Müller
CEO Medienboard Berlin-Brandenburg

Introduction

As the local organizer of the second international conference on the Philosophy of Computer Games, in Reggio Emilia, Italy, January 2007, I am very pleased indeed to also have been able to take part – this time as program committee member – in the preparation and realization in May 2008 of the third edition of this significant and innovative conference series, hosted by Professor Dieter Mersch and his colleagues at the Department for Arts and Media, European Media Studies at the University of Potsdam, Germany.
The Reggio Emilia conference was hosted by the Department of Social, Cognitive, and Quantitative Sciences, a young (established in 2001), interdisciplinary environment that coordinates the research activities of staff members of the School of Communication and Business, and the School of Education at the University of Modena and Reggio Emilia. The combined research and didactic competencies of both these fields of study are clearly relevant for contemporary computer game research. Computer games, after all, may be studied not only in general terms as a new cultural phenomenon generally targeted at children and young adults as its principle players/consumers, but also more specifically as a new category of technologically mediated artifacts that simultaneously has created a rapidly expanding global market with an increasingly important socio-cultural and economic impact.

For the Reggio Emilia conference, submitted abstracts were selected for presentations focused on three main thematic categories: the ontology of computer game objects, player experience, and the ethics of computer games. During the conference, one full day was dedicated to presentation and discussion of papers on different aspects of one of these three themes. After each presentation, abundant time was set apart for what turned out to be very lively and engaged discussions. On the website of the conference (http://game.

unimore.it/game) there are links to abstracts, texts, and other visual materials provided by presenters, as well as online video recordings of the presentations and discussions. A peer-reviewed anthology of articles based on a number of the presentations at the Reggio Emilia conference is now under preparation.

For the Potsdam 2008 edition of the conference it was decided to continue the above mentioned practice of a tripartite thematic framework. This is a profitable strategy, as it opens up a number of conceptual spaces where philosophers and researchers from different disciplinary fields may meet and interact to explore philosophical perspectives on computer games. As mentioned above, computer games are a highly complex object of study, and may be interrogated not only in general terms with regard to their inherent hybridity as technologically mediated, interactive cultural artefacts, but also from the point of view of specifically philosophical issues related to the ontology of game objects, player experience, ethics, group gaming processes, and the different fruition and communication practices and strategies developed and brought into play by gamers during individual or group gameplay, coupled with considerations of broader social, cultural, and economic ramifications of these processes, practices and strategies.

For the Potsdam conference a significant innovation was introduced into the selection process by the program committee in relation to previous events in this series. (The first conference "'The Third Place' – Computer Games and Our Conception of the Real" was held at the Center for Computer Games Research at the IT University of Copenhagen, Denmark, in May 2005.) Prospective presenters were asked to submit full papers, and these were then subject to a rigorous peer review process before eventual selection for the conference. This, we believe, is an important contribution to building international recognition for the relevance of humanities-based, and more specifically, philosophical, studies of computer games. It will also, we hope, act as a valuable stimulus to researchers in this new field of studies to seek excellence in informed dialog with their peers, many of whom are, as one might expect, quite young researchers at the very beginning of their careers.

As a professional semiotician, living and working in Italy for the last or so ten years, I find the field of philosophy of computer games a fascinating and challenging one. Italy is, of course, also the home of one of the probably most internationally well-known and acclaimed semioticians, Umberto Eco, who in his introduction to his treatise *Semiotics and the Philosophy of Language* from 1984, defines general semiotics as a "good" philosophy of language, i.e. a philosophy of language – such as Plato's Cratylus and Wittgenstein's language games – that concerns itself not only with languages *per se*, but also with understanding the systematicity and mechanics of any of the possible ways and means (verbal, written, gestural, visual, etc.) by which human beings are able to make, exchange, and transform meanings that regard ourselves, one another, and the world we live in. According to Eco, one of the probably most intriguing, and simultaneously most irritating, aspects of philosophical discourse is, that it cannot be used to carry out empirical research programs as in the natural sciences. The claims and speculations philosophers make about being, the world, meaning, life, ourselves and the others, culture and so on, can not be empirically tested and confirmed, experimentally or otherwise. Indeed, the "empirical" data philosophers work with is substantially specialized concepts that necessarily must be posited, manipulated, and evaluated within their own precisely defined and explicated philosophical frameworks, in order to be seen to make sense. If such concepts are spuriously employed outside of their specific philosophical frameworks they cannot be said, or be seen by others, to have any kind of intrinsic or other coherence. However, the particular strength of taking a philosophical approach to the study of cultural meaning-making processes in general – and in particular to a complex technological cultural phenomenon as “fresh” as computer games – is that such an approach, if correctly applied, displays what Eco refers to as a “practical explanatory power” that allows it to contribute in the long run, to changing not only our individual and communitarian experiences and understandings of the material world we live in, but also the world itself. This is possible since “good” philosophical explanations of how meaning is generated in culturally mediated signification and communication processes – in any type of semiotic modality – have a particular ability to satisfy our basic human need to give coherent form to the highly complex material and other processes that constitute the world we live in, and to allow those who believe in this particular way of conceiving of, and explaining, this world to deal coherently and effectively with it in their everyday lives. *Philosophy, then, can provide a practical means for holistically structuring any observable manifold of otherwise seemingly disconnected data in a meaningful way*. It is this meaningful structuring of reality that makes real social, cultural, and material change possible.

With these considerations I would like, once again, to thank Dieter Mersch and colleagues in the local organizing committee at the University of Potsdam for their excellent work in creating a stimulating, well organized conference in 2008. I would also like to wish our organizers of the next conference, to be held at the Department of Philosophy, Classics, History of Art and Ideas at the University of Oslo, Norway, in 2009, the very best of luck with their contribution to carrying forward this important and innovative philosophical research initiative.

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Stephan Günzel, Michael Liebe and Dieter Mersch

Editor's Note

This first volume of the DIGAREC Series holds the proceedings of the conference "The Philosophy of Computer Games", held at the University of Potsdam from May 8-10, 2008. It was the third in a series of international conferences that took place in Copenhagen, 2005, and in Reggio Emilia, 2007. The third conference took place within the context of the second German Games Days, organized by the Medienboard Berlin-Brandenburg, which is concerned with convergence of digital games and other media, especially television and cinema.

The contributions of the conference address three fields of computer game research that are philosophically relevant and, likewise, to which philosophical reflection is crucial. These are: ethics and politics, the action-space of games, and the magic circle. All three topics are interlinked and constitute the paradigmatic object of computer games: Whereas the first describes computer games on the outside, looking at the cultural effects of games as well as on moral practices acted out with them, the second describes computer games on the inside, i.e. how they are constituted as a medium. The latter finally discusses the way in which a border between these two realms, games and non-games, persists or is already transgressed in respect to a general performativity. Specifically, the contributors were asked to respond to the following questions in each field:

Ethics and Politics: What are the ethical responsibilities of gamemakers in exerting influence on individual gamers and society in general? What role can games serve as a critical, cultural corrective in relation to traditional forms of media and communicative practices? What is the nature of the ethical norms that apply within the gaming context?

Action|Space: What is the nature of perceptual experience in game space? How should the relationship between action, interaction, and space in computer game environments be understood? What should be thought about players' aesthetic, emotive, and rational responses to what happens inside the game space?

The Magic Circle: What is the structure of the gaming-process? What is the nature of fictionality and virtuality, or of representation and simulation? How is the notion of a self-contained magic circle being challenged by forms of individual action and social interaction which tend to transcend such limits?

For the conference we were able to invite Richard Bartle, Ian Bogost, and Jesper Juul to give keynotes: Bogost opened the conference with an approach to the "Phenomenology of Computer Games", while Juul addressed "The Solvable Part of the Game-Player Problem" on the closing day. Before the beginning of the conference, both of them also gave seminars to students of the European Media Studies at the University of Potsdam and the University of Applied Sciences in Potsdam. The keynote of Bartle on the evening of the second day was embedded in a special event of the German Games Days, aimed at building the bridge between game industry and game theory – the "Open Worlds Panel", which was hosted by Ulrich Weinberg of the School of Design Thinking. Still 30 years after the development of the famous Multi User Dungeon at Essex University, open online worlds pose a complex challenge to both theory and design of computer games. Discussing with Bartle were Frank Campbell from the Swedish Entropia developers Mindark, Mirko Caspar from the Berlin based Onlineworld, developers Metaversum, and Dirk Weyel, representing the publisher Frogster Interactive Pictures.

During the conference some participants also joined the developers' section of the German Games Days, the "Quo Vadis" in Berlin, organized by Stephan Reichart from Aruba Studios. Invited by Bernadette Hoberg from the Medienboard were the academic lecturers, the lectures chaired by Stephan Günzel. Presentations were given by Stefan Böhme, Robert Glashüttner, Mattias Ljungström, Markus Rautzenberg, Leif Rumbke, and Steffen P. Walz; all of them focusing on the contribution of academic reflection to the development and qualification of computer games against the background of aesthetics, economics, and cultural impact.

On behalf of the organizing committee the editors want to say thank you to everybody who has supported the conference and helped in its realization on location; those were: Frank Bültge, Sophie Ehrmanntraut, Mischa Karth, Jan-Henrik Möller, Sebastian Möring, Stephanie Rymarowicz, Ioannis Sotiropoulos, Jannes Schwentuchowsky, Michaela Stolte, Johanna Strodt, Daniel Vender, and Anastasia Zueva. Further thanks to Natascha Adamowsky, Mark Butler, Markus Rautzenberg, Christine Hanke; who chaired sections together with Tarjei Mandt Larsen, Anita Leirfall, Dieter Mersch, and Hallvard Fossheim from the conference's committees, as well as to "Gamology", the Association for the Promotion of Computer Games Research, and to the people from the generous technical support AVZ and ZEIK of the University of Potsdam.

Special thanks goes to the main sponsor, the Medienboard, namely to Petra Müller and Rangeen Horami; who with their team eagerly supported the idea of discussing computer games not only in economics, but also in philosophic perspectives.

The Digital Games Research Centre of the University of Potsdam focuses on multiple perspectives of computer game research. Member departments from the University are the Department for Arts and Media with the research project "Mediality of Computer Games," the Department of Psychology with the research project "Media Violence and Aggressive Behavior" – both funded by the German Research Fundation –, the Hasso-Plattner-Institute for software systems engineering, the Erich Pommer Institute for media law and media economy, the Institute of Computer Sciences, and the Interface Design-Study Program of the University of Applied Sciences Potsdam. Associated members in Berlin are the Institute for Digital Interactive Culture with the Computer Game Museum as well as the Media Design School. The research center is also running the Computer Games Collection, containing more than 2000 titles.

Stephan Günzel, Michael Liebe and Dieter Mersch
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The conference program with abstracts and videos of all presentations can be viewed at **www.gamephilosophy.org**.

Keynotes

Ian Bogost

The Phenomenology of Videogames

Jesper Juul has convincingly argued that the conflict over the proper object of study has shifted from “rules or story” to “player or game.” But a key component of digital games is still missing from either of these oppositions: that of the computer itself. This paper offers a way of thinking about the phenomenology of the videogame from the perspective of the computer rather than the game or the player.

Consider for a moment some of the things that might be happening in the world right now, as you finish reading this sentence: *Smoke vacuums through the valve, grommet, and hose of a hookah; and enters a pursed mouth. The dog teeth of a collar engage a gear against the layshaft coupling of a transmission assembly. The soluble cartilage of a chicken neck decocts from the bone into the stock of a consommé.* These and other interactions between objects constitute different moves in the material world. From our perspective as humans, they correspond with actions we know quite well: smoking, shifting, or cooking, for example. Traditionally, the human experience portion of such interactions would fall into the domain of phenomenology, the philosophical approach to how things appear in people’s experiences, from a first-person point of view. This can include perception and thought, but also memory, emotion, or social activity. All are human activities, the understanding of which helps explain the taste of the honey-sweet ma’sal heated under the charcoal in the hookah’s bowl, or the sensation of a foot on a clutch as the collar of the synchro obtains a friction catch on the gear, or the smooth, thin appearance of broth as it separates from fat and bone in the soup pot.

But for the hookah, the gear, or the chicken, what is going on? Phenomenology gives us few tools with which to answer this ques-

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tion: American philosopher Graham Harman has suggested adapting Martin Heidegger's famous tool analysis as a way out of this quandary. A quick refresher: in *Being and Time*, Heidegger suggests that objects are impossible to understand *qua* objects. Rather, they are related to chains of purposes that make speaking of hammers or hookahs or gearshifts as objects problematic. Objects become ready-at-hand (or *zuhanden*) when contextualized. Heidegger argues that objects are most visible when they cease to conceal themselves in contexts. The broken tool sheds light on the tool: when the hose of the hookah bends and catches, preventing air and smoke from drawing through it; when the teeth of the collar grinds as it fails to engage with the gear; when the consommé boils and its froth breaks up, clouding the broth. Heidegger calls this state present-at-hand (*vorhanden*). His favorite example is the hammer, which offers the activity of nail-driving, something we look past in pursuit of a larger project, say building a house. Harman suggests that tool-being is a truth of all objects: there is always something hidden, inside, which remains entirely inaccessible (Harman 2005:26, 49). Flying in the face of Heideggerean traditionalism, Harman argues that objects do not relate through "use," which implies "human use". Harman refuses to take *Dasein* as the center of ontology. Instead, there lies the tool-being. He calls his an "object-oriented philosophy" (Harman 2002:49).

Speculative Realism and the Phenomenology of Videogames

Harman's approach is part of a broader trend in philosophy that has recently been dubbed "speculative realism". In addition to the American Harman, the core cabal of speculative realists includes Britons Ray Brassier and Iain Hamilton Grant, and French philosopher Quentin Meillassoux. A common feature of speculative realists is their distaste for the philosophical tradition descending from Kant, including the popular trends of the twentieth century, of which phenomenology is perhaps the primary example. The speculative realists main objection accuses philosophy of over-privileging the human being in general, and human experience in particular. As such, speculative realism also offers a critique of continental philosophy of the last century different from the all too familiar fly-swatting of anglo-american analytic philosophy. For cultural and media studies, of course, the phenomenal tradition exerted the most influence on the obsession with language of structuralism and poststructuralism. This, too, bothers the speculative realists, for whom the linguistic turn represents yet another privileging of the human.

At first glance, speculative realism might bear some resemblance to certain ecological arguments against anthropocentrism. Environmental philosophy has sometimes argued that humankind is to ecology as is man to feminism or Anglo-Saxonism is to race. Militant environmentalists like Dave Forman have argued for the relevance of forest and wildlife as equal in status to humans (Foreman 1993:2-3). The problem with the ecological analogy is that it, too, preserves man as a primary actor. Either the future survival of man motivates environmental concern, or natural creatures like kudzu and grizzly bears are meant to be elevated to the same status as man. In every conception of environmental holism, from John Muir to James Lovelock, all beings are given equal absolute value and moral right to the planet – so long as they are indeed living creatures. From the perspective of speculative realism, life is still in the foreground, the reference point for thought or action.

In ecology, an alternative perspective might look more like the one journalist Alan Weisman takes in his bestselling book *The World without Us* (2007). The book documents the things that would take place if humans were to suddenly vanish from earth. Subways flood; pipes cool and crack; insects and weather slowly devour the wood frames of homes; the steel columns of bridges and skyscrapers corrode and buckle. Weisman does not speculate about how humans might disappear – through nuclear annihilation or heavenly rapture, for example – but rather breaks the tool that is humanity's presence, allowing the objects of our constructed world to move into the foreground.

Yet, even Weisman's approach does not reach the level of unconcern for the role of the human in speculative realist thinking. This unconcern does not amount to disdain, mind you, but merely disinterest. Says Harman of the "carnal phenomenologists," those concerned with how human bodies encounter the world, "this sensual medium… is really just the *human* face of a wider medium that must exist between all the objects of the world" (Harman 2005:3). It is not just the grizzly and the kudzu and the tree sloth and the tuber, but also the granite and the sea foam and the tarmac and the sickle whose interactions are worthy of philosophical attention. Focusing on the way entities in the world interact with each other opens a new domain for philosophy, one the discipline has ignored actively for the last hundred years, and passively since the pre-Socratics. I turn to Harman here in the hopes of finding a new model for understanding the phenomenology of videogames. But as you may have guessed already, I hardly intend to use "phenomenology" in the customary sense. To understand how, we must take a quick trip down a well-trodden path in game studies.

From Rules and Narrative to Games and Player … and Beyond

Reflecting on the end of the first wave of game studies, Jesper Juul has observed that our conflict is no longer one of ludology or narratology – the question of whether games are first systems of rules or stories (Frasca 1999). That was a quarrel about the nature of the medium. Now, suggests Juul (2008), the field has progressed toward a conflict over the proper object of study: is it the game, or is it the player? Critical approaches, no matter their method, tend to focus on games, seeking to understand and document their meaning along with the cultural relevance of that meaning. Social scientific approaches, again no matter their method, focus on players, seeking to understand and document what they do with games and how they do it. This is a conflict inherent in these approaches, one palpable in today's game studies milieu.

Among Juul's suggestions for moving forward is a focus on bridge-building. Taking casual games as a test subject, Juul imagines how both game- and player-centric approaches can inform one another in a kind of dialectic. To be sure, collegiality and bridge building are all fine, especially in a field as interdisciplinary as game studies. Certainly studies of how and why players use games might offer valuable insights into the way games are constructed, and vice versa, the way games are constructed might offer valuable insights into how people think to use them. Yet, there is something amiss in both approaches that a bridge over troubled waters cannot ford. To wit, both privilege the human actor unduly. Studies of either mechanics or communities still rely on human beings as a prime mover. For the critic, the representational aspects of games involve humans' ability to apprehend meaning, just as the consommé involves humans' ability to taste. For the ethnographer, the social aspects of games involve humans' ability to interact with one another, just as the hookah acts as a centerpiece for conversation.

Talking about the phenomenology of videogames in reference to either the game- or player-centric mode of analysis holds no surprises. The phenomenal aspects of games, like images, sounds, controller buttons, and vibrating rumble motors, all trigger perceptions in their human players, who somehow assemble these inputs and outputs into action, reaction, and meaning. These perceptions function differently from those of other media forms. There are still interesting "traditional" phenomenological questions at work here, for example: How do players perceive billboard-style advertising in games, and how does that perception differ from the way they perceive such advertising in traffic or on the subway? Likewise, games' phenomenal aspects mediate human community. The ways people understand and negotiate this community differs too from other media forms. For example, the way a human player is perceived by another via his avatar might be considered a phenomenal problem as much as an epistemic one. Thus, the lore of surprise when a large WORLD OF WARCRAFT (2004) guild discovers that its leader is an eleven year-old.

But these are not the phenomenological questions that ought to interest us – at least, not the only ones: If we take Harman's suggestion seriously that objects recede interminably into themselves, then appearances only represent one small slice of an object, the one that happens to intersect with another object in one way or another. Human perception becomes just one among many ways that objects might relate. We need not discount criticism or sociology in order to admit that they do not tell the whole story. The sphere I have in mind is that of all the objects at work in videogames under the surface, hidden in their "subterranean dimensions." Consider this: videogames are comprised of molded plastic controllers, motor-driven disc drives, silicon wafers, plastic ribbons, and bits of data. They are likewise comprised of subroutines and middleware libraries compiled into byte code or etched onto silicon, cathode ray tubes or LCD displays mated to insulate, conductive cabling, and microprocessors executing machine instructions that enter and exit address buses. All of these aspects of videogames could be construed as "objects" in Harman's sense of the word: individual beings in themselves, things with a footprint on the world. These sorts of objects are unique to videogames compared to many other sorts of things whose meaning or social power might be observed and studied, like board games or motion pictures or taverns or campfires. The question that concerns me here is this one: *What do these objects that constitute our videogames perceive?*

A Pragmatic Speculative Realism

Harman borrows a page from Alphonso Lingis, who takes Merleau-Ponty's idea that "things see us" even further, entering into negotiations with other things. But there is a problem: if, as Harman believes, objects recede from one another, forever enclosed in the vacuum of their individual existences, how do they ever interact? Smoke and mouth, collar and gear, cartilage and water all seem to do things to one another. Likewise, button and input bus, instruction and arithmetic unit, radio frequency and electron gun also seem to interact. Moreover, all of these factors come together as one thing, a particular videogame, rather than remaining forever segregated as so many bits, charges, and frequencies. Harman calls it "vicarious causation" (Harman 2005:91-93). Things never really interact with one another, but fuse or connect in a solely conceptual fashion, but one that has nothing to do with human consciousness. These means of interaction remain unknown – we can only conclude that some kind of proxy breaks the chasm and fuses the objects without actually fusing them. Harman uses the analogy of a jigsaw puzzle: "instead of mimicking the original image, [the jigsaw puzzle] is riddled with fissures and strategic overlaps that place everything in a new light" (Harman 2007:202). From here, we can understand the way objects relate by understanding their objectness and then tracing the fissures.

In Harman's view, there is something that does not recede in objects, qualities that "sever" from the objects and allow us to, in his words, "bathe in them at every moment" (Harman 2005:150). There is a kind of sensual ether in which objects float. When they interact, these objects do so only by the means they know internally, but in relation to the qualities in which they "bathe". In a move he is completely serious about, Harman equates such interaction with metaphor (Harman 2005:98). Objects try to make sense of each other by means of the qualities and logics they possess. In so doing, something always reveals, and something else always recedes. When objects metaphorize one another, each understands part of another in abstract, enough for the one to make some sense of the other given its own internal properties. Harman sometimes likens the process to caricature: a rendering that captures some aspects of someone else at the cost of other aspects (Harman 2005:94).

This is strange stuff. The "speculative" part of speculative realism makes good on its promise of conjecture. Harman has used the term "weird realism" to underscore his own knowledge of the perversion inherent to his theory (Harman 2008:202). The weirdness serves a purpose: mustering fundamentally human concepts, like allure, highlights the way objects only have the ability to understand – and that is an overly human-centered word for it – other objects by grasping the receding object's "notes" in relation to its own.

Despite its refreshing charm in the wake of an increasingly tiresome world of post '68 theory, a few questions elude solution through tool-being and vicarious causation. Harman hopes to push phenomenology beyond the ghetto of human perception – but he does not intend to expunge human perception from philosophical inquiry, just to de-emphasize it. We are objects like any other, along with the rocks and dragonflies and lighthouses. In fact, as the tool-analysis makes clear, in many cases people are somehow entwined in the creation, use, and destruction of these objects.

I am seduced by the speculative realist rejection of correlation with experience. I feel this way because the material undergirding of a variety of experiences does indeed rest in the hands of objects in the world rather than in human apperception or, God forbid, in natural language. Yet, questions remain: even if we accept the critique of correlationism, the rejection of phenomenology and the linguistic turn as overtly, selfishly anthropocentric, how do we deal with things in themselves that are also complex structures or systems crafted and used by humans? And how do we, as humans, strive to understand the relationships between *specific* objects in the world, relations that go on without us, even if we may be their cause, subject, or beneficiary? How do we understand the hookah or the integrated circuit as a thing left to itself and a thing interacting with other things, human beings among them?

Harman's answer is something like this: the idea we have of things is really present, but the things themselves still withdraw infinitely. Meillassoux's (2008:29, 64) is somewhat different: things are mathematically thinkable even if not sensible. These answers are theoretically rich but difficult to muster in practice. Despite its luridness, speculative realism remains a philosophy of first principles. It is not concerned with particular implementations, although it is also not incompatible with them. The speculative realists do not (yet) make claims about how to deploy their methods. And yet, if its goal is to make redress against Kant's Copernican Revolution and restore the primacy of objects themselves, speculative realism would seem to have particular need for an extension beyond first principles, such that it might offer insights into the operation of particular objects.

Perhaps the theory I seek is a *pragmatic speculative realism*, an approach that need not become a method, but one that nevertheless emboldens the *actual* philosophical treatment of *actual* material objects and their relations. Such an idea may seem counterintuitive or even antithetical. Can such extreme speculation ever be grounded? Yet, other speculative practices have managed such a balancing act. Take speculative fiction or magical realism, for example. The former, advanced by Robert Heinlein in 1948, covers literature that speculates about possible worlds that are unlike our own, but in a way that remains coupled to the actual world more than the term "science fiction" might allow (Heinlein 1990:49). Speculative fiction is fantastic, yet somehow grounded. Likewise, magical realist authors like Gabriel García Marquez, Salman Rushdie, and Isabel Allende treat magic and myth as real, that is, they admit that the spectacular is real insofar as it actually comprises aspects of human culture. In cases like these, the philosopher's tendency to abstract takes a backseat to the novelist's tendency to specify. The result is something particular whose branches bristle into the canopy of the conceptual. Perhaps a similar strategy can both help illuminate the phenomenology of videogames and offer an approach to the pragmatic speculation on objects and their interrelations.

The Phenomenology of Videogames

Several years ago I advanced a general theory of the interactions of concepts that I dubbed "unit operations." I described unit operations as "modes of meaning-making that privilege discrete, disconnected actions over deterministic, progressive systems" (Bogost 2006:3). In this original context, I was primarily concerned with expressive signification across media: literature, film, art, and videogames. Nick Montfort and I have recently called the coupling between material constraint, creativity, and culture "platform studies," an analytical mode that explores how the computer platform is relevant to a particular work, genre, or category of creative production (Montfort/Bogost 2009:14-17, 145-150). For example, the nature of the Atari Video Computer System's graphics registers constrained Warren Robinett's adaptation of Crowther and Woods' text-based ADVENTURE (1976) into the graphical adventure game of the same name (1980), in so doing establishing the conventions of the latter genre. In platform studies, we shift that focus more intensely toward hardware and software as actors.

Platform studies advocates an approach to understanding creative computing, to characterize the way software and hardware influences the construction and reception of expressive artifacts. Likewise, unit operations focus on the ways meaning gets encapsulated and transmitted across media. Both remain human-centric affairs, ones concerned with the creation and reception of computer media by ordinary people. But, a combination of these two inches closer to a phenomenology of videogames.

In addition to a focus on meaning, in *Unit Operations* I also offered pointers to a more general philosophical use of the term: unit operations are gestures that take place between things. Sure, "units" could signify humans and puppies; and "operations" could mean love and chastisement. But "units" could also mean teabags and water, rubber and asphalt, pine-cone and sylvan breeze, space debris and gravitational field; "operations" could equally refer to steeping, friction, hoarding, or accretion. Likewise, "units" could suggest cartridge casing, coaxial cable, shag carpet, etched silicon, or RF converter; and "operations" could point to insertion, transmission, tousling, electrification, or any of the myriad interactions these and other components of computing systems partake in while human players stare and manipulate, oblivious.

Such an approach affords more respect for Harman's world of subterranean activity, be it with hand, joystick, processor, phosphor display, or anything else chained together and apart in ways that remain invisible to human, squirrel, and sofa alike. The videogame phenomenologist is not he who seeks to understand how a human player perceives the sounds and images and tactile sensations that comprise the videogame playing experience, but rather he who seeks to understand how the myriad objects that constitute videogames relate to one another. – But how would one perform a phenomenology of videogames concerned with the way the machine perceives its own internal and external states independently of whether and how the human player views or manipulates the artifact? Such work is surely speculative, but also concrete. I will offer two starting suggestions, one more familiar and one less so.

Method 1: Analysis

One way to work toward a pragmatic speculative realist videogame phenomenology is the familiar one: through contemplation and evaluation, with findings synthesized into written argument. – Consider this: from early forms of the book like parchment and clay, and from fine arts like painting, we inherit a misconception about inscription. Structuralism and poststructuralism's obsession with semiotics as a universal acid wash have not helped. The surface of the page or the canvas extend in space, allowing the scribe or painter to attack any point of the surface directly and immediately, in the way that we seem to perceive such surfaces. At the very least, one must admit that surfaces support depth as well, such as the grooves of cuneiform or the textures of oil paint. The surfaces of these substrates accept reed or quill or brush, not letter or word or tree.

Despite great differences in the tools for inscription, photography maintains the materiality of surface. A film emulsion contains silver-halide crystal grains. When struck with light, the molecules release an extra electron from the bromide ion, which jumps to the positively charged silver ion. The silver ion is in turn transformed into metallic silver, creating a small covering of silver on the film. When a photographic emulsion is exposed, photons focused from an optical surface hit the surface all at once, and silver regions are created all over the emulsion at different intensities, producing a faint image. Photographic development enhances this image. A digital charge-coupled device (CCD) works in much the same way as a film emulsion; it is made of silicon rather than silver-bromide, covered with individual light-sensitive cells which record individual pixels of an image.

Like photographs, cinematic frames are captured all at once, as photons strike the emulsion of the film plane. Moving images are comprised of multiple photographic exposures captured rapidly in sequence and then replayed through a magnifying lens. The way a film emulsion or a CCD perceives an object, to metaphorize the process, is not some detail of human agency. It is a material process that deserves some attention before questions of agency, reference, meaning, or criticism. The influence of photography and cinema on television – essentially the same device on which most computer images are displayed – can cloud our understanding of how computers construct visual images. It is tempting to imagine that an image like the seemingly simple combination of mazes and abstract tanks in the Atari VCS game COMBAT (1977), is drawn like a painting or a photograph. In fact, the computer's perception of its world is even less like the canvas or celluloid's.

The earliest examples of computer graphics were produced on oscilloscopes, not on televisions. Like a television, an oscilloscope constructs an image in a cathode ray tube, by firing an electron beam at the phosphor-coated surface of the display. An oscilloscope features an electron gun that can be moved arbitrarily across the surface of the display. In 1958, Willy Higginbotham created a simple tennis game he called TENNIS FOR TWO, that used an oscilloscope as its display, as did SPACEWAR!, created at MIT in 1962. ASTEROIDS (1979) uses a display like an oscilloscope, although in a larger enclosure, sometimes called an XY or Vector display. To construct an image on an XY display or oscilloscope, the electron beam moves to a particular orientation within the tube, turns the beam on, then moves to another location, creating a line between the two with the beam's electron emissions. Each gesture must be created very quickly, before the phosphor burns off and must be redrawn. Different phosphor qualities create different appearances on the surface of the tube, and the beam's strength can sometimes be adjusted to illuminate more or less light. (Some ASTEROIDS cabinets do this, making the ship and projectiles much brighter than the surrounding rocks). From the perspective of human inscription, constructing a frame of ASTEROIDS is more like drawing than like photography or cinema – or perhaps more like cuneiform inscription. But from the perspective of the evacuated glass envelope that is the monitor, the experience is more like a laser light show.

An ordinary television picture of the 1970s and 1980s was displayed by a cathode ray tube (CRT). Like an oscilloscope, the CRT fires patterns of electrons at a phosphorescent screen, which glows to create the visible picture. But unlike an oscilloscope, the screen image on a television is not drawn all at once like quill on parchment, but in individual scan lines, each of which is created as the electron gun passes from side to side across the screen. After each line, the beam turns off and the gun resets its position at the start of the next line. It continues this process for as many scan lines as the TV image requires. Then it turns off again and resets its position at the start of the screen. A North American NTSC television does this at 60hz – 60 times per second – although television images are interlaced, meaning that every other line is drawn with each pass, the phosphor burn-off on the CRT taking long enough that the human eye does not notice the difference.

Computer displays like that of PONG (1972) use a standard television for their display. The images in PONG are created with the television's electron gun, with circuits modulating the video signal on particular lines based on the positions of controls. The first commercial home videogame console, the Magnavox Odyssey, used the same technique, although it mixed video signal decoding with a decidedly unusual use of printed overlays to increase the visual evocativeness of the otherwise abstract image. Most modern computer systems offer a frame buffer, a space in memory to which the programmer can write graphics information for one entire screen draw. This facility was even provided by many systems of the late 1970s. In a frame buffered graphics system, the computer's video hardware automates the process of translating the information in memory for display on the screen.

In an unusual move driven by numerous design factors, including the high cost of memory, the bare-bones Atari VCS's graphics chip, called the Television Interface Adapter, makes seemingly basic tasks like drawing the game's screen complex. The VCS does not provide services such as frame buffering for graphics rendering. The machine is not even equipped with enough memory to store an entire screen's worth of data in a frame buffer. The VCS offers 128 bytes of RAM total—not even enough to store one 8-bit color value for every line of the VCS's 191-line visible display. Additionally, the interface between the processor and the television is not automated as it is in a frame buffered graphics system. A running VCS program involves an interface between ROM data, processor state, and graphics/sound interface during every moment of every line of the television display.

From a human perspective, we can metaphorically render the "notes" of these actions à la Harman if we wish. Atari VCS players see the same sorts of images that they would have come to expect from television broadcasts – the sense of a moving image like film. But the Atari VCS *itself* does not ever perceive an entire screen's worth of graphical data in one fell swoop. It only apprehends the syncopations of changes in registers. Its components see things still differently: The 6502 processor encounters an instruction read sequentially from program flow, performing a lookup to execute a mathematical operation. The TIA graphics chip modulates sends electrical signal when it witnesses a change on one of its input registers. The RF conversion box coupled to console and television transmutes an endless stream of data into radio frequency. Time moves forward in syncopated bursts of inbound bits and bursts of signal, then of color from joystick to motherboard to television. Despite the fact that the machine must manually synchronize itself to the television display at 60Hz, it has no concept of a screen's worth of image or a note's worth of sound. It sees – and that is surely not the right word – only a miasma of instruction, data, color, darkness.

Method 2: Carpentry

However appealing and familiar the usual means of doing philosophy might be, another method involves a more hands-on approach, manipulating or vivisecting the objects to be analyzed, mad scientist-like, in the hopes of discovering their secrets. – Consider a concrete example of this kind of effort, Ben Fry's DECONSTRUCTULATOR (2003). The program is a Nintendo Entertainment System emulator, written in Java, which runs any NES ROM as if it were being played on the original hardware. On the periphery, the system depicts the current state of the machine's sprite memory in ROM, sprite data in video memory, and current palette registers, which are mapped via keys to the indexed values in the sprites themselves. These update over time as the state of the machine changes while the user plays. DECONSTRUCTULATOR is neither a complete nor a perfect example, and I doubt its creator would ever call it by this name, but it is a work of pragmatic speculative realist phenomenology; a concrete one, unburdened by theoretical affectations. It is an example that shows how "speculation" might be used in a more concrete fashion. It also shows that the job of the videogame phenomenologist might have as much or more to do with hardware hacking and programming as it does with writing or speaking.

In some ways, source code itself offers an in-road into videogame phenomenology, and computational phenomenology more generally. Since their inception, web browsers have offered a "view source" command that allows the user to see the underlying markup from which a web page is rendered. Reviewing the layout and structure of the document can reveal nested objects from which the page is constructed: not only images and animations but also script files and stylesheets. Perusing these further reveals the relationship between headline and typographical instruction, click-handler and data structure, form action and HTTP postback.

Debugger tools can formalize such a phenomenology even further. FIREBUG is a Firefox browser plug-in that allows the programmer or ordinary user to monitor and display the internal states of the web browser's rendering and behavior system as a page is rendered. Once installed, the tool allows a user to view the HTML that corresponds with a selected visual element on the screen, to reveal and modify the style information that tells the browser which colors, fonts, layout styles, and positions to use for objects on the page, to overlay rectilinear grids to reveal the internal metrics of a webpage, to review the network activity and duration required to fetch and retrieve every object needed for the page, to debug scripts and show the runtime values of active variables, to reveal the internal object structure of the page within the Document Object Model (DOM) used for both stylesheet rendering and scripted behavior, and so forth.

The relationship between memory addresses and ROM data, or webpages and markup, are two of many examples of the relationships technical practice can reveal. For other things also take place at this very moment, adding themselves and their kindred to the hookah, gearshift, and soup with which we began: An electron strikes phosphor, lighting a speck on a fluorescent tube that glows and fades. A metal catch closes a circuit on silicon, whose state a processor bitwise compares to a charge on another wafer. An I/O bus pushes an OpenGL instruction into the onboard memory of a video card, whose GPU runs matrix operations into the video memory soldered to its board.

The implications for the weird realism more generally might be even more surprising than they are for videogame phenomenology, as the philosopher-programmer is joined by the philosopher-geologist, the philosopher-chef, the philosopher-astronomer, the philosopher-mechanic. The "carpentry of things," Harman's adopted pet-name for object-oriented philosophy, might be a job description, not just a metaphor.

Toward an Alien Phenomenology

I am persuaded by Harman, Meillassoux, and others' injunctions against believing that this is our world alone to perceive. But the contingency of human existence and agency becomes less philosophically useful as the specificity of the object of study increases. Despite the directions I offer here toward a specific theory and method of videogame phenomenology, we still lack a more general approach to a concrete practice of the philosophy of particular objects. Let me then close with a direction toward one.

Harman borrows a name to describe the background noise of peripheral objects: "It is not a white noise of screeching, chaotic qualities demanding to be shaped by the human mind, but rather a black noise of muffled objects hovering at the fringes of our attention" (Harman 2005:183). As philosophers, our job is to amplify this black noise to make the resonant frequencies of the systems of objects inside hum in credibly satisfying ways. Black noise is a kind of radiation that emanates from objects in the same way that emit radiant energy, like a black hole. We understand them by tracing their impact on the surrounding ether.

And if the black noise of objects is akin to the Hawking radiation that quantum effects deflect from black holes, then perhaps it is there, in the unknown universe outside our bodies, buildings, oceans, and atmosphere that we should look for an analogy. In the 1980s, prolific German American philosopher Nicholas Rescher argued that extraterrestrials are perhaps so alien that their science and technology is incomprehensible to us; we could never understand it as intelligence (Rescher 1985: 83-116). The argument was directed partly against SETI's apparent insistence that the signs of extraterrestrial life would resemble the ones humans themselves have sent out into space, in the form of a detectable communication technology.

Hookahs and consommés, microprocessors and ROM graphics chips can no more communicate with us than can Rescher's extraterrestrial. Perhaps this is an instructive and humbling sign. What we are doing when we study the way computers interact with videogames –or when hookahs interact with lips – is not just speculative realism, it is alien phenomenology.

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When Openness Closes

The Line between Play and Design

One of the informal properties often used to describe a new virtual world is its degree of openness. Yet what is an "open" virtual world? Does the phrase mean generally the same thing to different people? What distinguishes an open world from a less open world? Why does openness matter anyway? The answers to these questions cast light on an important, but shadowy, and uneasy, topic for virtual worlds: the relationship between those who construct the virtual, and those who use these constructions.

Virtual worlds are real-time, automated, persistent, shared, imaginary places you can visit through the vehicle of a character (Bartle 2003). (These days, characters are often referred to as "avatars"; although, strictly speaking, an avatar is the graphical representation of a character, not the character itself.) Virtual worlds can take on many forms, and over the years a vocabulary has emerged to disambiguate between them. For example, a "game world" – such as WORLD OF WARCRAFT (2004) – is one in which gameplay is integrated into its design; whereas a "social world" – such as SECOND LIFE (2003) – has no such concepts built in. Similarly, a "high persistence world" – such as EVE ONLINE (2003) – is one in which changes to the game world endure, whereas a "low persistence world" – such as THE LORD OF THE RINGS ONLINE (2007) – soon reverts to its default state. Each of these dimensions, along which virtual worlds can differ, governs the way that any particular virtual world "feels" to its players.

One of the oldest such dimensions to be identified is that of *openness*. The reason it was recognized is because even in the early days of virtual world development, different designers had different ideas about what a virtual world should be. In particular; the first virtual

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world, MUD (1978), was designed to be very open, but several of the virtual worlds that immediately descended from it were consciously made less open. – After two decades, the debate has led to a dialectic that can be summarized as follows:

1. *Structured* worlds are those in which players adopt predefined roles to pursue (usually) quest-led narratives.

2. *Sandbox* worlds are those that leave players free to do pretty much whatever they like.

Sandbox worlds are open; structured worlds are less open. Note that all virtual worlds are open to some degree; the issue is to what degree, not whether they should be open at all. "Openness" here means having the freedom to walk your own path; what the dialectic concerns is whether or not this freedom is "fun". When a designer says that a virtual world is open, this is what they mean. However, designers are not the only people to use the term – players use it, too. Interestingly, although some players do use the word in the same way as designers, others use it for a concept which, on the face of it, is completely different: one virtual world is more "open" than another if more groups of people are able to modify the former than the latter. This usage is akin to that in the term "open source" – it means open access. The word designers use for this is *impact*, which is formally a sliding scale; as we shall shortly see, however, players tend to use "open" purely as a binary proposition.

There is a relationship between impact and persistence (Koster 2001). In essence, the more users that are able to modify a virtual world, the greater its persistence will be. This in turn has implications for the *extent* of the virtual world's software, i.e. how much of it is hard-coded and how much of it is scripted. High impact means low extent (only basic functionality is hard-coded); whereas low impact means high extent (almost all functionality is hard-coded). Thus, a virtual world such as SECOND LIFE, which has high player impact, must, in turn, have greater persistence; and therefore, low extent: much of its functionality lies in code scripted by its players. Conversely, WORLD OF WARCRAFT has low player impact, and therefore, low persistence, and so, high extent: much of its functionality is coded directly by its programmers.

On Content

If we are to explore the relationship between these two different kinds of "openness", we must first pin down what is meant by "change" or "modify" in the context of a virtual world. This suggests that we should begin by considering what it is that is being changed or modified: *content*. Content is that which, if virtual world players are regarded as consumers, they consume. So, in a generic Fantasy game world such as AGE OF CONAN (2008), it means: the geography, the quests, the objects, the non-player characters, and the buildings – all that makes one play experience different to another. In contrast, things which do not vary a great deal between experiences – such as the combat rules or the inventory mechanism – constitute the virtual world's *physics*.

For a large-scale game world, content creation is usually the job of one or more designers. (These are usually referred to as "level designers", which is how content designers are styled in the wider game industry.) However, this is not the only way to create content: if players are given the right tools, then they can create content, too. This idea of having *user-created content* is not new, having first come to prominence around 1990 when a schism among players of text MUDs led to the game/social divide we see today. The motivation back then was ideological: game worlds celebrated destruction, so social worlds should celebrate construction. In recent years, however, the concept has been re-examined for an entirely different reason: content-creation is hugely expensive, but when users create their own content then it comes practically free. Also, because there are many users, it can be generated in large volumes. At a time when commercial virtual worlds cost tens of millions of dollars to develop, it is therefore, perhaps, not surprising that user-created content looks like an increasingly attractive proposal.

Of course, all virtual worlds have user-created content of a kind, because interactions between players naturally, and continually, generate new experiences for those involved. This is taken for granted as an implied effect of the virtual world paradigm, however, and, so, is not what is normally meant by the term. Rather, content is said to be "user-generated" if it is constructed consequently on the virtual world's physics and is integrated into existing content. This is why it tends to be persistent: there would be little appeal (either to players or developers) in the creation of new content if it were merely transient in nature.

On Changing Content

So, user-created content arises when the players of a virtual world make long-term changes to that virtual world. Now although there is a broad spectrum of possible changes that could in theory be made, in practice they can be divided into two categories: *contextual* and *freeform*. The distinction between these is of crucial importance in considering what "openness" means.

Suppose that in a Fantasy game world you want to build a castle in a particular location. No other instantiation of the game world has a castle in this location, and castles are fairly durable; this would therefore be a simple example of user-created content. You would proceed by paying a non-player character architect to produce a plan, hiring a bunch of masons, carpenters, and general labourers to turn the plan into a building; then furnishing it with equipment and decorations, and staffing it with servants and soldiers.

The above is an example of an in-context, or contextual change. Everything you did was allowed for, and made sense within the fiction of the game world: all the changes being made were consistent with the conceit that the virtual world is real. Other examples include killing monsters, making cloaks, and locking doors: all are changes to the virtual world (although their persistence may vary), yet all make sense within the context of the virtual world.

Now suppose that you are in a Fantasy game world and you decide that you want to make your pet succubus a gown that looks like one you saw at last night's Oscars ceremony. Or perhaps you want your avatar to have an anime top half and a photo-realistic bottom half? Neither of these modifications would make any sense within the context of the virtual world – they are entirely freeform.

It is always possible, of course, to add new freeform content that does fit the game world's fiction – you can still build a castle in a freeform world, there is no rule that you have to make something off the wall. This is, in fact, what designers do: indeed, it is what defines the fiction. However, the more people who are able to make changes in a freeform fashion, then the less likely it is that maintaining the fiction is going to be sustainable. As a result, most virtual worlds that allow user-generated freeform content do not attempt to maintain any kind of magic circle (Huizinga 1955), and therefore are not properly considered to be games.

It is worth noting that even contextual changes can be subverted by sufficiently imaginative players. In 2007, for example, in an effort to get round WORLD OF WARCRAFT's ban on advertising gold farmers' web sites, the URL of one such site was neatly spelled out in a prominent position using the bodies of dead level 1 gnomes (Taylor 2007). However, on the whole, the assaults on a game world's integrity are far less serious if whatever user-generated content it has comes from a contextual direction, rather than a freeform one.

On Design

When a designer designs a virtual world, the available options regarding user-created content are, in general terms:

1. No user-generated content. Players can kill monsters, but these respawn 10 minutes later, and the status quo prevails.

2. Contextual user-generated content. Players can build a dam and submerge the caves where the monsters live – those ogres are never coming back!

3. Freeform user-generated content. Just delete the monsters and their caves, and put a lap-dancing club there instead.

The first two of these have a similar philosophy, and the choice of which one to adopt is basically implementational. In both cases, the designer is restricting the player's ability to make changes to the world's content, but covenants that the result will be fun or otherwise of potential benefit to players. For the third option, though, the emphasis is on the players: they are trusted not to abuse the powers that the designer has left for them. In the first two cases, the designer is creating a framework for *action*; in the third case, the framework is one of *design*. As we shall shortly see, this leads to an interesting recursion.

In the virtual world SECOND LIFE, players have a freeform ability to change the world. They can add whatever they want, provided that the SECOND LIFE physics engine supports it. So although you could build a police box, you could not build a *TARDIS* – which is bigger inside than outside – and even if you could, you could not thereupon put the *TARDIS* inside itself. Nevertheless, the ability to make changes to SECOND LIFE enjoyed by its players is considerable.

In fact, SECOND LIFE places sufficient creative power into players' hands that they can implement their own virtual worlds entirely within SECOND LIFE. Such worlds do exist, a prominent example being CITY OF LOST ANGELS (2006). It would be possible, given sufficient development funds, to create a stand-alone CITY OF LOST ANGELS outside of SECOND LIFE – it is not irrevocably intertwined with SECOND LIFE, that is just its current platform. Likewise, it would be possible (in theory at least) to re-implement a stand-alone virtual world such as EVERQUEST (1999) within SECOND LIFE, at least if they both had compatible physics. It is therefore clear that *bona fide* virtual worlds can be created within existing virtual worlds, given that the "host" world is freeform. (Or contextual, where virtual world creation is part of the context…)

So, could SECOND LIFE be implemented within SECOND LIFE? – Well, the physics could be, yes, but not all the content (because that would include the simulation itself and lead to an indefinite recursion). However, the point remains that some freeform virtual world (not necessarily SECOND LIFE) could be created as a sub-world within SECOND LIFE just as readily as a contextual world (such as CITY OF LOST ANGELS) could. This might be something someone would want to do if they had developed better object-creation tools than SECOND LIFE's built-in ones, for example. So, such a freeform sub-world *is* possible.

There would then arise the question of what people who used this sub-world would do in it. Well, they could create a contextual world, or a freeform world; if they made a contextual world, that would be the end of the line, but if they made a freeform world then we get to ask the question again – and again, and again, until someone makes a contextual sub-…-sub world. This is an entirely different recursion, and a much more interesting one from the point of view of virtual world design.

It is not just complete virtual worlds that this applies to, either, but any virtual content. If I were to build a hat in SECOND LIFE, I have used SECOND LIFE as a hat-creation tool. If I were to design several hats and find that I kept doing the same thing over and over again, I might build my own specialized hat-creation tool that cuts out all the boring parts. I set it up, press the button, and out pops the hat I specified on the front panel. I can sell my hat-making machine to someone else who wants a hat-making machine. I may even have originally obtained my hat-making machine from someone who had developed a machine for manufacturing object-manufacturing machines. If I tire of hat-making machines and just make hats manually, I could still be involved in a further manufacturing process: a buyer of my hat could wear it (its intended use), but they might decide to employ it as a component for a decorative teddy bear and sell that as a finished good. (I am using SECOND LIFE as an example here, but the same applies to all freeform worlds.)

Here is the thing: wherever in the chain a designer is, they always have the same choice: is what I make contextual or freeform? If they choose contextual, the chain ends there; if they choose freeform, then the designer who uses what they created has to face the same decision.

I am a designer, about to make a virtual world: it can be freeform or contextual. If it is contextual, the players are using it as an end product; this would be WARHAMMER ONLINE (2008), or EVE ONLINE, or DARK AGE OF CAMELOT (2001). If it is freeform, the players are using it as a design tool; this would be SECOND LIFE or THERE (2003) or HIPIHI (to be released). Someone creating within a freeform world has the same decision to make: contextual or freeform? Contextual would be CITY OF LOST ANGELS, freeform would be a land parcel that has been landscaped for resale. Someone buying the land parcel could use it for building a house, or for building a role-playing game. The choices remain the same: are you creating an end product, or are you creating something that enables the creation of an end product? – Put another way, are you making art, or the means by which someone else can make art (which itself could be an art)?

Conclusion

When a designer calls a virtual world "open", it means that this world is one in which the players have relatively unfettered opportunities to conduct in-context actions. When a player calls a virtual world "open", it means that this world is one in which the players get to be designers. These concept are not, therefore, mutually exclusive; indeed, freeform social worlds are almost certain to be open in both senses of the word.

In the past, some players of social worlds with a lot of user-created content have shown contempt for the designers of game worlds because of the restrictions they place on their players' actions. SECOND LIFE is seen as a far freer environment than WORLD OF WARCRAFT. In WORLD OF WARCRAFT, you play what someone else has created; in SECOND LIFE, you can create things for yourself. Following the analysis presented here, however, this is a dangerous opinion to have: criticizing a contextual world for being contextual means that you fall victim to your own criticism unless the objects you make are not contextual. Essentially, why is it not OK to make a virtual world that people can only change in context, but it is OK to make hoochie hair that people can only change in context? Eventually, someone has to make something that people can just use as intended, or there is no end to it.

The line between designers and players is not a line, but a link. I design for you, you design for her, she designs for him, he uses. Sometimes the chain is short, and sometimes it is long. What is important is what lies at the end: Whatever the virtual world, someone, eventually, must have fun from just *playing*.

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The Magic Circle and the Puzzle Piece

In a common description, to play a game is to step inside a concrete or metaphorical magic circle where special rules apply. In video game studies, this description has received an inordinate amount of criticism which the paper argues has two primary sources: 1. a misreading of the basic concept of the magic circle and 2. a somewhat rushed application of traditional theoretical concerns onto games. The paper argues that games studies must move beyond conventional criticisms of binary distinctions and rather look at the details of how games are played. Finally, the paper proposes an alternative metaphor for game-playing, the puzzle piece.

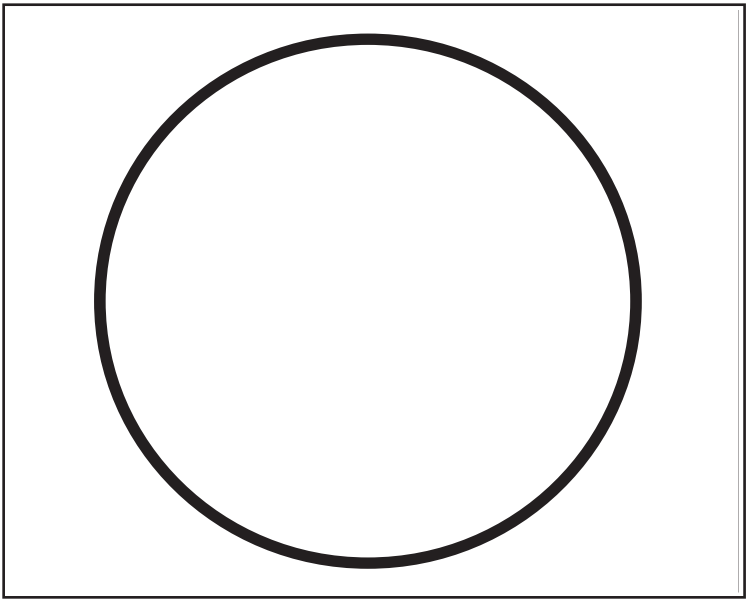

Fig. 1: The Magic Circle – The Game as a Separate Space

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http://pub.ub.uni-potsdam.de/volltexte/2008/2455/ [urn:nbn:de:kobv:517-opus-24554]

To play a game has often been described as entering a *magic circle*, a separate space. The origin of the magic circle metaphor is Johan Huizinga's classic text *Homo Ludens* in which he argues that all *play* takes place in a separate time and space:

> All play moves and has its being within a play-ground marked off beforehand either materially or ideally, deliberately or as a matter of course. Just as there is no formal difference between play and ritual, so the "consecrated spot" cannot be formally distinguished from the play-ground. The arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc., are all in form and function play-grounds, i.e. forbidden spots, isolated, hedged round, hallowed, within which special rules obtain. All are temporary worlds within the ordinary world, dedicated to the performance of an act apart (Huizinga 1955:10).

For Huizinga, the space of game-playing is but one type of space governed by special rules, and as with other types of space, the space of game-playing is social in origin. *People* make special spaces, be they court houses, religious spaces, or game spaces. The magic circle was subsequently singled out by Salen and Zimmerman as the primary term to describe the boundary around a game. The emphasis for them is not as much on general social structures as on the concrete act and psychological experience of entering into a game. Like Huizinga, Salen and Zimmerman emphasize that the magic circle is created by players:

> In a very basic sense, the magic circle of a game is where the game takes place. To play a game means entering into a magic circle, or perhaps creating one as a game begins. The magic circle of a game might have a physical component, like the board of a board game or the playing field of an athletic contest. But many games have no physical boundaries – arm wrestling, for example,

> does not require much in the way of special spaces or material. The game simply begins when one or more players decide to play (Salen/Zimmerman 2004:95-96).

Seen this way, the magic circle is a straightforward phenomenon in which players decide to play and by consent enter into the special social and psychological space of a game.

The magic circle has been a point of contention within video game studies the last few years, with several writers denouncing the magic circle altogether. Consider T.L. Taylor's criticism of the magic circle:

> Games are typically thought of as closed systems of play in which formal rules allow players to operate within a "magic circle" outside the cares of everyday life and the world. This rhetoric often evokes a sense that the player steps through a kind of looking glass and enters a pure game space. From Monopoly to Final Fantasy, commercial games in particular are often seen as structures conceived by a designer and then used by players in accordance with given rules and guidelines. Players, however, have a history of pushing against these boundaries (Taylor 2007:113).

Where Huizinga describes the magic circle as a consensual social phenomenon, Taylor sees an oppressive structure; where Salen and Zimmerman see harmony between the game and the player, Taylor sees a conflict; where Huizinga sees games as created by players, Taylor sees games as controlled by an external authority.

Another criticism of the magic circle comes from Marinka Copier's work on role-playing games in the Netherlands, wherein she argues that the magic circle is an imperfect separation:

> Furthermore I believe that the way in which the closed magic circle is being represented as a utopian "magical" space is problematic. […] The visualization and metaphorical way of speaking of

> the magic circle as a chalk, or even, rusty circle is misleading. It suggests we can easily separate play and non-play, in which the play space becomes a magical wonderland. However, I argue that the space of play is not a given space but is being constructed in negotiation between player(s) and the producer(s) of the game but also among players themselves (Copier 2005).

Copier's criticism takes a slightly different form than Taylor's. She shares Taylor's association of the magic circle with "Utopian" spaces "outside the cares of everyday life", even though the source texts do not describe the magic circle as Utopian. On the other hand, while Copier agrees with Huizinga, Salen, and Zimmerman that the magic circle is created by players, she intriguingly presents this as being *contrary* to their arguments. This has been a common thread in criticisms of the magic circle: like Copier, several other theorists also claim to counter Huizinga, Salen and Zimmerman by stressing the exact social nature of the magic circle that Huizinga, Salen and Zimmerman also stress. For example, Malaby (2007) claims that games are "in fact" social artifacts while Pargman and Jakobsson's (2008) criticize a "strong-boundary hypothesis" they assume to be inherent in the concept of the magic circle, but do so by using arguments similar to those of Salen and Zimmerman. Such criticisms also appear to overlook that Huizinga describes the magic circle as one type of *social space* among others.

Proof of the Existence of a Magic Circle

Taken at face value, these discussions are almost non sequiturs. Let us therefore look at an example: if at a family dinner, person A sees person B reaching for the salt, it is extremely rude for A to snatch that salt away or in any way to block B from accessing the salt. However, if A and B are to play a game of PARCHEESI or LUDO later in the evening, and A has the option of capturing B's final piece, this is socially acceptable. In other words, during dinner it is socially problematic to prevent someone from reaching their personal goal, but it is socially acceptable when playing a game. Apparently, playing a game not only means following or observing the rules of that game, but there are also special social conventions about how one can act towards other people when playing games. The concept of the magic circle is useful to describe the boundary at which these rules and norms of game-playing are activated.

The magic circle is a description of the salient *differences* between a game and its surrounding context. It does not imply that a game is completely distinguished from the context in which it is played. Richard Garfield has argued for the existence of *metagames*, which includes what players bring to a game and what players take away from a game. The metagame is "how a game interfaces with life" (Garfield 2000:14). To expand on the example above, playing a game does imply a license to try to win the game at the expense of other players, but there are several complications to this:

1. For multiplayer games, Jonas Heide Smith has documented how players that are ahead in a game will often self-handicap in order to maintain some uncertainty about the outcome of a game (Smith 2006:217-227).

2. Furthermore, winning and losing may have social consequences, and players may play accordingly. The most obvious example is playing against a boss or playing against a child, in which case the player may decide that it is preferable to lose the game.

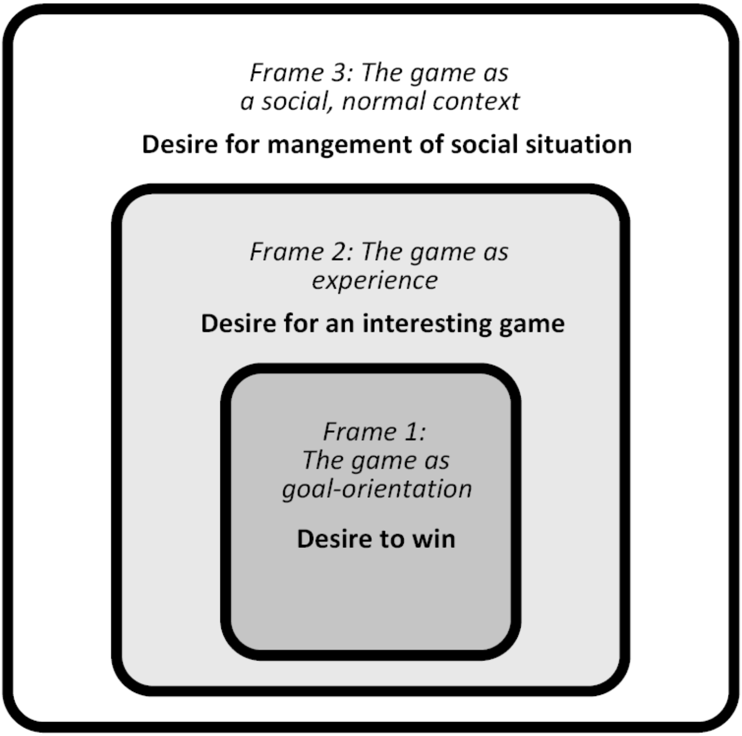

Fig. 2: Three Frames for Every Game Action (Juul 2009)

The figure illustrates how every game action can therefore be evaluated according to three different considerations, with the desire to win being only one of three considerations. We cannot generalize about the relative weight of these considerations as players have individual understandings of how important it is to win vs. how important it is to keep the game interesting vs. how important it is to manage the social situation. Some players believe that friends should help friends in a game, and some players believe otherwise. Does this disprove the existence of a magic circle? No, but it shows us what the magic circle is. It is clearly not a perfect separation of a game from the rest of the world, but an imperfect separation that players negotiate and uphold. It is meaningless to make an ahead-of-time call about whether games are either supremely dissociated from or integrated with the context in which they are played. That question is *in itself* subject to continued negotiation between players. I have elsewhere argued that games are not exactly harmless, but have *negotiable consequences* (Juul 2005:41-43). Negotiations are an important aspect of game-playing: *The magic circle is the boundary that players negotiate*.

To deny the magic circle is to deny that players negotiate this boundary. Game scholarship should be about analyzing the conventions of this boundary, and how and when this boundary is created and negotiated.

Given that the magic circle is an imperfect boundary, it would be convenient to have a list of things that can potentially cross the boundary. What aspects of "life," as Garfield put it, of the game-playing context, are potentially relevant to the playing of a game, and thereby relevant to the negotiation of the magic circle? In a paper on context-aware computing, Anind K. Dey has concluded that it is impossible to settle on such lists because "[w]e cannot enumerate which aspects of all situations are important, as these will change from situation to situation" (Dey 2001:5). This is a little disappointing. For example, surely it cannot matter whether the player smokes cigarettes? It can:

> SOE's Needham suggested that the Internet café-dominant MMO play setting in Asia must be solo friendly. Simple "point & click" design is also essential in the café environment, because players often hold a drink or cigarette in one hand (Dillon 2005).

Everything is potentially relevant to the playing of a game and therefore subject to the negotiation of the magic circle. This in no way means that we must stop talking about the boundary between a game and what is outside the game. Rather, it shows how many conventions and how much negotiation is part of playing a game, and that we need to put all the more effort into examining this boundary.

From Magic Circle to Puzzle Piece?

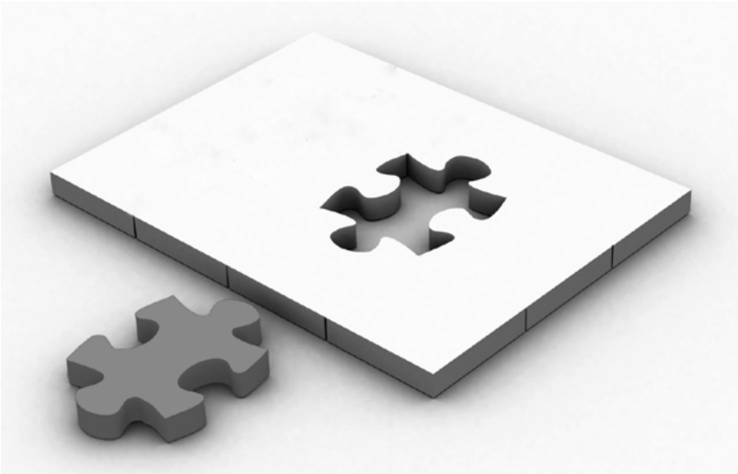

Fig. 3: A Game as a Puzzle Piece that Fits in a Context (Fotolia.com)

Perhaps the problem with the magic circle *as a metaphor* is that it suggests a uniform interface between the game and that which is around the game. We could alternatively describe a game as a puzzle piece. This makes it easier to talk about some of details surrounding games: a puzzle piece has different interfaces on its sides. Seen as a puzzle piece, a game may or may not fit in a given context. It may only run on a platform that the player does not own; it may build on game conventions that the player does not know; it may require time that the player does not have; it may require more players than are present in a given situation. We can then analyze *how* a game fits into a context, no longer arguing *whether* games are separate or not.

Gordon Calleja has argued that the magic circle is a “binary myth” of a distinction between what is in the game and what is outside the game (Calleja 2008). I hope to have shown here that, first of all, this is not how the magic circle has historically been described, and that, secondly, the magic circle is best understood as *the boundary that players negotiate*. I would argue that there are two other binary myths that pose a barrier for a better understanding of games:

1. The first myth is that the magic circle implies a perfect separation between the game and that which is outside the game. I have argued that this is not the case.

2. The second myth is that the job of a researcher is to seek – and destroy – binary dichotomies. While there may be political benefits to be had from this in some situations, in the case of games it simply leads to a loss of detail. We are many decades removed from the specific historical situation that spawned the hunt for binarisms. It is a remnant of a battle fought long ago, so perhaps it is time for game studies to move on.

One interesting aspect of studying video games is the extent to which they continue to upset existing theories. Early discussions about the relation between games and narratives challenged uncritical use of narrative theory (Juul 2005:156-159). Games also provided a surprise because they embody the kind of formal structures that had been rejected after the narratology of the 1960s. In games, the formal structures are not the constructions of a theorist, but are created and upheld by players (in the case of non-digital games) or computers (in the case of video games). The discussion of the magic circle is yet another upset: it is a straightforward theoretical move to deny boundaries, but in games we find players happily creating and negotiating the magic circle, the boundary around the games they play.

While it is unlikely that the magic circle metaphor will go away, I have offered here the alternative metaphor of the puzzle piece, a metaphor that makes it easier to identify how a game fits a context, and how players enter and leave a game. The puzzle piece shows the simple contradiction of all games: a game must be integrated into a context in order to be experienced as separate from that context.

Acknowledgments

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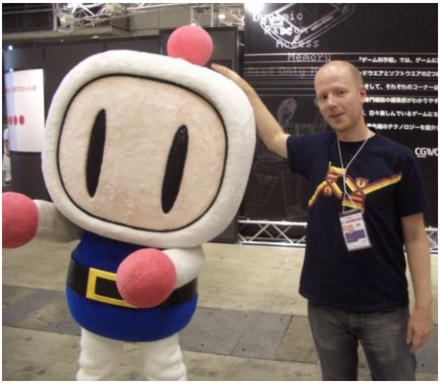

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Ethics and Politics

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The Rhetoric of Persuasive Games

Freedom and Discipline in America's Army

This paper suggests an approach to studying the rhetoric of persuasive computer games through comparative analysis. A comparison of the military propaganda game AMERICA'S ARMY to similar shooter games reveals an emphasis on discipline and constraints in all main aspects of the games, demonstrating a preoccupation with ethos more than pathos. Generalizing from this, a model for understanding game rhetoric through balances of freedom and constraints is proposed.

To an ever larger degree, computer games are being used as means for strategic communication: In advertising, education, and political communication. Above all, the use of computer games for plain military propaganda brings urgency to a question which have occupied humanist researchers in game studies for some time: Can computer games be analyzed as works of rhetoric – and if so, how?

Because if Aristotle was right in defining rhetoric as "an ability, in each [particular] case, to see the available means of persuasion" (Aristotle 1991:36), and if computer games can be used effectively as a means for persuasion, then such analysis should not only be possible, but a high priority. The popular US Army recruitment and propaganda game AMERICA'S ARMY (2002) is one of the army's most important strategic communication efforts during the last years, and is judged by the army itself as well as by independent observers as a highly successful project (Halter 2006, Nieborg 2005 and 2006, Callaham 2006, Li 2004).

AMERICA'S ARMY is a prime example of a persuasive game, a game which is published with the explicit purpose to convey a certain message to its players: The desirability of a future as a soldier in

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the US Army, and the validity of that army's worldview and operations. As such, it is an object well suited for rhetorical analysis.

Game Rhetorics

Various attempts have been made to formulate systems of rhetoric for computer games (e.g. Murray 1997 and Bogost 2007). However, these contributions tend to focus on prescriptive and normative accounts, and are therefore problematic to use as foundations for a descriptive analysis, which is what is attempted in this paper. Basing the analysis on tools imported from traditional rhetorical analysis of non-ergodic media forms would also be problematic, for reasons made clear by the so-called ludologist school of writers (Aarseth 1997 and 2004, Juul 2005, Frasca 2001b, Eskelinen/Tronstad 2003).

Formulating a theory for descriptive analysis of computer game rhetoric seems to first require an answer to certain questions frequently asked by humanist game scholars: whether it makes sense to analyze computer games as narratives or even as forms of text at all. Rather than revisiting this debate, this paper will simply assume the following ontological model of computer games, based on the theories of Aarseth (2004 and 2004a) and Juul (2005): Computer games are games played in virtual environments, and consist of three main elements: gameworlds, game structure/rules, and gameplay.

The rules of a game are defining elements of the social activity that constitutes the game, and like Aarseth and Juul, I hesitate to consider this activity narrative or fictional. Both the rules and the game itself are real and not fictional. And since it is hard to imagine that a real activity involving real human beings can take place in a purely fictional space, one must conclude that the digital environments that constitute the worlds of computer games are real as well. However, these digital worlds may be seen to represent, both through their appearance and behavior, something else which may be either real or fictional. The ways in which these representations relate to reality, but above all to each other, is of great importance to computer game rhetoric.

The third element of the ontological model, that of gameplay, is formed by the interactions of real players with the gameworlds and the game rules, and is therefore out of reach in a study that does not involve empirical player research, such as this one. However a related, but distinctly different aspect of the game is available for analysis: The player's representation within the game, the player *roles*.

These are the objects of analysis; now all we need is a method. In a situation where no established methods seem valid for the object at hand, it seems appropriate to go back to basics, to the simplest analytical method: comparison. Comparing a persuasive game to similar games which have no purpose of persuasion, we may assume that many of the differences we find are due to the game's rhetorical purpose. In particular this is likely to be true in those cases where the feature in question seems likely to reduce the entertainment value of the game. As we shall see, a number of such features can be found in AMERICA'S ARMY, and as a result some interesting questions may be raised about the rhetoric potential of persuasive computer games.

Fig. 1: BATTLEFIELD 2 (gamespot.com)

Fig. 2: COUNTER-STRIKE: SOURCE (gamespot.com)

Fig. 3: AMERICA'S ARMY (gamespot.com)

Comperative Analysis

The following analysis is based on version 2.6.0 of AMERICA'S ARMY, subtitled SPECIAL FORCES (LINK-UP) and released February 9th, 2006. The two games COUNTER-STRIKE: SOURCE (2004) and BATTLEFIELD 2 (2005) are chosen for comparison because they are some of the closest to AMERICA'S ARMY in genre and topic. In fact, according to Nieborg (2005), the original COUNTER-STRIKE (2000) was one of the main inspirations for the designers of AMERICA'S ARMY.

In COUNTER-STRIKE: SOURCE players take the roles of terrorists and counter-terrorist forces and fight it out in small teams in fast-paced battles until one team has either accomplished its objectives (such as setting off a bomb), or killed everyone on the other team. In BATTLEFIELD 2 players fight larger battles in a fictional war on three fronts between China, USA, and "The Middle-Eastern Coalition", with a massive array of modern weaponry, tanks, and aircraft at their disposal. In AMERICA'S ARMY the players engage in online battles against anonymous enemy forces in objective-based missions where the focus is on (relatively) realistic military tactics.

All three games are designed primarily for network-based multiplayer action consisting of "matches" between two opposing teams, where score is accumulated according to the number of enemies killed as well as strategic action towards a predefined goal. All three games are first person shooters with high production values, and all are among the most popular games of the genre worldwide.

What are the differences? Unlike the two other games, AMERICA'S ARMY requires that the player goes through a series of training missions before she is allowed to play online. These training missions take place in environments carefully modeled on real US Army training facilities, and are commanded by figures carefully modeled on real life army instructors. If the player gets tired of being ordered around and tries something radical like shooting the instructor (such as a large amount of players do – see Løvlie 2007:92-93), the player is immediately transferred to a virtual cell in the Fort Leavenworth military prison. This demonstrates the strict "Rules of Engagement" (ROE) that regulate the player's activities in the game: Whenever shots are fired at friendly targets, the player is given a large negative score, and on repeated violations she may be kicked out of the game, forced to re-qualify on special dedicated servers or banned permanently. This so-called "honor score" is also a positive instrument: Players get points for killing enemies and contributing to achieving team goals, and this score is stored and accumulated in the player account between sessions. A certain level of "honor" is needed in order to play in certain roles, with certain weapons and on certain servers – and in order to earn other players' respect.

The gameworld of AMERICA'S ARMY is also unique in some ways. In particular, all kinds of movement are slower and more cumbersome than in COUNTER-STRIKE: SOURCE and BATTLEFIELD 2. The player avatars are more vulnerable to damage, and one may easily get killed by a single shot – or the avatar may bleed to death if not treated by a medic. This makes it important to use great care when moving around, and to use strategies of stealth – crawling through ditches or staying hidden in one place when needed, further reducing the tempo of the game.

As for player roles, the player is also allowed less freedom than in the other two games. Through a unique software trick, the designers of AMERICA'S ARMY have prevented players from choosing side in the conflict represented by the online game scenarios. In a given scenario, a player of team A will be presented with a mission description in which she is seen as a US soldier attacking a Taliban camp in Afghanistan. She then sees both herself and her teammates wearing US uniforms and weaponry within the game, whereas she sees the avatars of the opposing team wearing Taliban clothing and equipment. At the same time, the players of team B will be presented with the opposite situation, seeing themselves as US soldiers defending a provisional camp in the Afghan mountains against Taliban attackers, and seeing their own avatars in US uniforms and weaponry and team A's avatars in non-US gear. Thus no player may ever see herself as an enemy fighting against US soldiers. – The following table gives a detailed list of the differences between the three games.

	AMERICA'S ARMY	COUNTER-STRIKE: SOURCE	BATTLEFIELD 2
Punishment for teamkilling	Large + automatic kicking and banning	Medium	Small + semi-automatic kicking
Qualification needed for online play	Yes	No	No
Respawn	No	No	Yes
Health packs/revival	No	No	Yes
Waiting time when killed	Up to 10 min	Up to 5 min	15 seconds
Free choice of role	No	Yes	Yes
Free choice of weapon	No	Yes	Partly
Single player version/bots	No	Yes	Yes
User-made maps, mods	No	Yes	Yes
Command hierarchy	Yes	No	Yes
Permanent ranking system	Yes	No	On ranked servers
Votekicks	Yes	No	Yes
Mutiny	No	N/A	Yes
Visual blood effects	None	Some	None
Close-quarter combat	Half-and-half	Exclusively	Little
Speed of movement	Low	High	Very high
Vehicles	No	No	Yes
Live map view/radar	No	Yes	Yes
Nametags separate friend from enemy	No (only at a very short distance)	No	Yes
Enemies identified by nationality or group	No	Fictive	Yes (partly fictive)

Fig. 4: Table of Differences between the Three Games

How can all these differences be interpreted as instruments of rhetoric? Trying to identify specific rhetoric figures in the game designs, such as "metaphor" or "metonymy", does not seem productive. Instead I will look at some rhetorical *strategies* that seem to lie behind the design of AMERICA'S ARMY, one for each of the three basic aspects of the game: Authenticity (gameworld), legitimization (rules), and identification (player roles).

Authenticity

The strategy of authenticity is evident above all in the design of the gameworld, and answers one question that might arise from our analysis: Why do players want to play a game that is slower and more cumbersome than its competitors? Is not easy access to fast-paced action one of the key attractions of first-person shooters? The answer from the marketers of AMERICA'S ARMY is clear: This game maybe slower and harder to play, but in return it is: "The Most Authentic Army Game Ever! The Power to succeed. The courage to exceed" (cit. by Nieborg 2006:111). The differences that make AMERICA'S ARMY a slower and more cumbersome game than COUNTER-STRIKE: SOURCE and BATTLEFIELD 2 are exactly those which make it seem closer to reality.

But does this make the game truly authentic? To some extent, this can be measured quantitatively. The table below shows the speed of movement in the three games, revealing that the soldiers of AMERICA'S ARMY can sprint indefinitely at a speed of 4.0 m/s. Taking into account that American soldiers of today are known to wear extremely heavy gear – the combat load of a US marine may exceed 120 pounds (Marine Corps 2003) – this agility is more than impressing. During my own time as a compulsorily enrolled soldier in the Norwegian army, my unit had a goal of holding a general marching speed of 3 km/h (0.8 m/s) – a goal we rarely met. Note that this is slower than the speed at which the avatars of AMERICA'S ARMY can crawl. Moreover, in

AMERICA'S ARMY there is no difference in the speed when running uphill or downhill; on dry asphalt or in snow, sand or knee-deep in water.

	COUNTER-STRIKE: SOURCE	BATTLEFIELD 2	AMERICA'S ARMY
Sprint	-	6.0 m/s (max 11s)	4.0 m/s
Running	**4.2 m/s**	**3.6 m/s**	**2.7 m/s**
Walking	1.7 m/s	-	1.5 m/s
Running crouched	1.4 m/s	1.9 m/s	1.3 m/s
Walking crouched	0.1 m/s	-	0.8 m/s
Crawling	-	0.7 m/s	0.3 m/s (sprint: 0.9 m/s)

Fig. 5: Speed of Movement

The next table shows the sizes of some "maps", i.e. game arenas, from the three games (the largest and the smallest maps among 6-7 maps measured from each game). It shows that even the largest battles of AMERICA'S ARMY take place within an area smaller than 0.2 square kilometers.

	Size estimate	Time to cross
Counter-Strike: Source		
Smallest: "de_prodigy"	42 x 60 m	10 x 14 s
Largest: "de_dust"	68 x 96 m	16 x 23 s
America's Army		
Smallest: "Urban Assault"	68 x 95 m	25 x 35 s
Largest: "Radio Tower"	300 x 356 m	110 x 131 s
Battlefield 2		
Smallest: "Strike at Karkand" (16p)	310 x 610 m	25 x 48 s
Largest: "Zatar Wetlands" (64p)	1570 x 1660 m	125 x 131 s

Fig. 6: Map Sizes

It is easy enough to come up with a long list of reasons why the gameworld of AMERICA'S ARMY is not at all authentic: Though more vulnerable than in other games, players can still take a bullet in the leg and keep running at their superhuman speed; and there is never a trace of blood or dismemberment even when avatars are killed in grenade explosions. And besides, how often does it happen to the soldiers of the real US Army that they face opponents that are equal to themselves in number, equipment and training – such as is the case in AMERICA'S ARMY?

It is easy to criticize the authenticity of the game, but the interesting thing is that all these arguments seem somehow irrelevant. The point from a fan perspective is not that AMERICA'S ARMY is equal to reality; the point is that it is *closer to reality than the other games*. Realism in a computer game may be understood as a result of how the game relates to other, similar games, not just how the game relates to external reality.

Identification

The strategy of identification in the design of AMERICA'S ARMY is connected with the player's inability to choose freely between roles in the game. Players of AMERICA'S ARMY will always see themselves and their fellow team members dressed in US Army uniforms and carrying US weapons, whereas the opposing team will be seen as some kind of generic enemy.

This means that each player is playing two roles at once: As US soldier to her teammates, and enemy to the opposing team. This brings out one of the ambiguities of the word "play": Is this an issue of "playing" as gameplay, or as *enactment*? Beyond the appearance of avatars, this feature also affects the actual behavior of weapons, with some subtle and potentially confusing gameplay consequences:

> If you drop your M-16, the other side sees you drop an AK-47, and if they pick up your weapon, they see it as an AK-47 and you see it as an M-16 that fires like an AK-47. This is not a bug, but a conundrum proceeding from the premise that though you've captured a weapon with a faster firing rate, all your weapons will look American to you (Davis 2003:272).

The game does not attempt to keep this trick a secret – the mutually contradictory mission briefings for either team are posted right next to each other on the mission information screens. The army is not trying to fool anybody about what is going on; what counts is just to prevent anyone from ending up in a role where they will literally see themselves as an opposing force fighting against US soldiers.

However, this paradoxical arrangement carries another self-contradiction: Orders for each team must be written in such a way that they can be interpreted both as the legitimate actions of US soldiers, and as the counter-strategy of an enemy force. In some missions, this is solved by a simple time shift, as in the following excerpts from the "Radio Tower" mission briefings. The assault briefing describes a combined hostage rescue and sabotage mission:

> *Situation:* Intelligence reports that a terrorist cell is broadcasting via radio tower at grid WQ038333 and holding two teams of international aid workers as hostage. [...].
>
> *Mission:* First squad, rescue the international aid workers in the buildings to the west (WQ018353) and southwest (WQ038333) and disable the antenna on the roof of the southwest building preventing its further use (Tran 2004:120).

Whereas the defense briefing, following immediately below on the page, describes the same situation a little later on:

> *Situation:* Having destroyed a makeshift terrorist radio tower and rescuing [sic!] two teams of international aid workers, your unit is awaiting extraction. Enemy counterattack is likely to take place by local reactionary forces.
>
> *Mission:* Until reinforcements arrive; protect the international aid workers in the buildings to the west (WQ018353) and southwest (WQ038333) and do not allow access to the antenna on the roof of the southwest building which would allow the enemy to send for additional forces (Tran 2004:120).

This is not just a set of gameplay instructions camouflaged as military-style mission briefings; it is also a set of stage instructions for a contradictory play of make-believe. Judged as theater, this might be seen as a surreal modernist play about two groups with mutually incompatible views of themselves and the others; a grotesque comedy of errors. This self-contradictory arrangement could potentially be experienced by players as disillusioning or alienating. However, the makers of AMERICA'S ARMY have put a significant effort in both mission design and rhetorical work in order to make it possible for players to effortlessly ignore the contradiction.

Nonetheless, the "two-faced" characteristic of the game's avatars means that the game directors have traded an element of reduced realism in simulation in order to achieve an appearance of the simulated world that fits better with the rhetorical purpose of the game. This goes directly against all the effort that has been made to have AMERICA'S ARMY look and feel realistic. And so it is clear that the directors of the army's game project consider the *enactment* aspect of their game to be crucial.

Legitimization

The third rhetorical strategy is that which is implemented by the game rules, which I have called *legitimization*. By this one term I mean to refer to two subtly different things. First of all, literal legitimization as "enforcement of the law": Creating a distinction between legitimate and illegitimate forms of violence, done through the game's rule system (ROE). Secondly, this can also be seen as an act of representation, portraying the army as an institution run by strict rules that prevent violent excesses.

The ROE is a tool for disciplining players. Since the penalty for killing a teammate is much higher than the reward for killing an enemy, excessively trigger-happy players will quickly find themselves in prison, or unable to log onto servers. Punishment for team-killing is not unique to AMERICA'S ARMY – it is prohibited as a default in most team-based shooter games, and is punished in both COUNTER-STRIKE: SOURCE and BATTLEFIELD 2 – but the strict implementation of the rules is. This in effect highlights the surveillance aspect of the game: The game's software registers the players' actions during the game, and automatically inflicts punishments for violations. In other words, it acts out the power of *authority* – and though most online games have an element of surveillance, AMERICA'S ARMY is a game that asserts this panoptic authority unusually strongly. This is not only a negative exercise, punishing unwanted behavior, but also a positive one which encourages desirable behavior, such as team play.

What further separates the rule system of AMERICA'S ARMY from similar games is that in AMERICA'S ARMY the rules are not just rules, they are also representations of something else: the rules by which the real US Army operates. This representation portrays the army as a strictly law-abiding institution, in which violent excesses and random cruelty is not tolerated. For instance, all the mission descriptions state that the player must take care not to injure any of the civilians present in the combat area – while in most of these missions there are no non-combatant avatars present. Why put forward this claim in contexts where it is clearly not true? Unless the game designers have made a mistake and forgotten to put the civilian avatars in the missions, the only reasonable interpretation is that these are meant to represent standard instructions that US soldiers are always required to follow.

The discipline of the game forms a coherent picture with several other design choices, such as the absence of blood and gore, and the slow pace of the game. These elements all point towards an attitude of *modesty* and *responsibility*, in particular in comparison with other violent computer games. Thus the game makes an effort to place itself safely outside of game violence controversy, and within the *doxa* of US society. It offers the pleasure of being in correspondence with the hegemonic ideology and authority, of being *legitimate*.

There is an interesting corollary, however, to the legitimating function of the ROE, and the double appearance of avatars. Since both teams have to follow the same rules, and both teams see the other team as terrorists, this arrangement implies that US forces and their enemies are equal not just in power, but also in moral: They both follow the same rules. Both sides will take pains to avoid civilian casualties, neither side will torture prisoners or kill hostages, and if terrorist activities are at all portrayed in the game, it is in a manner which is equivalent to legitimate military action. Recall the mission briefings above, where the assault team is told to “disable” the radio antenna: to the defense team this action is not even presented as sabotage, but rather just as the enemies radioing for extra forces. As long as everyone knows that the “terrorists” on the other team are seeing themselves as US forces, it is not possible to portray their actions as terrorist actions without implying that US forces themselves are conducting acts equivalent to terrorism. Instead, the “terrorists” are reduced to a generic opposing force that plays by the rules.

Ethos and the Rhetoric of Discipline

AMERICA'S ARMY is a game that requires a high degree of discipline from its players. In a genre that is famous for its anarchic tendencies and moral controversies, this is quite remarkable. In fact, the rhetorical strategies connected with all three aspects of the game may be seen as strategies that restrict player behavior: The rules restrict players from acting out anarchic violence. The demands of authenticity restrict players from performing the unrealistic stunts they might do in other games. And the identification demand restricts players from choosing which side to be on.

The discipline enforced in AMERICA'S ARMY is noticeable not so much by its correspondence with Army discipline in real life, as by the difference between the discipline in AMERICA'S ARMY and the more anarchic tendencies in similar games. Similarly, the impression of authenticity is not so much a result of the correspondence between the gameworld and the real world, as a result of certain "reality effects" which emphasize a distinction between AMERICA'S ARMY and other military-themed games. And so the design of the game can be seen as belonging to one side of a spectrum between constraints and affordances:

	Constraints	←-------→	**Affordances**
Rules	*Legitimization*	←-------→	*Opposition*
Player roles	*Identification*	←-------→	*Identity play*
Gameworld	*Authenticity*	←-------→	*Autonomy*

Fig. 7: Model for the Rhetoric of Persuasive Games

All of these terms are intended to be value neutral; it should certainly not be taken for granted that the largest possible freedom is desirable in all cases. As made clear by Gonzalo Frasca (2001a), a strictly limiting design may be necessary for dealing with serious themes.

One could exchange the term "discipline" (or "constraints") in my model with "anchorage", expanding on Barthes' use of the term: All of the strategies on this side of the spectrum can be viewed as different ways of anchoring the game in reality – or rather, a specific perception of reality. Building a gameworld which adheres strictly to the shapes and laws of the real world, enforcing rules which parallel the rules of the real US Army, and refusing players the option to see a situation from the perspective of the enemy, are all ways of anchoring the game experience in a reality that the US Army wants the players to consider as their own: as potential US Army recruits.

In conclusion, we should look at these findings in relation to the broader field of rhetoric outside of computer game studies. What kind of rhetoric is this game rhetoric? It is a relatively subtle kind, certainly one that deals with the "minimal gestures" claimed to characterize modern media rhetoric (Johansen 2002), rather than overwhelming impressions or provocative postures. Certainly there are instances of verbal-text rhetoric of the most patriotic and grandiose kind in the game. However, the rhetoric of the game form itself does not rely on such an overtly excessive style. Instead it is a rhetoric of modesty, responsibility, and moral authority; avoiding unrealistic excesses and rebellious play.

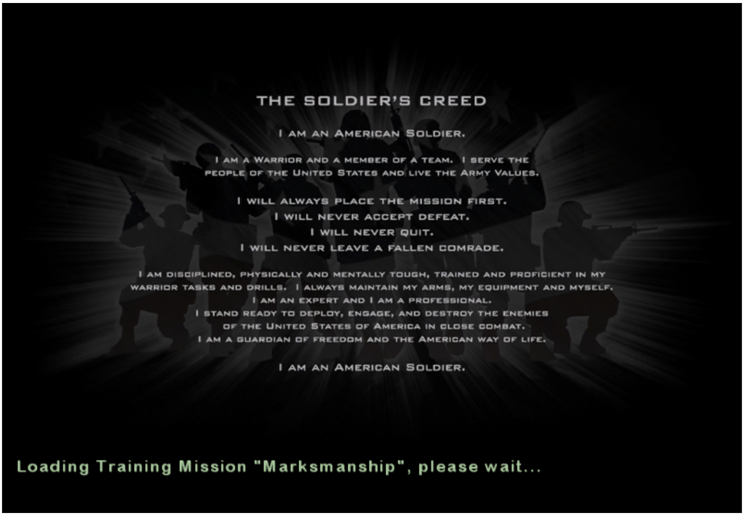

Fig. 8: "The Soldier's Creed" – One of the Loading Screens in AMERICA'S ARMY (Screenshot)

Of the three means of persuasion – *ethos, logos,* and *pathos* – described by Aristotle, *ethos* (moral character) is the main focus of the AMERICA'S ARMY rhetoric. The game portrays the US Army as a deeply moral organization, in which soldiers must take great care that no teammates or non-combatants are hurt; an organization which deals strictly with authentic reality, and in which every participant has a clearly defined, morally unambiguous role.

Perhaps the Rules of Engagement system could also be seen as an implicit argument of the *logos* type (reasoning) about how the soldiers in the real army conduct their missions in real life. And certainly there is a great potential for *pathos* (emotional affect) involved in the experience of playing an exciting, adrenaline-filled game where one enacts a soldier in the real US Army – but viewed from this perspective there is also a considerable risk involved for the army:

> Because of the Bush administration's timing, *America's Army* was working to sell the concept of signing up one's life to be a part of a very real, and very deadly war, one that the American public increasingly perceived as rife with moral and political complications, and initiated on questionable presumptions. So surely there were some pangs of concern in reaction to all the nifty news coverage *America's Army* was getting – a bit of panic on the part of parents, perhaps, "Weren't video games, well, bad for you?" (Halter 2006:XIX-XX).

Excessive computer game pathos, it seems, is dangerous. Therefore, if a computer game which openly aims to turn teenagers into killers (soldiers) shall succeed, it needs all the ethos it can get. This is why ethos is at the center of the rhetoric of AMERICA'S ARMY. It is also a good reason why AMERICA'S ARMY should be central for research in contemporary military propaganda, and computer game rhetoric.

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Ethical Reflection and Emotional Involvement in Computer Games

This paper focuses on the way computer games refer to the context of their formation and ask how they might stimulate the user's understanding of the world around him. The central question is: Do computer games have the potential to inspire our reflection about moral and ethical issues? And if so, by which means do they achieve this? Drawing on concepts of the ethical criticism in literary studies as proposed by Wayne C. Booth and Martha Nussbaum, I will argue in favor of an ethical criticism for computer games. Two aspects will be brought into focus: the ethical reflection in the artifact as a whole, and the recipient's emotional involvement. The paper aims at evaluating the interaction of game content and game structure in order to give an adequate insight into the way computer games function and affect us.

According to the cultural historicist Johan Huizinga (1955), playing games allows the player to transcend reality's boundaries and enter a fictional game world where the rules of "real life" are not effective and where he may act as someone else without fearing the consequences of "real life". Games take place in what Huizinga calls the "magic circle", a space characterized by the "as if" quality of the player's actions. Although this determination of games applies as well to computer games; they are more than just games, more than mere distractions from "real life." Computer games are cultural artifacts that are embedded in their specific cultural context and they comment on this context in a way other than literature and films do.

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Ethical Criticism as a Means to Approach Computer Games

In the beginning of her book "Love's Knowledge. Essays on Philosophy and Literature", the philosopher Martha Nussbaum explains why she has for so long been interested in the mutual influence of ethics and literature. She sees the reason lying in her childhood when she spent many hours reading and declared novels as her best friends. Not only was she concerned about the protagonist's fate, but the books she read also inspired her to think about highly philosophical issues concerning, for example, truth, and life, and love. Books became her friends, her "spheres of reflection" (Nussbaum 1990:11), as she calls them.

Today, many children and adolescents probably spend equal amounts of time playing computer and video games. Like books, these fictional worlds on the screen may offer alternative modes of being and living we are keen to explore. And like the literary characters in the books we read, the avatars introduced in these games may become somewhat like friends to us, and we may feel responsible for their well being. So, when Martha Nussbaum illustrates how the books she read made her the person she is today, can the same be said of today's computer games as well? Can they have a similar impact on our lives and the ways we see the world?

Most of the people who play computer games would probably immediately answer: Of course they can! Computer game heroes can serve as role models or idols just as literary or filmic characters do. But above that, how do computer games influence the way we think, especially if we take playing as an epistemological model for gaining insight and knowledge of the world?

The ethical criticism proposed by Wayne C. Booth in the 1960s and later resumed by Martha Nussbaum from a philosophical perspective in the 1990s draws on the assumption that novels and other narrative texts can have a strong ethical influence on their readers by engaging them in moral conflicts and therefore exercise their practical moral sense. Narratives achieve this through rhetorical devices such as "point of view" or "reliability of the narrator." The reader witnesses the emotional perturbations of the protagonists and involuntarily forms an opinion about what he is told and how he is told. One problem with this approach is obviously that literature can easily be misunderstood and exploited as an instrument for moral guidance. It is certain that literature does not simply convey ideas, but makes proposals that the reader may agree to deal with according to his own moral predispositions, or may not. Literature expresses a particular sense of life to which the reader involuntarily and automatically takes a stance. Additionally, it can be noticed that literature sometimes uses rhetorical strategies to imply the reader emotionally and morally; literature counts consciously for a certain mental predisposition of its readers. Ghost stories or lurid tales, for example, are written with a certain reader in mind and they only function as they should if the reader reacts as the anticipated ideal or implied reader inscribed in the story.

In her introduction "Form and Content, Philosophy and Literature", Martha Nussbaum explicitly draws attention to the necessity for an equal consideration of content and form when reading literature from an ethical perspective. (The equal consideration of "form" appears to be one way to meet the accusations of subjectivity when it comes to an ethical criticism of aesthetic phenomena.) It is not only *what* the author chooses to narrate, but also *how* he tells his story that illustrates a certain point of view or outlook on the world. The form or style of literary texts, Nussbaum argues, "itself expresses choices and selections, and sets up, in the reader, certain activities and transactions rather than others" (Nussbaum 1990:5). By combining form and content adequately, literature can make contributions to the reader's moral imagination. Nussbaum goes even further by claiming that literature is not only capable of ethical theorizing as well as philosophy, but even does so more vividly. While philosophy appeals to the intellect at an abstract level, she argues in “Reading for Life”, literature also involves the reader emotionally and as an individual person (although many philosophers would probably dissent and argue that philosophy, too, is a highly emotional field):

> For philosophy, too, has its seductive power, its power to lure the reader away from the richly textured world of particulars to the lofty heights of abstraction. [...] On the other hand, the seductions of literature can frequently return us to a richer and more complex world; and the very enchantments of the novel can lead the reader past her tendencies to deny complexity, to evade the messiness of feeling (Nussbaum 1990:238).

The aspect of authorial agency as the power to select among a variety of possibilities to tell a story becomes even more relevant regarding the gaming structure in computer and video games. By offering the player a set of options (for example to kill people in the game world) and denying others (for example to kill kids in the game world) the designer of a game also makes a moral statement. The options the designers of a game provide are first of all only relevant on the level of the source code. Every player movement has to be programmed in order to be considered as valuable input. But as soon as these decisions obtain a semantic denotation, they become part of the narrative universe of the game. Semantized allocations and restrictions of options on the level of the narrative can then refer to the implied ethics of the game (Sicart 2005).

The division of the game into a ludic and a narrative level corresponds to the distinction between form and content in traditional linear narratives. I understand the ludic level as the basic conflict structure of the game as it is written in the source code. The narrative level is placed upon this basis. It is on the one hand intertwined with it, while on the other hand it is on this narrative level that the ludic structure becomes visible. The ludic level cannot strictly be separated from the narrative level. One only gets an idea of the ludic level through the narrative level (unless he is able to read the source code.) The analytical tools of the literary *Possible Worlds Theory* (PWT) as drafted by Marie-Laure Ryan turn out to be very suitable when analyzing the correlation of conflict structure and narrative layer of computer games and to get an idea of the moral system that underlies the game world (Ryan 1991).

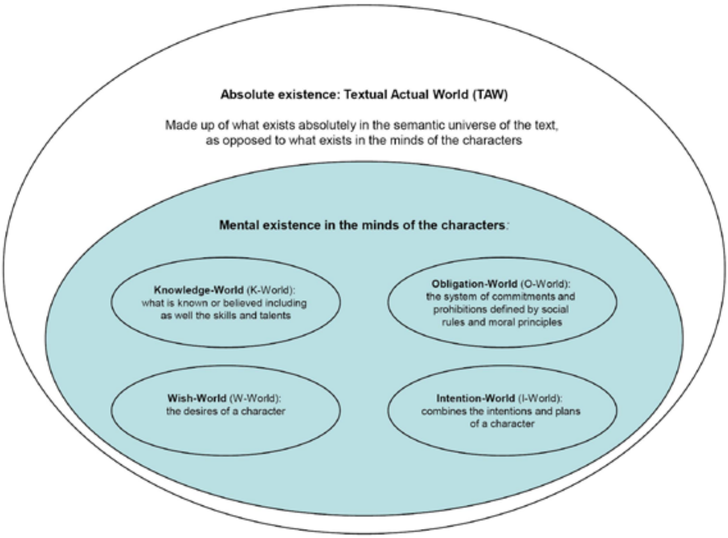

Fig. 1: Analytical Categories of the Possible Worlds Theory (based on Ryan 1991)

First of all, a text establishes a narrative universe that constitutes a reference world called the *Textual Actual World* (TAW). Opposed to this reference world, there are several possible worlds that only exist in the minds of the characters such as *Knowledge-World*, *Intention-World*, *Obligation-World*, or *Wish-World.* These different worlds are not always compatible, in fact if they were, the narrative would be missing a conflict and probably bore its readers. Accordingly, "the relations among the worlds of the narrative system are not static, but change from state to state. The plot is the trace left by the movement of these worlds within the textual universe" (Ryan 1991:119). A conflict between two or more of the character's worlds or one of the character's worlds and the TAW can cause movement: "For a move to occur and a plot to be started, there must be some sort of conflict in the textual universe. Plots originate in knots – and knots are created when the lines circumscribing the worlds of the narrative universe, instead of coinciding, intersect each other. In order to disentangle the lines in their domain, characters resort to plotting, with almost inevitable effect of creating new knots in some other domain" (Ryan 1991:120). This understanding of plot and movement in a narrative can be applied to certain computer games in order to analyze their conflict structure. The game is initiated with some sort of conflict the player has to solve, with ever new conflicts coming along the way. In the following, the game FAHRENHEIT (2005) will be analyzed by means of the categories of the *Possible Worlds Theory* in order to demonstrate the correlation of ludic and narrative level and give an impression of the playing process.

The game's story in FAHRENHEIT is elaborated from two different perspectives. First, there is the perspective of the protagonist of the game, Lucas Kane. At the beginning of the game he finds himself waking up in the restroom of a little restaurant where apparently he has just murdered a man. Lucas does not know the man and does not know what happened; he committed the murder in a state of trance or unconsciousness. The first conflict or quest therefore is to leave the restaurant unattended, the general quest of the game is to find out about the reasons for this murder and prove Luca's innocence.

The second perspective that is offered to the player is the one of the two investigating police officers, Carla Valenti and Tyler Miles.

These two perspectives alternate and the player can act as either one of these three; he can choose between either being Lucas or switching between Carla and Tyler. FAHRENHEIT mixes classic adventure game quests with quests that require more action game-like skills, such as speed and precision in the pressing of buttons. The dialogue scenes also combine these two principles by offering up to four possible topics among which the player has to choose, one in a given time frame (about 5 to 7 seconds) in order to communicate with another character in the game.

The *Textual Actual World* equals at first sight our own perception of reality. The game is set in New York City in the month of January in today's time. Yet, some clues hint at supernatural forces agitating in that world, which the avatar, Lucas Kane, does not understand himself. When considering the different worlds we have to make the distinction between the world from the perspective of the avatar and the world from the perspective of the player. In the beginning of the game, the avatar's *Knowledge-World* is more or less congruent with the player's *Knowledge-World*. Lucas finds himself having committed a murder without having any memory of the act itself and therefore without knowing what actually happened and why. The same holds true for the player – only that his attention has already been drawn to a crow sitting in the restroom's window, a figure that in fiction often serves as a symbol for supernatural and ominous forces. The player can therefore already assume that something supernatural has taken place and will cross the game's storyline again. Additionally, the player starts to broaden his own *Knowledge-World* by gaining control over the navigation and the menu. What is also still unknown to him is the knowledge of his abilities as player of the avatar.

Also the player's and the avatar's *Obligation-Worlds* are more or less equally assignable. Murder is labeled a crime and hence morally not justifiable. The police are introduced as the legal institution that prosecutes these crimes. Although the player assumes this, he has to verify if his own moral system is applicable to the game by trying out various options. The option to flee the place, for example, is not provided. Neither is the possibility to confess the crime to the police officer who is sitting at the bar of the restaurant. An appalled and paralyzed reaction to the murder or the waiting for things to happen is condemned as well. The time frame for reacting to the murder and leaving the restaurant is limited. When it is over, the police officer finds Lucas in the restroom and arrests him, the game ends. One might conclude from these restrictions that cowards are dismissed right at the beginning of the game and only the brave and curious should continue. Not allowing these alternative options probably has structural rather than moral reasons. It is remarkable though that while the game does not continue these alternative threads on the ludic level, they are considered and realized on the narrative level in cut-scenes and therefore characterize the avatar indirectly and give the player a hint of the implied ethics.

The *Wish-World* of all three avatars (Lucas, Carla, and Tyler) is partly symbolized through an energy bar that shows the avatar's state of affections and that can be filled in the first chapter by actions that make Lukas feel comfortable and more safe such as "eat", "drink", "play jukebox", "remove dead body", or "hide knife"; and is lowered by actions that attract attention or arouse suspicion for example the following: "talk to waitress", "talk to cop", or "leave without paying." The more points the player makes in this chapter, the better he is prepared for what is coming.

Intentions and wishes go hand in hand in the first chapter: Lucas wishes to erase his tracks as well as possible and escape the restaurant before the police finds out about the murder. His intention is to look for the best way to do so without drawing too much attention towards himself. The player adopts these concerns by trying to fill the energy bar. Obviously, the intentions of Tyler and Carla in the second chapter are directly opposed to Lucas' in the first chapter. Whereas he wants to cover his traces, the investigators want to detect them. The player has to adopt both perspectives and all concerns to an equal extent in order to progress. The possibility to even deliberate whether he wants to give one party a priority over the other is not intended in the game and this is what establishes kind of a moral conflict in the player.

This close analysis of FAHRENHEIT demonstrates how the player gains insight of the ludic structure of the game through the narrative structure. Restrictions on the level of the source code are expressed and made reasonable on the narrative level. In the case of FAHRENHEIT this is realized consequently throughout the game and I believe the correlation of both levels and not the independent functioning of each might be one criterion for a good game. In the case of FAHRENHEIT, the player is denied elemental decisions, for example to choose which side he wants to be on. At the same time, he is offered less far-reaching options to solve the game's conflict and it is still up to him if everything goes well in the end. From the perspective of an ethical criticism, both levels, the ludic, as well as the narrative as correspondents to the levels of form and content in literature, should therefore be considered in order to grasp the idea of a game; the outlook of the world implied in and transported through the game.

Forms of Emotional Involvement in Computer Games

Earlier I mentioned Nussbaum's claim for the heuristic value or ethical potential of literature since it not only appeals to the intellect, but also involves the reader emotionally. Above all, it is the emotional involvement that characterizes computer games. However, we have to differentiate between two different ways of emotional involvement. One is instantaneous and spontaneous: We play a game, because we want to win a game. This is the first focus of our interest and if the game is good we hold up this commitment throughout the game. But some games also involve the player on a second level emotionally, which is comparable to the emotional involvement in literature and depends first of all on the narrative level. It makes a difference if we have to arrange blocks in an optimal position or if we have to save the princess from the jaws of a monkey. In games with a narrative framing, we are concerned about the avatar's fate, not only because the avatar is our representative in the fictional world and the instrument we need in order to actually play and win the game, but because we feel for him, we identify with his concerns and want to know how the story turns out for him and for us. The narrative framing of a gaming context can affect the gaming motivations.

In literature it is through the narrator and/or the protagonist that we are drawn emotionally into the fictional universe of the text. During the reading process we establish a kind of emotional relationship to the protagonist characterized above all by the emotion of empathy, which is amongst other things influenced by the narrator's point of view (Schneider 2002). In computer games there is no narrator to tell the story. We experience the story directly as it happens or at least this is suggested. What is of similar importance for the emotional involvement in digital games, though, is the relationship between avatar and player. (It would be interesting to analyze if players preference for certain games depends partly on their sympathy for the avatar.)

Before demonstrating some forms of emotional involvement in computer games with three examples, I would like to focus first on the communicative situation in games since there is one highly relevant aspect that has to be kept in mind when bringing together literary concepts with computer games. This is the fact that we have to play for the text, it is the ergodicity of these texts, as Espen Aarseth stated in his book *Cybertext*, that influences the relationship of player and avatar to great extent. He describes the communicative situation in Adventure Games as an "intrigue structure" (Aarseth 1997:111-114).

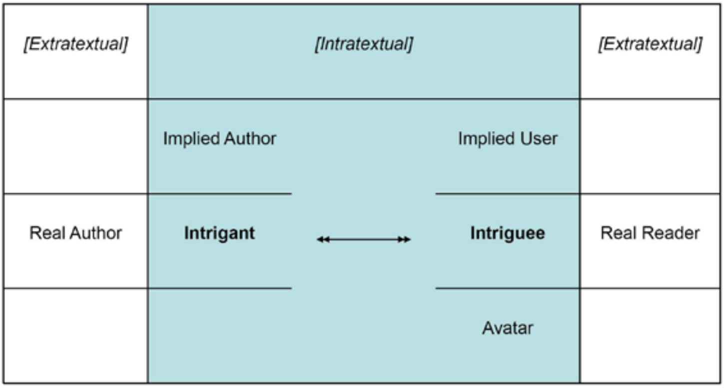

Fig. 2: Intrigue Structure in Cybertexts (based on Aarseth 1997)

Unlike narrator and implied author, the *intrigant*, rather than guiding through the story and the game, complicates it. He can be seen as the player's adversary. The *intriguee* on the other side holds the positions of the implied reader and the narratee. The *intrigant* wants to prevent the *intriguee* from solving the problems too easily; the *intriguee*'s aim is to overcome all the obstacles installed by the *intrigant* in order to win the game. This situation varies in different game genres, but the formula of *intrigant* – *intrigue* – *intriguee* generally applies to most of the game genres.

On the side of the *intrigue*, player and avatar work hand in hand. It is first of all on the ludic level that this relation is determined. The player is given certain options to act on other non- playable characters or objects in the game world (e.g. fight, talk, pick up objects, etc.) and forbidden others (e.g. to go where he likes and to ask what he likes).

The game SYBERIA (2002) serves as a good example for how the relationship between avatar and player can also be influenced on the narrative level. Kate Walker, the avatar in SYBERIA, is given strong psychological traits; she is compared to others an exceedingly defined and personalized avatar. This implies that the player's way to interpret the game world is to great extent left out. He is forced to adopt Kate's perspective. It is often argued that avatars need to be flat characters that leave room for the player to come in. Yet it seems, depending on the game genre, that also games with round, i.e. autonomous characters are attractive for players, because they offer new schemata of thinking and acting that can be; other than in literature, tested. This relationship between avatar and player can be considered a form of emotional involvement. In the case of SYBERIA, it is possible that the player rather than thinking about what he himself would do, might get to a point where the answer to the question, "What would my avatar do in this situation?" is more relevant to him. Judging from what he already knows about his avatar already, he might then find the solution to the given problem. What I just sketched out can best be realized in adventure games because they have a determined game structure that leaves only little room for deliberation and negotiation on behalf of the player.

A different form of emotional involvement is realized in FAHRENHEIT, a game I already mentioned. Like SYBERIA, FAHRENHEIT introduces an avatar that is predefined as an autonomous character that reacts emotionally and in a very personal way to the things that happened to him. Lucas Kane, the avatar of FAHRENHEIT is no hero in the classical sense; he actually was not looking for this challenge. He is an anti-hero or a tragic hero and FAHRENHEIT is the extraordinary story of an ordinary man, as he says himself in the introductory sequence. Here the player is inspired to ask not so much what the avatar would do, but what he himself would do if he were in such a situation. A feature that supports this impression is the design of the dialogue scenes. As in other games, the player can choose between several possible questions or answers, but here he is only given a short time frame to select between these options. The player therefore has not much time to think about possible consequences for the progression of the game, but has to decide spontaneously and emotionally.

A third form of emotional involvement in games can be discovered in GTA SAN ANDREAS (2005). What is of importance here is first of all the introductory sequence. The *Textual Actual World* of the game is introduced, and especially the categories of "good" and "bad" executed in the game world. Carl Johnson, the protagonist of the game is the good, misunderstood boy who is stigmatized by the bad cops. They want to foist a murder on him which he did not commit. This introductory sequence therefore functions as the reference foil to which everything in the gaming process has to be set into relation. It sets up a framework that evaluates illegitimate actions as acts in self-defense and provides new moral schemata. Therefore, the introductory sequence is of great importance here, it provides the player with the psychological and moral reasoning of the occurrences in the course of the game and commits the player to the game's ethics.

All three forms of emotional involvement sketched here have in common that they combine the player's perspective from outside the game with the player's perspective inside the game through the eyes of an avatar. This is something that cannot be realized to equal extent in literature, since literature does not involve the reader in the unfolding of the story. The forms of emotional involvement in computer games are various, they go far beyond empathy or compassion and these three examples can only be first approaches in describing the aesthetic and emotional experience of computer games. But they already indicate that computer games are contextualized artifacts that might distract the player from "real life" and from himself, but that always find multitudinous forms of referring back to the player and his mental and emotional predisposition. Additionally to literature and film, computer games can be regarded as media that stretch our moral senses. A computer game can serve as a playing ground for the other in us. But at the same time, a computer game is also a playing ground for the self in us.

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Niklas Schrape

Playing with Information

How Political Games Encourage the Player to Cross the Magic Circle

The concept of the magic circle suggests that the experience of play is separated from reality. However, in order to interact with a game's rule system, the player has to make meaningful interpretations of its representations – and representations are never neutral. Games with political content refer in their representations explicitly to social discourses. Cues within their representational layers provoke the player to link the experience of play to mental concepts of reality.

Can games have political meanings? Most players are well aware that a game is not to be confused with reality, but is a discrete sphere, cut off from the ordinary world, governed by its own rules. Since Johan Huizinga (1955), this phenomenon is commonly known as *the magic circle*, a concept often taken up by ludological thinkers like Rodriguez (2006) or Salen and Zimmerman (2004). However, if games shall be meaningful, the player has to relate the playing experience to the subjective construction of reality. This paper proposes that games can offer cues within their representations in order to encourage the player to refer to knowledge of the real world. In doing so, these games incite the player to mentally move back and forth between the magic circle and the outside world. It is not the concern of this paper to offer empirical evidence about the psychological effects of video games, but to construct a perspective in order to be able to investigate the immanent structures of games that shape the process of meaning making. The paper starts with a discussion about the importance of interpretation in play. In the second part, a model is suggested that illustrates the several layers of a game, which can contain information

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http://pub.ub.uni-potsdam.de/volltexte/2008/2466/ [urn:nbn:de:kobv:517-opus-24668]

and textual cues. These theoretical considerations are concluded by the discussion of three examples: ZOTTEL RETTET DIE SCHWEIZ, GLOBAL CONFLICT: PALESTINE, and PEACEMAKER. In this article, the player is sometimes referred to as male (*his* actions, *his* interpretations) this is done to simplify matters and shall in no way exclude female players from consideration.

Making Meaning out of Games

How do players make meaning out of games? The ludologist Markku Eskelinen (2001) claims that games, while played, are only interpreted in face of their rules. He points out that the dominant user function in games is a configurative one. However, in order to perform a meaningful configuration, the player needs to interpret the state of the game. In his words: "in games we have to interpret in order to be able to configure" (Eskelinen 2004:38). Against his intentions, Eskelinen states that interpretation is of the utmost importance for play. From a semiotic point of view, interpretation is a general activity of meaning making, which enables human beings to orient themselves within the world; to act, and to make sense out of their experiences. Interpretation is directed at signs and systems of signs, which are representations, as they refer to meaningful mental concepts. The constructionist approach in literary and semiotic theory claims that the meaning of any text is not transmitted, but actively constructed by the reader (Hall 1997). Hence, the meaning of an artwork only manifests itself during reception (Eco 1989). This process is not arbitrary, but pre-structured by cues within the text. Therefore, the individual experience of a text, a novel, or a film is not identical with the material text it is based on. Meaning can only arise through reception. The cognitive film-theorist David Bordwell describes the interplay between a film and the spectator:

> [T]he film offers structures of information [...] to encourage the spectator to execute story constructing activities. The film presents cues, patterns, and gaps that shape the viewer's application of schemata and the testing of hypothesises (Bordwell 1985:33).

Bordwells thoughts apply not only to narrative films, but also to the player's interpretative activities in video games. Britta Neitzel (2005) pointed out that the player observes the represented actions of the video game and matches this information with existing schemata about stories in order to orient further actions towards a horizon of meaning. Instead of guiding a viewing experience by constructing hypothesis about the story's development, the player constructs strategies, concerning future moves. There are several other mental concepts and schemata the player can refer to in order to interpret the game in a way that enables meaningful action. The player brings into the game a huge amount of knowledge, often pre-conscious. In a story-driven game, this knowledge might encompass expectations about the reactions of characters, based on experiences in real life, films, or books. In a shooter, it might be the knowledge about gravity, physics, and shotguns. Schemata are mental concepts that are pre-consciously used in order to complete incomplete information. For example, many role playing games do not actually explain rather obscure concepts, like karma, elves, and orcs. It is assumed that the players will refer to established schemata in their heads, shaped by endless fantasy games and profound knowledge about Tolkin.

The interpretative activity of the player can only be directed at the games representations, the rule system of the game is imperceptible. Without being represented, rules are as invisible as pure syntax without any semantics. Everything the player knows about the game, he knows by interpreting the representations. He can abstract general rules from specific experiences, but is still dependent on what he observes on the screen. He can make conclusions, learning from experimentations, but he can only reflect on what he perceives as represented feedback. In consequence, there are two sources of information the player can draw on: the representations of the game and existing knowledge. But representations incorporate more than just rules. They offer a fictional game world (Aarseth 2003) that changes the experience of the player (Juul 2005, Bogost 2007). More importantly, there are no neutral representations, as long as not totally abstract. The majority of games make use of very concrete representations that refer to established mental concepts about conflicts, enemies, monsters, and love – schemata which can be easily put to use by most players in order to effortlessly construct a smooth interpretation about what is going on in the game.

Therefore, the semiotic system of a game is in no way superficial or coincidental, as Espen Aarseth (2004) claimed and Jesper Juul (1998) once argued. Juul (2005) revised this statement later and described games as both rules and fiction. This consideration goes along with theoretical thoughts by Britta Neitzel (2005) and Claus Pias (2002). Games seem to be a Janus headed medium with a double nature. They are formal rule systems as well as representational systems. Both systems are equally necessary to enable play.

If the interpretation of the representations allows the player to take meaningful action in the game, one question arises: What is *meaningful play*? Katie Salen and Eric Zimmerman describe the creation of meaningful play as the holy grail of game design:

> Meaningful play occurs when the relationships between actions and outcomes in a game are both discernable and integrated into the larger context of the game. Creating meaningful play is the goal of successful game design (Salen/Zimmerman 2004:34).

According to this definition, the experience of a perceivable feedback enables the player to ascribe meaning to actions. The consequences of the player's actions have to be significant for the whole system of the game to be integrated within a larger context. It is important to point out that this conception of *meaning* is not identical with meaning as used in literary interpretations. The possible meaning of TETRIS (1985), in the (in)famous interpretation by Janet H. Murray, is a metaphorical one (Murray 1997). In contrast, the *meaning* given by Salen and Zimmerman is only related to the game itself.

It can be summarized that the player interprets the representations of the game in order to configure the rule system in a way that enables him to experience meaningful play. He is cued in his interpretations by the game's representations, but needs to flesh out the perceived information with existing knowledge, clustered in cognitive schemata. In this line of thought, the interpretation of the player is functional. But is it possible to denote a functional meaning to a sign without stirring up connotations? As the examples will show, the two kinds of meaning are not as separated as it seems.

The Layers of a Game

If a game contains cues which the player uses in order to construct meaning – can these cues be located more specifically? In reference to the concept of game rhetorics by Gonzalo Frasca (2003), it is possible to describe a game as an entity with several layers.

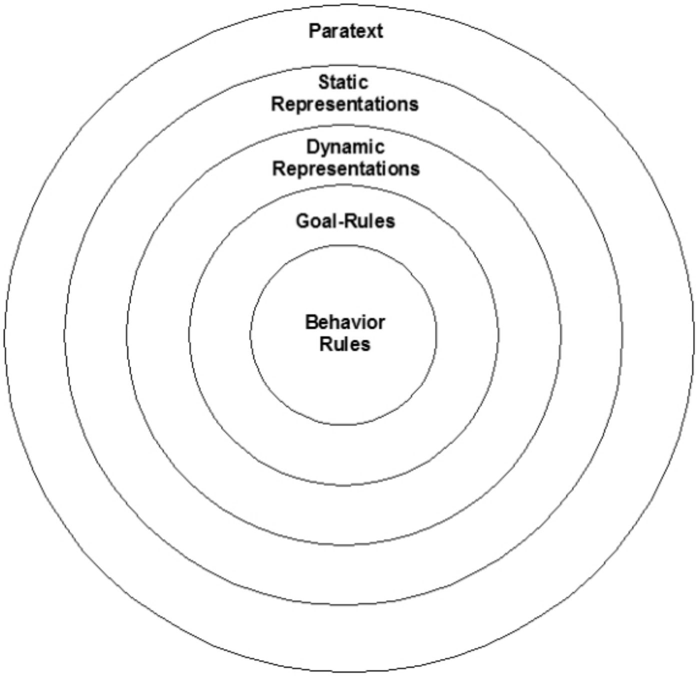

Fig. 1: Game Onion inspired by Gonzalo Frasca (2003)

In this *Game Onion*, the circles represent the layers of the game, which can contain information to cue the player. Frasca identified four layers in games: The layer of *representation*, the *behavior rules*, the *goal rules*, and the *meta-rules*. The meta-rules define the possibilities to change the other layers. For the purpose of this paper, this layer shall be ignored, as it is only crucial for games that allow the player to act as an emergent author (Pearce 2004). Furthermore, the model is expanded by the layer of *paratext* and the category of representation is diversified into *dynamic* and *static representations*.

At the core of the Game Onion are the *behavior rules*. They define what the player can and can not do within the game. These rules are based on models that do *not* simulate reality, but realize mental concepts of reality. A simulative model can describe aerodynamics or an economic system, but it is always based on assumptions. Hence, the behavior rules are expressions of subjective or inter-subjective interpretations. Simulative models are procedural materializations of concepts of truth, positioned within specific historical contexts (Hall 1997) and discoursive formations (Foucault 1972). Simulations are always interpretations. However, for a game to be a game, there needs to be a goal for the player to achieve and obstacles to overcome, resulting in dramatic conflict. According to Frasca, these aspects are defined by the game's *goal rules*. They define a winning scenario and stage a state of the game as preferable and others as not. For this reason, goal rules are highly ideological. The layer of *dynamic representation* builds the third ring of the game-onion, it includes all representations that are directly connected to the rule system, and basically everything the player can interact with. As explicated, these representations have a functional dimension, as they allow interaction, but they cannot be reduced to this function. Obviously it makes a difference if an enemy is represented as a monster or a child. *Dynamic representations* are necessary for a game to be playable, but many video games contain a lot of cut-scenes and texts that are not essential for the gameplay. Hence, there are two layers of representation, a dynamic one; representing the rules and the state of the game, and an additional one; enriching and commenting the playing experience. This layer can be called *static representation*, as the player is not able to interact with it. It includes everything that is represented within the game, but not playable, as written texts or video sequences. Every game needs a layer of *dynamic representation*, but not every game needs a layer of additional *static representation*. A simple arcade game, like SPACE INVADERS (1978), has dynamic representations, but nearly no additional static ones. It is easy to imagine a Space Invaders Deluxe version, augmented with spectacular cut-scenes, narrating the heroic battle of mankind against the overwhelming forces from outer space. This hypothetical framing could enrich the playing experience, but it is definitely not necessary to watch these videos to be a successful player. SPACE INVADERS is an example of a game where all necessary information is situated within the *dynamic representations*. However, more complex video games often use *static representations*, like cut-scenes, to offer relevant information.

Every textual element that cues the player, but is not part of the game itself, can be described as *paratext*. This category encompasses the manual, the advertising, walkthroughs, and hint books. Especially early games, like the famous Infocom adventures, made good use of paratextual elements, which offered background story and sometimes hints for puzzles. Moreover, it is obvious that the expectations of the player (and therefore the playing style) are heavily shaped by promises and claims, made in ads and on the packaging of the game.

In most cases, all relevant information is located in some layer within the game. However, some games have rule systems that force the player to refer to existing knowledge, e.g. quiz games. They are special in that they implement solutions within their rules, which the player has to reconstruct. Confronted with a puzzle, the player needs information to find a solution. This information can be located within the dynamic or static representations, the paratext or outside the game. If the information cannot be found in the game, the player needs to activate existing knowledge. In doing so, he establishes a link between in-game experience and concepts of reality. This mechanism is well known to all players of quiz games, who gain tremendous, if fragmented, factual knowledge due to play.

The categories of the Game Onion can be put to use in order to investigate the structures of games that shape the interpretation of the player. How does a game cue the player in the construction of meaning? How can the player use the interpretations in order to interact with the game? Can games cue in such a way that the interpretations feedback on concepts of reality? These questions shall be investigated in the discussion of three examples with explicit political content.

Example 1: Zottel Saves Switzerland

The game ZOTTEL RETTET DIE SCHWEIZ (2007) has been used by the right-wing Swiss party SVP to convey political messages during their election campaign. The game consisted of four simple flash games on a website. The ZOTTEL games became hugely popular and spurred an international controversy, due to racist content. Considering the sweeping press coverage, the games can only be called a tremendous success. They went off-line shortly after the end of the election campaign. The ZOTTEL games were notable for their structure: all four games consisted of a quiz game, a simple arcade game, and a final written statement, evaluating the player's performance. The arcade part was the actual game, where the player controlled the SVP's mascot, the goat "Zottel." In one of the games, Zottel was positioned behind a line, graphically signified as the Swiss border. From the left side, oodles of black and white sheep stormed the screen. The player's task was to kick out the black sheep before they could cross the border, while ignoring the white ones. From time to time, a bus, designated as property of the green party and filled with four sheep at once, drove from the left to the right side – again the player had to kick it out. The game ended after a certain amount of black sheep crossed the border. The player's goal was to stay in the game as long as possible.

The *behavior* and *goal rules* of the game were a variation on arcade classics. Because of their familiarity, they were very accessible. Everyone could play ZOTTEL. The *dynamic representations* linked the game with an established discourse in Switzerland during that time. The picture of black sheep, invading Switzerland, defended by a goat, might be ambiguous. However, the visual metaphors of the goat Zottel, representing the SVP, and the black sheep; standing for criminal foreigners, were well established through ads and posters. In order to ascribe a political meaning to the game, the player, therefore, had to refer to *paratextual* information and existing knowledge. The text at the end of the game evaluated the playing and called to vote the SVP. This *static representation* clearly tied back the playing experience to real life politics and cued the player to connect it with a political discourse. Moreover, an opening screen, presenting a short quiz with just one question, preceded the game. In the case of this example, the question was: "How big was the percentage of rapes committed by foreigners in 2005?" The player had three different answers to choose from, the game started only if he chose the "correct" one, allegedly 80.5%. The quiz forced the player to resort to prior knowledge of the social and political situation in Switzerland. Moreover, it coerced him to subdue to the rules of a right wing discourse, exploiting his eagerness to play. Additionally, it framed the following game, offering a context, connotating the black sheep as potential rapists, and by that charging the experience of play in an emotional way. The quiz offered background information, not necessary for successful playing, but pre-structuring the player's interpretation. It does not help the player to interpret the symbol of the black sheep in such a way. The functional meaning of the sheep within the game is independent from its metaphorical meaning. Therefore, in ZOTTEL, there are two kinds of meaning at work. This serves the purpose of the game, as it is programmed to be as accessible as possible. Nearly no preexisting knowledge is necessary to play the arcade game, but it is impossible to overlook the political messages. The game simply works as a viral marketing tool.

Example 2: GLOBAL CONFLICT: PALESTINE

GLOBAL CONFLICT: PALESTINE (2007) is a game about the Middle East Conflict, which puts the player in the role of a journalist, who tries to gather information and to sell compelling stories. The texts on the packaging and the website describe the game as a "new approach to games, moving them beyond entertainment." Moreover, the website offers learning materials for teachers. On a *paratextual* level, the game is clearly framed as well as researched, realistic, and authentic. GCP resembles a role-playing game: The player is quite free in his movements and has to accomplish tasks for characters. However, there is no fighting; the main activity is to talk to informants, and to collect statements. While doing this, he has to take care not to annoy his interviewees. Their attitude towards the player is represented through a mark on a colored bar, ranging from red to green. During the dialogue, the player has to choose between several written sentences, resulting in more dialogue options. The particularity of the game is that the player can use his knowledge of the Middle East conflict for successful playing. In order not to anger a Palestinian or Israeli, he has to put himself in the others' place. To do this, the player can resort to existing mental concepts.

Additionally, the game offers lots of potential sources of information, e.g. virtual experts, like a university professor, who functions as a marker of authenticity. To successfully play GLOBAL CONFLICT: PALESTINE, the player has to make complex interpretations of specific narrative situations, based on information offered by the game's *dynamic* and *static representations;* complemented by existing knowledge. The common game mechanism of a dialogue menu has much in common with a quiz game, as it encourages the player to use knowledge to choose the strategically best option. On the layer of *behavior rules*, the options of the dialogue menu are simply defined by their attributes: some will move the relationship-bar to the friendly side, others to the hostile one. The *goal rules* evaluate the different options, pressing the player to make conscious decisions. But only the specific kind of *representation* (natural dialogue, referring to realistic situations) and the *paratextual* embedding relate the experience of the game to reality.

Example 3: PEACEMAKER

PEACEMAKER (2007) is a turn-based, political strategy game. It is clearly inspired by classics, like Jim Caspirini's HIDDEN AGENDA (1988). The player takes on the role of the Israeli or Palestinian leader and has to make political, diplomatic, and military decisions in order to reach a peaceful solution to the Middle East Conflict. At its core, PEACEMAKER is a simulation of the interdependent relationships between the political actors in the conflict. Its *behavior rules* define the reactions of these actors to the player's moves. In the role of the Palestinian leader, a hopeful speech about the peace process might please the Israeli public and the United Nations, but anger the radical Hamas party and maybe even the Palestinian public. Each of the player's actions has multiple and complex consequences, creating a challenging task of balancing the diverse interests. The *behavior rules* define a limited set of actors and grasp their agendas in numerical values. By doing so, the rules reduce the real world's complexity. For example, the conflict with Lebanon is spared, the Arabian states are merged into one actor, and the whole religious problem is reduced to just a few textual references. The Islamist ideology of the Hamas and its anti-Semitism are left out – most likely due to the fact that these irrational elements are nearly impossible to put in numerical values.

Furthermore, the possible actions of the player are defined. He can select between a wide range of diplomatic, military, or economic choices; but it is impossible to choose not to act. These actions have consequences on the states of the political actors, whose interdependencies make it impossible to predict the outcome. Consequently, the playing experience is rather indirect. PEACEMAKER's *goal rules* define a single winning scenario: The two state solution. In doing that, the game renders some of the simulated actors as opponents; especially the Hamas and the Jewish settlers. The goal rules channel the player's actions in a predefined direction and produce dramatic conflict. The achievement of the goal is dependent on the state of a double high score, representing the Israeli and Palestinian, or the national and the world's approval.

The rules of PEACEMAKER create a simulation of a conflict, staged as dramatic game. However, it is the layers of *representation* that encourage the player to relate the experience to reality. If abstracted from their representations, the rules of PEACEMAKER could easily be put in a new skin. The only thing necessary is to change the names of the actors, the texts, the look of the map, and the cut-scenes. The exact same behavior and goal rules would fit in a game about a conflict between dwarves and elves in a fantasy scenario. The possible political meanings of PEACEMAKER are results of the interplay between its rules and its representations. The game puts its abstract rules in a very specific, graphical skin. The omnipresent map of the Middle East region has actually no relevance to the rules, as the player is not able to take actions on specific locations; its whole purpose is to constantly remind the player that he has to solve the well-known Middle East conflict. On the level of *static representations*, PEACEMAKER comments the progress in play through photos, written texts, and video sequences. These textual elements are non-interactive and not necessary for the actual gameplay. However, they do have a double function: First, they illustrate the consequences of the player's actions in a sensual way, far easier to grasp than abstract numerical bars. Secondly, they encourage the player to relate the playing experience to his concepts of reality. PEACEMAKER incorporates real footage, similar to the pictures in the news. In doing so, the game appeals to existing schemata in the player's mind. Remarkably, the cut-scenes do not put the player into the perspective of the role he is playing, they do not encourage empathy or identification with a certain character. Instead, the perspective is distant, echoing a journalistic view. Thus, the game links itself to mental concepts about the conflict that the player has acquired through the media. During the game the player can draw on several sources in order to plan strategic moves. He can read the abstract bars, interpret the textual elements, and he brings in existing knowledge to guess the consequences of moves. The game offers a lot of optional background information, which the player can read, e.g. by clicking on the Hamas's icon. Most players however will not read every text before they start playing. The most likely way to play is to draw on the existing knowledge and to complement it, if necessary. Through its representations, and the player's need for information, PEACEMAKER encourages constantly moving back and forth between the magic circle and the real world. It seems very likely that this experience will shape the understanding of the conflict according to the political ideology implemented in the game's behavior and goal rules.

As the examples demonstrated, the magic circle is not impermeable. Games with political agendas need to encourage the player to connect virtual experiences to concepts of reality. They can do this by cues within their layers of representation and paratextual framing. In games like ZOTTEL, this level of meaning is unnecessary for the actual play; the game is just a carrier for a relatively coincidental message. However, PEACEMAKER and GLOBAL CONFLICT: PALESTINE encourage the player to use existing knowledge for interpretations. Therefore the player can test assumptions about the conflict. These games work like a virtual laboratory in which the player can try out strategies and learn. In order to accept the virtual experiences as relevant, the player has to accept the game as realistic. Both games offer a lot of paratextual and representational cues in order to back up this assumption.

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The Concept of War in the World of Warcraft

MMORPGs such as WORLD OF WARCRAFT can be understood as interactive representations of war. Within the frame provided by the program the players experience martial conflicts and thus a "virtual war." The game world however requires a technical and as far as possible invisible infrastructure which has to be protected against attacks: Infrastructure means e.g. the servers on which the data of the player characters and the game's world are saved, as well as the user accounts, which have to be protected, among other things, from "identity theft." Besides the war on the virtual surface of the program we will therefore describe the invisible war concerning the infrastructure, the outbreak of which is always feared by the developers and operators of online-worlds, requiring them to take precautions. Furthermore we would like to focus on "virtual game worlds" as places of complete surveillance. Since action in these worlds is always associated with the production of data, total observation is theoretically possible and put into practice by the so-called "game master." The observation of different communication channels (including user forums) serves to monitor and direct the actions on the virtual battlefield subtly, without the player feeling that his freedom is being limited. Finally, we will compare the fictional theater of war in WORLD OF WARCRAFT to the vision of "Network-Centric Warfare," since it has often been observed that the analysis of MMORPGs is useful to the real trade of war. However, we point out what an unrealistic theater of war WORLD OF WARCRAFT really is.

War is a subject which raises serious and important question within political philosophy as well as in ethics. The answers to these questions depend upon the underlying concept of war. In this paper we

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assume that popular video games like WORLD OF WARCRAFT (2004) have become an important source of common understanding of war. Thus, analyzing the different concepts and levels of war in a game like WORLD OF WARCRAFT (WOW) may contribute to a better understanding of the ongoing discussion on war related issues. Likewise, the technological and military analogies of "war-gaming" and "real war" will be shown, so that the relation between game-internal war concepts and game-external war concepts become clearer.

Following Geyer (1995), we define war in general as mass-death organized and accomplished by humans; as the system, the acts, and the consequences of killing and being-killed. Thus, we ask how war is organized within the game and have a look at the consequences of killing and being killed.

One might expect a massive multiplayer online role-playing game (MMORPG) like WOW with over 10 million players all over the world (Blizzard 2008) to be a kind of "virtual world war." Nevertheless, we argue that there is a strange absence of war in the sense of "mass-death." Although the game offers references to the war between the two main fractions, the "Alliance" and the "Horde," which provides the background narrative of the game (MacCallum-Stewart 2007); the players are actually engaging in a series of small fights and battles, which do not have any impact on the history of Azeroth, the fictional world where the game takes place.

We will follow the arguments of Esther MacCallum-Stewart (2007), that WOW offers a confusing mix of different concepts and attitudes towards war. Especially in "Player vs. Player" combat the game focuses on fair fights between well-balanced single characters. However, since online communication between the players plays an important role in successfully playing the game, we will add another perspective on the process of organizing battles and fights within the game. We will argue that the importance of using different channels of communication to organize battle groups and guilds brings aspects of "net-centric warfare" to the Agame (Cebrowski/Garstka 1998) Therefore, we will also look at the game from the perspective of "information warfare" and include a third level of war within our analysis: The battle fought by Blizzard Entertainment to remain the true sovereign of Azeroth.

Therefore, we assume that there are at least three levels of wars to be analyzed in the context of WOW and that the different concepts found within the game add up to the impression of a rather unreal mixture of concepts of war.

From War Games to Role-Playing Games: War Gets Personal Again

As Williams, Hendricks, and Winkler have noted, tabletop fantasy role-playing games have their historical basis in miniature war-gaming, which existed since the early 18th century:

> [B]ut war-gamers in the 1960s and 1970s became increasingly interested in taking on the role of specific heroes in battle […] rather than manipulating entire armies (Williams et al. 2006:3).

It is interesting to note a similar movement from war-gaming to role-playing when taking a look at the development of the computer game series of the WARCRAFT-games from Blizzard Entertainment. WARCRAFT III: REIGN OF CHAOS (2002) may be seen retrospectively as an important move towards role-playing since it introduced the concept of individual heroes. In WORLD OF WARCRAFT we can see both the roots of war-gaming and the role-playing concept of focusing on the development of a single character.

However, the story of the player's character is remarkably detached from the history of Azeroth. Actually, the outcome of the single battles and fights being embedded in the war-related background narrative of the game do not have any direct influence on the game's world at all. Taken from the words of Carl von Clausewitz in his famous book *On War* from 1832: "War is no pastime," since "it is a serious means for a serious object" (Clausewitz 1976:86). One might say the battles fought in WORLD OF WARCRAFT are actually just a pastime, because their outcome does not have any effect on the game's world or the screen life of the player.

Signs of Yesterday's War

It seems remarkable to MacCallum-Stewart that WORLD OF WARCRAFT "is a fantasy world stuffed with signifiers of World War One, from the zeppelins outside major Horde cities to the bi-planes locked inside Gnomeregan" (MacCallum-Stewart 2007:68). However, the presence of technology, unfitting in a medieval fantasy as it may be, might also be seen as an influence of steampunk aesthetics. On the other hand, mixing genres in role-playing games is not unconventional.

However, we agree upon her observation that the battles fought in WORLD OF WARCRAFT are old fashioned in different regards despite the presence of modern technology; e.g. the player is able to obtain "honor" within a simple and stereotypical "honor/point" system. We would like to add the absence of civilian casualties as another important characteristic which contributes to the overall impression of pre-modern warfare within the game. The history of real warfare shows that in World War One 90 percent of the dead and wounded were combatants and only 10 percent of the victims were non-combatants. The percentage has almost become reversed within the last twenty years, with 80 percent of the dead and seriously wounded now being civilians (Münkler 2004).

WORLD OF WARCRAFT is a world in which the classification in combatants and civilians is still of significant importance. Players may even choose not to be engaged in battle with other players by playing the game in a "normal realm," where "enemy players can't attack you unless you allow them to" (Blizzard 2008b).

But even in a "battleground" like the "Warsong Gulch," where players of the Alliance and the Horde team up to play "Capture the Flag"; the fighting between players is to be seen as an element of competition since there are no consequences except for single players, who may gain some honor points or have to resurrect their dead body. Which side wins the battle will have no influence on the background narrative of the game. Like the bosses at the end of a quest who are reborn after a group leaves the dungeon, the battlegrounds are reset after a battle – war in WORLD OF WARCRAFT has no serious consequences for the players or the game world.

Although Blizzard is trying to present a dense background narrative of the war between Horde and Alliance by implementing orphans of war (Blizzard 2008a) or places like the "Shrine of the Fallen Warriors," we do not agree to the view presented by MacCullum-Stewart that these "signifiers combine to remind the player that war has consequences" (MacCullum-Stewart 2007:68). Given the missing impact of the battles fought on the overall storyline of the game's world, we suggest regarding WORLD OF WARCRAFT as a war-themed game, characterized by a remarkable absence of war in the sense of organized mass death.

Infowar@Azeroth

Like almost every sphere of life, modern warfare has become more and more dependent on information and communication technologies. Since the 1990s, this is a prominent subject addressed by keywords like "information war" or simply "infowar." Before addressing the second and third level of war in WOW, we would like therefore to summarize some of the important changes related to the technical development of real warfare that are also found in game-internal warfare. As Friedrich Kittler has noted:

1809 Napoleon decided the outcome of a whole campaign [...] by employing the revolutionary optical telegraphy. [...] The campaign of 1809 [...] injected war with a function of urgency. The polite and suicidal waiting of the French Knights until the British enemy too was ready for the battle of Azincourt in 1415 came to an abrupt end. [...] [The] history of war over the last two centuries has been pure dromology, according to Virilio's hypothesis" (Kittler 1998:25).

It is important to point out the perception of Napoleon's campaign as a major change in modern warfare in order to understand Arthur Cebrowski's and John Garstka's claim in their article on "Net-Centric Warfare," that the better use of today's information and communication technologies will lead to "a revolution in military affairs unlike any seen since the Napoleonic Age" (cit. by Shachtman 2007:242). According to Noah Shachtman the American Army has spent more than $230 billion to a network-centric makeover, which emphasizes on fewer, faster-moving troops and enabling "plugged-in soldiers" to be able to cover a bigger area in the battlefield:

In 1991, Operation Desert Storm began with a long bombing campaign, then a ground assault. But in Afghanistan and the 2003 Iraq war, soldiers on the ground handed off coordinates to bombers and fighter planes, who attacked with laser- and satellite-guided munitions. The effect was devastating, shrinking the so-called sensor-to-shooter cycle to mere instants. During the first Gulf War, it typically took three days of paper pushing to assign a plane a target to hit. This time around [...] it took under 10 minutes (Shachtman 2007:248).

Having stated the importance of communication in today's high-tech warfare, we would like to address the importance of communication in playing WORLD OF WARCRAFT. The game offers various options for communication between the players, which are even extended by add-ons. The bandwidth of communication ranges from the community's paratexts on web pages to the instantaneous communication via headsets. Most of the bigger adventures can only be solved by groups ranging from 5 to 40 players:

> This is not a solo game; it's a social world, and there are many activities within the game that cannot be experienced without the cooperative effort of many people (Malone 2007:4).

Looking at the way battles are organized in WORLD OF WARCRAFT, it has to be noted that most battle groups, as well as guilds, have leaders who determine the tactical approach and coordinate the hostilities by using different channels of communication. Thus, WORLD OF WARCRAFT is not as old-fashioned as it seems at first. This becomes particularly clear when one considers the role of communication within combat operations. It seems a little bit surprising in this context that MacCallum-Stewart notes that the fight in "Alterac Valley," another battleground within WORLD OF WARCRAFT, "shows an obvious parallel to more recent conflict, whose use of sophisticated weaponry to destroy prime targets in advance" is comparable to information warfare (MacCallum-Stewart 2007:71). But she does not recognize the importance of online-communication which enables small groups to "be delegated to take mid-point objectives," to use an example provided by herself. Actually, the importance of communication during fighting seems to be a blind spot in research since the possibility to communicate with other players' characters is characteristic of massive multiplayer online role-playing games like WORLD OF WARCRAFT. However, putting the focus on the importance of online communication to accomplish missions or win battles is important in analyzing the concepts of war to be found in the context of the game. Otherwise, the connection to "information war" is likely to be overlooked especially when focusing on the representation of war within the game's world.

The Struggle for Sovereignty

As observed by Michel Foucault in his writings on Governmentality (Foucault 1978) Machiavelli's Prince in *Il Principe* is a new kind of sovereign, whose connection to the people of his land is rather fragile. There is a constant threat that the people will no longer accept his authority, and there is always the danger of someone from the outside trying to take away his land:

> For a prince has only two things to fear: one is internal and concerns his subjects; the other is external and concerns foreign powers. From the latter he protects himself with reliable troops and reliable allies – and he will always have reliable allies if he has reliable troops. Moreover, he will always enjoy quiet within his kingdom if there is quiet outside of it, unless it is disturbed by conspiracy (Machiavelli 2003:71).

Within the research on the governance of WORLD OF WARCRAFT, most authors seem to agree that Blizzard Entertainment is more like a god who has created the world and less like a government (Malone 2007, Bartle 2006). Pointing to the war fought by Blizzard Entertainment, we argue that Blizzard actually seems to be less of a god and more of a prince in the Machiavellian sense and has to struggle to remain the sovereign of Azeroth. It might seem a little bit dramatic to address the following issues under the keywords of "information warfare," but one should keep in mind that infrastructure security as well as information superiority are key concepts in the info-war doctrine (Kuehl 2007).

Let us begin with the attacks "from the outside," as in any popular online-game there were many attempts to steal the WOW-players' accounts – targets being virtual goods as well as "real life" credit card details (Cheung 2006, Bardzell 2007:742).

However, Blizzard seems not to concentrate on enemies and attacks "from the outside," but rather on the governance of the players. To guarantee a similarly good game experience for all gamers, some hundred so-called game masters supervise the course of the game and control the compliance with the "End User License Agreement." They answer to requests of the players in case of problems with the game world or between players, but they have a control function at the same time. Noticing the invisibility of these guardians to the normal player, one has to wonder that there is little research on the panoptical WORLD OF WARCRAFT.

The game masters are responsible as well for finding and sanctioning players who cheat or otherwise break the rules governing their participation in the game. These irregularities are addressed in the "Terms of Service" and the "End User License Agreement" and are punished by game-internal sanctions or exclusion from the game. The use of third-party programs has also become very restricted. These programs can e.g. serve to gain overview in battles. It was accented before that WORLD OF WARCRAFT is very old-fashioned in some aspects and attaches great importance to fair battle between equally strong opponents within the game's world; we have to admit as well that the ensuring of equality of weapons is one of the declared objectives of the "War on Cheating" at this level of information warfare.

A major challenge for Blizzard, which also attracted a lot of media attention, is the trading of virtual goods, i.e. avatars, objects, and gold. Selling and buying such virtual goods officially violates the end user license agreement. However, since players seem to be willing to spend real money for these goods, thus saving time and effort, a black market economy has emerged. For example, so-called "farmers" relieve their customers of the boring task of gaining in-game property by collecting objects or beating opponents and charging real currency for the virtual gold. This is prosecuted by Blizzard.

Regarding our assumption that Blizzard Entertainment is trying to defend its position as sovereign of Azeroth, the restriction of commerce with virtual goods can be seen as a way to defend the boundaries of the game's world. In contrast, in EVERQUEST 2 (2004) players can buy virtual money or goods without large effort in exchange for real money. Also SECOND LIFE (2003) consciously provides the mixture of virtual and real markets (Bradley 2007:5). The possibility to control, sanction, and banish the players clearly shows that one has to take the developers and operators seriously in their function as sovereign. Unlike the battles within the game world, this war also has a political dimension: It is aiming at providing the players a safe and entertaining wartime experience that leaves no consequences for them.

As we have shown, there are different concepts of war underlying the game. On the one hand there is a romantic, pre-modern conception of war; and on the other hand we can find elements of (post) modern information warfare. Although the central action of WORLD OF WARCRAFT is actually not about war in a modern sense, because of the remarkable absence of mass-death and civilian casualties in the game, the different interactions behind the scenes are good examples of information warfare. Not only is the in-game warfare considered on the basis of the capabilities of the players to communicate and exchange knowledge; but the efforts of Blizzard at defending the game regulations in order to provide fair and balanced combats can be seen from the perspective of information warfare. Finally, we have shown that WORLD OF WARCRAFT presents a mix of different concepts of war, contributing in making the game a rather surreal theater of war.

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Action | Space

Bjarke Liboriussen

The Landscape Aesthetics of Computer Games

Landscape aesthetics drawing on philosophy and psychology allow us to understand computer games from a new angle. The landscapes of computer games can be understood as environments or images. This difference creates two options: 1. We experience environments or images, or 2. We experience landscape simultaneously as both. Psychologically, the first option can be backed up by a Vygotskian framework (this option highlights certain non-mainstream subject positions), the second by a Piegatian (highlighting cognitive mapping of game worlds).

In the late 1920s, René Magritte famously wrote "Ceci n'est past une pipe" on a painting of a pipe. With "This is not a pipe" we know that there might be a real pipe somewhere which the representation, strictly speaking, is not. What happens if we write "This is not a landscape" on a WORLD OF WARCRAFT (2004) screenshot? In other words, can the landscape and its representation be disentangled? No, says historian of philosophy Edward S. Casey: "The truth is that representation is *not a contingent matter*, something merely secondary; *it is integral to the perception of landscape itself – indeed part of its being and essential to its manifestation*" (Casey 1997:XV).

Perhaps that complex, integral relationship between the landscape and its image is all in the philosopher's head. Perhaps the problem has its roots in the ambiguity of the English word *landscape* (or the German *Landschaft*, or the Danish *landscab* etc.). Perhaps we ought to replace that awkward word with two, distinct words: *environment* and *image*. After this language reform, you could either be said to experience an environment affording certain actions or to experience an image akin to those known from landscape painting, i.e., an object of contemplation.

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Which approach will enrich our understanding of the avatar-navigated, 3D worlds of computer games the most? – 1. We experience landscape as environment *or* image, according to our mode of experience, or 2. We always experience landscape simultaneously as environment and image (Casey's suggestion). I will start out by considering the first option.

The Landscape as Environment

Landscape aesthetic Steven C. Bourassa tackles the *image vs. environment* problem by enrolling the combatants in a much larger fight, namely, that of *nature vs. nurture*, or *biology vs. culture*. Eventually, Bourassa lets nature win. His case for nature goes somewhat like this: Since our preferences for certain environments can ultimately be explained with reference to their potential for survival, landscape is simply another word for environment. The ways in which humans react to such environments, favorably or otherwise, can be understood through the lens of biological evolution. If we, for example, find a landscape pleasing, this positive reaction can be explained by that landscape's relatively high potential for survival.

Bourassa finds support for this nature over nurture position in the aesthetics of philosopher John Dewey. Dewey held the idea that aesthetic experience is an "intensification and enhancement of everyday experience" (Bourassa 1991:XV), a view held in explicit opposition to Kantian aesthetics. Since Dewey thought of the aesthetic experience as an intensified continuation of everyday experience, Kant's notion that the aesthetic experience is an addition to normal, everyday experience, and an exclusively human addition at that, struck Dewey as an "ironic perversity" (cit. by Bourassa 1991:37). Bourassa consequently labels Kant's aesthetics "detached" as opposed to Dewey's "aesthetics of engagement", or "aesthetics of everyday experience" (Bourassa 1991:XIV, XV).

It appears quite promising to conceptualize the landscapes of many popular computer games as environments in the above Darwinian sense. Take WORLD OF WARCRAFT, where you kill to get ahead in the game, and try not getting killed too much in the process. Improving your chances of survival by knowing the environment is not only a question of your evolutionary past influencing landscape perception, it goes on in a quite literal sense as well.

Conceptualizing the landscape as image, on the other hand, would seem to be taking Kant's side, the side of nurture, opting for aesthetics of detachment. Such aesthetics surely have explanatory power, too. Not only if you introspect your personal experience with computer games, but also if you consider the thousands of screenshots uploaded to the Internet. Popular photo sharing sites such as Photobucket or Flickr, or specialized sites such as Koinup; reveal an abundance of images, many of which depict nothing but landscape itself. The making and publishing of such images, also by users of hack 'n' slash fantasy worlds, suggests that gamers are not at all insensitive to landscape as image.

Bourassa proposes that landscape experience has three, aesthetic modes: biological, cultural, and personal. These modes correspond to the three developmental processes described in Russian psychologist Lev Vygotsky's theory of development: *phylogenesis* (biological evolution), *sociogenesis* (cultural history), and *ontogenesis* (individual development).

Process of Development	Mode of Aesthetic Experience
Phylogenesis (biological evolution)	Biological
Sociogenesis (cultural history)	Cultural
Ontogenesis (personal development)	Personal

Fig. 1: Bourassa's Vygotskian Paradigm for Landscape Aesthetics (based on Bourassa 1991)

As the table suggests, Bourassa sets the landscape-as-environment as the natural, or biological, *basis* for the aesthetic experience of landscape. The landscape-as-image is, however, allowed certain, distinct functions on the cultural and personal levels. As it turns out, this modal approach to landscape aesthetics is congruent with current ludology, something I will explore in the next section. Here it should be added that Bourassa stresses the social dimension very strongly (as a direct consequence of Vygotsky's cultural-historical position). Landscape in the cultural mode is thus described by Bourassa as a "form through which cultural groups seek to create and preserve their identity" and the ways in which "one's experience of a place is imbued with [...] social significance" (Bourassa 1991:101). When it comes to the personal mode, Bourassa focuses on its potential for cultural change. Through "transcendent behavior" the creative individual might create new "perceptual strategies" (Bourassa 1991:110), thereby changing the way in which not only the individual him- or herself perceives a landscape, but eventually how entire social groups perceive the landscape. This might happen, for example, when a creative individual describes mountain scenery in poetry or in landscape painting, thereby influencing the general perception of mountains.

Image and Environment in a Ludological Perspective

According to influential ludologist Jesper Juul, computer games are "half-real" because components of the gaming experience such as goals, challenges, and the event of winning are real; while the game world is fictional. The player will tend to focus either on the rules or the fiction, with "rules and fiction [competing] for the player's attention" (Juul 2005:121). Fiction might help the player to understand the game, but when fiction has done its duty, fiction fades into the background of the player's consciousness. Therefore, argues Juul, experienced players will tend to dismiss the fictional world of the game, while inexperienced players will tend to focus on it.

When seen from the ludologists' perspective, the landscapes of computer games play a role similar to that of fiction. When a player enters a new area of the game world, e.g., WORLD OF WARCRAFT'S Stranglethorn Vale, the player tends to focus on the landscape-as-image, or, in Bourassa's Vygotskian terms, to experience landscape in the cultural mode. In a manner similar to how fiction cues the understanding of goals, the landscape-as-image helps the player develop a general sense of the world's content and its distribution; in the Stranglethorn Vale example, images of exotic beaches and jungle ruins are suggestive of pirates, voodoo, head-hunters, etc. Additionally, the landscape images hint at a certain distribution of this suggested content, i.e., jungle images suggesting a tight and unpredictable distribution as opposed to the sparseness and regularity suggested by a desert image. When the landscape-image has thus fulfilled its purpose it dutifully fades to the back of the player's attention, and the player switches from the cultural to the biological mode of landscape experience. The landscape is now understood as an environment with certain action and survival potentials.

If we enter these ludological considerations into Bourassa's framework, we end up with the following table.

Mode of Aesthetic Experience	Landscape Experience	Landscape Function	Gaming Mode
Biological	Environment		Experienced player's
Cultural	Image	Cues player to understand options	Beginner's
Personal	Voluntary (environment or image)		Personal

Fig. 2: Vygotskian Landscape Aesthetics Meets Ludology

As regards the possibility of landscape experience in the personal mode, Juul's mention of certain gaming practices can further the discussion. Juul uses the practice of QUAKE (1996) players to illustrate his point about how the fictional world fades away in the gaming experience. In an attempt to sharpen their perception of the basic, spatial layout of the game, these players alter the graphics settings of the game to tune out irrelevant information such as surface textures. This implies that to the experienced player, the real gamer, landscape is essentially an environment; accordingly, preoccupation with the landscape as image is typical of a beginner.

It should be noted, however, that the findings Juul refer to as findings on "Quake players" in general, are pre-experimental information from a psychological study on presence done by Xavier Retaux. He recruited his test subjects from an Internet forum that "brings together the best French players" and carried out experiments with a group of players which included several with "a lot of knowledge of the virtual world" (Retaux 2003:295, 300). By focusing on such expert players, Juul is in a sense trying to reveal the essence of *bikeness* by studying Tour de France winners, instead of studying the average bicycle rider. Since we cannot necessarily extrapolate from expert players to players in general, the case of Reteaux's QUAKE players should, in other words, not be used to explain the experience of gaming in general. The behavior of Retaux's expert players is, nevertheless, very illustrative from the viewpoint of landscape aesthetics, since the players exhibit the transcendent behavior typical of landscape experience in the personal mode. These expert QUAKE players thus pursue a certain, perceptual strategy, namely, to focus on the spatial layout of the landscape (the landscape as environment), and they are able to explicate and communicate this strategy.

While the practice of adjusting graphics settings is suggestive of one, distinct personal mode of landscape experience, the practice of making landscape screenshots signifies another. Again, a perceptual strategy, namely, to enjoy the view (the landscape as image) is pursued, explicated, and communicated, cf. the sharing of screenshots and all the commentary accompanying it. Whereas the ludological argument concerning the landscape as image went like this: “You use the image to understand your options better, then forget about the image and focus on the action (if you don’t, you’re not a real gamer!)”; the argument for landscape connoisseurship as a personal mode of gaming would go quite differently: “In order to enjoy the landscape as image, you have to master the game, i.e., learn how to survive, i.e., *overcome* the landscape as environment.” All in all, exactly the opposite of what a ludologist would consider the normal way of relating to a game. The means, perversely, become a goal in itself. You might say that through effort, the experience of any aesthetic object can be twisted away from what must be consider normal, and that the position of landscape connoisseurship is a strange, non-gamer position. Nevertheless, understanding non-mainstream subject positions; or if you will, personal and optional modes of experience, helps us paint a fuller picture of how people engage with computer games.

Landscape as Organization

Now we move onto another kind of landscape aesthetics, in which landscape is not experienced as *either* environment *or* image, but simultaneously as both. Bourassa’s paradigm for landscape aesthetics is based on Vygotsky’s theory of development. There is a certain logic, then, to imitating Bourassa’s method but replace Vygotsky with another great psychologist who is, in a sense, his opposite: Jean Piaget. This replacement warrants a lengthy exposition but a few, well-chosen words by Anastasia Tryphon and Jacques Vonèche will have to do: “[Piaget and Vygotsky] share actions as the starting block for further development. But they understand it differently. For Piaget, action is a natural event taking place in a natural environment. For Vygotsky it is a rich and meaningful human act constructed by history and society. The Kantian nature of Piaget's investigations contrasts with the cultural-historical approach of Vygotsky's researches" (Tryphon/Vonèche 1996:9).

This makes it possible to extrapolate the Dewey-Kant dichotomy observed by Bourassa (*engaged* vs. *detached* aesthetics) to Vygotsky-Piaget. Piaget's attitude can be called Kantian because he understands human action to play out in accord with structures which are not, at least not essentially, determined by culture and history. In contrast, this is exactly how Vygotsky would describe things, implying a certain affinity between Vygotsky and Dewey which Bourassa explored in the above.

Moving swiftly on, Piaget and Bärbel Inhelder (1967) have presented a most influential theory of spatial conception. According to this theory, an adult human can conceive of a given space as topological, projective, or metric space. These differing conceptions of space signify stages in the individual's development, but in Piaget's genetic-structuralist view, the previously reached, developmental phases are not wiped out when a more advanced phase is reached. Structural elements of the earlier phases might be recycled, so to speak, on the higher levels, and the experiences of earlier phases are, to some extent, available to the adult as distinct, experiential modes (Golledge/Stimson 1997). Topological space is space experienced almost entirely through direct perception, with very little help from imagination. Projective space is based on the co-ordination of several points of view, some perceived directly, others imagined. Metric space is space conceived of when direct perception is utterly insufficient, and a kind of internal representation is required. From the 1960s onward, the study of the latter kind of spatial experience has been conducted under the headline of cognitive, or mental, mapping (e.g. Downs/Stea 1973, Portugali 1996).

In Piagetian terminology, we could say that the experience of landscape involves the mix of perception and imagination with a high ratio of imagination. Places are spatial wholes, and a landscape is the organization emerging when a number of such wholes are coordinated at a higher, mental level. Or as Casey, the phenomenologist philosopher puts it: “Places I take to be the constituent units of every landscape, its main modules, its prime numbers” (Casey 2002:XV).

Piegetian Level of Space Experience	World Experience	Mental Processes
Topological space	Environment	Perception
Projective space	Place (unit)	
Metric space	Landscape (organization of units)	Imagination (cognitive mapping)

Fig. 3: A Piegetian Framework for Landscape Aesthetics

In a Piegetian framework for landscape aesthetics, the landscape as environment and the landscape as image become less important. Landscape as organization comes to the fore; landscape becomes the lay of the land. At this point it becomes time to leave behind the strict Dewey-Kant dichotomy which structured Bourassa’s thoughts on landscape. As it turns out, the notion of landscape-as-organization is in accordance with Bourassa’s hero, Dewey:

> [As an organism increases in complexity,] [s]pace thus becomes something more than a void in which to roam about, dotted here and there with dangerous things, and things that satisfy the appetite. It becomes a comprehensive and enclosed scene within which are ordered the multiplicity of doings and undergoings in which man engages (Dewey 1934:23).

Landscape-as-environment cannot be described much better than as a pure survivalist “void in which to roam about” with “dangerous things and things that satisfy the appetite”, but Dewey insists: human life goes on in a space which is more than such a void. We could call such a space a *landscape*. This is echoed in the words of psychologists Rachel and Stephen Kaplan; note that as space is terminologically upgraded from void to landscape, the things in it are upgraded from "things" to "components": "A landscape is more than the enumeration of the things in the scene. A landscape also entails an organization of these components" (Kaplan/Kaplan 1989:10).

Having the world fall into place as landscape, sensing the connections between the components that make up the landscape, is a pleasurable experience. This process of understanding does not, however, entail a conclusion, i.e., a final and fixed world-map. The Kaplans thus underscore how a sense of "organizational patterns", and a "higher-level sense of connectedness" (Kaplan/Kaplan 1989:10, 190), rather than a totalizing worldview, is what makes one feel comfortably oriented in the world. To put it less poetically, the pleasure of landscape-as-organization stems from cognitive mapping, rather than from cognitive maps.

As regards the cognitive mapping of computer game landscapes, space only permits a few, brief remarks. No matter how photo-realistic computer games might become, they will, in a foreseeable future, still be screen-based, thus offering a very limited field of view compared to that which humans experience in real life (which is almost 180 degree). This does not bar us from the cognitive mapping of computer game worlds, but the mapping takes place under very different conditions. At this point it should be noted that cognitive mapping is generally understood to take place "by means of visual, as well as non-visual, modes of sensation and information: text; auditory, haptic, and olfactory means for example" (Portugali 1996:1).

As an example, my cognitive map of Berlin is built up by walking the streets of Berlin, but also from cartographic maps, guide books, etc. To compare with a computer game city, my internal mapping of WORLD OF WARCRAFT'S Orgrimmar takes place as if I am mapping Berlin with a heavily reduced field of view, no peripheral vision, and without the benefit of most of the cues triggering depth perception. In that situation, my reliance on sources such as text and cartographic maps is increased; sources which happen to be ready at hand via the Internet. Because of this difference in constitutive parts, my landscape-as-organization of Orgrimmar might be different from my landscape-as-organization of Berlin – it might be more textual, more dependent on the contributions of others, more diverse in its sources – but that is exactly the point of aesthetic experience, also of landscapes: to be offered something artificial which plays with, challenges, and on the whole makes good use of our ways of experiencing the world. Whether landscape is conceptualized as environment, image, or organization, the computer game is a fine, new medium for it.

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Perception, Action, and Game Space

This paper examines the use of the ecological approach to visual perception in relation to action in game spaces. By applying the ecological approach it is believed that we can gain new insights into the mechanisms of perceiving possibilities for action.

Game Space

The perception of game space is a mode of perception in which the game world is seen through a knothole. The screen functions as an aperture vision, a hole in the physical reality, where spatial optical structures emerge to be interacted with. We extend our bodies into the narrow split between our own reality and that of the game. By limiting the physical movement of the body, the joystick functions as a prosthetic limb, extending movement into the space of the game. The experience of being immersed into the game world can be viewed as an experience complex, a way of constraining the body in order to extend perceptual possibilities. The game world is visually present and the possibilities for action are viable because of the presence of the active user in the image system.

The presence of the user in an image system and the opportunity to make alterations in the visual structures are what separates the game medium from other pictorial media. The huge amount of games on the market is still segmentable into very few categories of action styles, based on the construction of the game spaces, their presented viewpoints, and the manipulative constraints. The understanding of the role of perception in game space, must be viewed in correlation with the actions made possible. What is there to be perceived and how do we detect the possibility for action?

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Images

No one would question the statement that visual perception is a key factor in the encounter with the games graphical world. Typically, we tend to look at the game's scenarios as those of films and the use of cinematographical terms is often applied in computer games research. The viewpoint in the game is readily assumed to be that of a camera. The construction of game spaces is, no doubt, inspired by camera techniques, but the user needs to attend to other features than those of the camera's position in order to navigate through the layout. To understand this, we must look at the medium as being able to simulate more than camera movements. In fact, I will state that it simulates something completely different from that of camera movements.

Let us assume, in order to get an overview of computer games as a visual medium, that it is possible to point to a visual media genealogy from which computer generated images have emerged. This is an approach to images that incorporates the technology involved in the process of creating and projecting images and is described by Peter Weibel. The genealogy, as Weibel lists it, starts with the still image of painting, moves on to photography and moving images, and further on to the generating of code based interactive images. Still images study *vision*; film is capable of projecting and synthesizing motion; *vision of motion* and the computer is capable of simulating vision, *vision of vision*, which he labels "opsigraphy", *the writing of seeing* (Weibel 1996, 2003).

Weibel suggests that we turn to theories of perception, since the key feature in his claim is that we, for the first time in the history of images, are a part of the image system much like our every day immersion in the world. Watching movies creates an experiential segregation from the material. The film synthesizes and projects motion in two different processes, but, in the computer system the synthesizing and the projection converge.

The image systems of the computer and computer games are based on the code as material. Codes are not fixed and can be altered at any time, unlike pictures, fixed to the material of celluloid as films. The need for a perceptual approach arises in the convergence of moving image and moving observer. The computer generated image system is thereby not only capable of simulating motion, but is also capable of simulating a moving observer, which is an important statement about the media format.

What Weibel's suggestion opens up is the study of, on one hand, the possibility of motion in the game space, and, on the other hand, the simulation of locomotion of the observer. Simulation of motion has been addressed in computer game studies, but the simulation of locomotion has not. In order to understand the mechanisms of locomotion or self movement, theories of perception and action are needed. Before we turn to the ecological theory of perception, we can take a quick look at some statements about the computer generated space.

New Media

Lev Manovich claims that the key feature of computer space is navigation, which is also a key area in the ecological approach to perception. Manovich states:

> What has received little attention, however, in both cultural studies and in new media theory, is the particular category of *navigation through space.* And yet, this category characterizes new media as it actually exists; in other words, new media spaces are always spaces of navigation (Manovich 2001:252).

In relation to this, I will state that space has been given a lot of attention on the abstract level, but not on a specific level. If spaces in new media are always navigable spaces, it is crucial to look at the perceiver in the act of navigating, in opposition to the moving camera metaphor. We could ask: “Is operating a camera the same as navigating?” – Closely linked to navigation is the act of transportation. Before we can start to navigate, that is, obtain information for locomotion, we need the means of transportation and an idea of direction, which are key concepts I will return to later.

In order to understand the virtuality of game space, Espen Aarseth (2005) points to the simulation aspect: In his discussion of simulation in games, as the hermeneutic other of texts, Aarseth reaches the conclusion that fiction can be viewed as an element of construction instead of an overall term for something that is not real, namely the computer game space. The virtual space can be seen in the mimetic perspective as something that mirrors the real world, as fiction. The question, in response to that, would be if the engagement in computer games equals that of the engagement in fiction, which I believe is what Aarseth is in opposition to. Playing games is not like the engagement in fiction if fiction is understood in opposition to reality. Playing games is an act of simulation, where fiction is viewed as a building block. He states: “In short, games are not fictions, but a different type of world, between fiction and our world; the virtual” (Aarseth 2005, 60). He further adds that it holds no significance to distinguish between virtual or simulated. Both terms will do. What he points to is that we need to approach the game’s “world” as a world with its own internal construction and not as a text or a film. Textual or filmic features can be parts of the game world construction as structural elements, but are not useful as a description of the media format. The notion of the simulation as world points back to Weibel’s notion of the image system.

In order to understand the aspects of simulation, a framing of the computer games world will be suggested later on. For now, it can be concluded that navigable spaces is the “new” of new media and that there is a leaning towards definitions of space in games as simulations.

If simulation is the framework for further studies into the mechanisms of computer games, we need to look at simulation as a term. A dictionary defines: "The representation of the behavior or characteristics of one system through the use of another system, esp. a computer program designed for the purpose". – To state that the computer game simulate space and objects in space is a representational approach to the graphical environment, and a strategy that can end up in a description of the world's features based on pictorial cues or cinematographical structures. Inspired by Weibel's remark about the convergence of moving image and moving observer, I will describe the simulation in game spaces as the simulation of the visual perceptual system, which carries us right into the core of this paper; the visual perception of the game space. As the dictionary explanation outlines, one system is capable of simulating the characteristics of another system. What constitutes the characteristics of these systems is what we should try to answer.

Questions put forth in the previous passages will be addressed when the framework for the understanding of perception in general and in games spaces has been outlined.

Visual Perception

James J. Gibson formulated the Ecological Theory of Perception. The theory was being developed for about 50 years and was not completed when he died. His work is often seen as a rebellion against other more mainstream theories, but he was really trying to correct something he thought was truly wrong. His theory of direct perception has been under fire, since the ruling paradigm in his time and (for that matter) now, is that perception is indirect and based on cognitive constructions. To understand why his ideas can seem radical we can look at some more mainstream approaches to perception.

Perception is, on an everyday basis, understood as something that has to do with the senses or derives from the experience of having sensations. This view has been trickled down from the constructionist way of understanding perception. Basically, this approach holds that the world or the environment is perceived visually via the light waves that enter the eyes. In this approach to perception, the world cannot be seen directly, and; a construction of the world is conducted cognitively. This means that we are unable to see the world as it is and need to construct internal representations of the world. Since it is possible to agree upon patterns of behavior in space; there must be an underlying order by which we construct the world. The Gestalt theorists worked with essential principles that we all make use of, such as laws of grouping or the figure/ground concept. Perception in this sense was very much understood as a choice of directing attention to certain features of i.e. symmetry or an act of differentiation. The constructionist way of understanding perception can later be seen in David Marr's (1982) computational approach; where he claims that regarding the experience of depth, something has to be added cognitively, since something is lost in the act of perceiving space in 3D. An important and underlying conception that most theories of perception have in common is the notion of the retinal image, the image that is claimed to be formed on the retina when light enters the eye. Marr says that the retinal image must be a 2D image, since the retina is something, a surface, that light falls upon; which means that the third dimension is lost in the process of perceiving spatiality. The third dimension is then added in a cognitive process of constructing what is lost and our experience of space can be said to be in 2½D. Further notions of perception within the constructionist paradigm is the role of perception in creating cognitive schemata, an approach that has been applied in computer games studies, where the more psychological and emotional experience of the gaming situation is being investigated. An example is that of Torben Grodal (2003), who describes the engagement in games as a PECMA – flow where Perception gives rise to Emotions that again gives rise to Cognition or the creation of schemata upon which we can base our Motor – Action. The idea of a PECMA-flow is based on a bottom-up view, where perception moves up to the level of cognition which creates the top-down activation of action. I claim that, in these views, perception seems to be merely incidental to the carrying out of actions, and action is viewed mainly to be based on cognition. In Grodal's example the situation could be as follows: Hans sees (P) a dragon, he gets scared (E), he rationalizes that he must do something (C) and he then kills the dragon (MA).

What Grodal's approach oversees is that the flow or flux in the gaming experience, or in any experience, does not follow each other sequentially as in a chain. We seamlessly perceive the world around us while acting. His idea is fit for a schema, not for a process of experience. What his theory is not really concerned with is the specificity of the layout and its informational function in relation to the act of navigation. Since perception, from the constructionist paradigm, is more or less incidental sensations that happen to the body, the concept of action in computer games is often explained from the cognitive level; with no specific description of the functionality of the layout.

Ecological Optics

To cut across the board, Gibson's theory of perception has its own branch in perceptual theories (Gibson/Pick 2000). Gibson claims that we cannot study perception unless we take into account what there is to be perceived. He has an evolutionary, biologically inspired approach stating that the senses must be much more functional in our getting about in the world, and coping with the changes that constantly occur in our environment, than has been given attention. In other words, it seems strange to him that we should be equipped with senses that we cannot immediately make use of, as the case in constructionist theories. On the contrary he states we are capable of perceiving the world directly. The senses should not be understood as 5 channels that bring about sensations. We are equipped with perceptual systems that function in cooperation, the visual perceptual system being one and the auditory perceptual system being another. (Audio-visual media can be viewed from the ecological theory as being a medium that activates the cooperation of the audio-visual perceptual systems. When more perceptual systems cooperate perception is enhanced.) What is immediately interesting about Gibson's way of describing the perceptual systems is that he pays attention to the environment and claims that the environment is part of the perceptual system. The environment and the perceiver are complementary and should be examined in tandem. The main activity of the perceptual systems is to pick up information from the environment, which, in the case of computer games, would be the picking up of information for navigation and future directed actions. The process of picking up information is an explorative activity. We turn our head and we move our body around in order to gain more specific or detailed information about properties in the environment. Turning the head is labeled *Ambient Vision* and moving the body is labeled *Ambulatory Vision*.

The information we obtain is based on the changes and the persistence in the environment, and change is directly perceived in relation to persistence. What we normally would describe as motion, as in the motion of an object moving from one place to another, Gibson would describe as changes in the optical structures in the ambient optic array. It is an important notion since a more detailed knowledge about changes in the optical structure will inform the perceiver if the motion is caused by him/herself in locomotion or if other forces put the objects into motion. In certain types of games, it is important to know if the changes in the layout are caused by objects in the game or by the simulation of self movement/locomotion. To approach an object is a different experience than that of something approaching you. If you approach a figure in the visual field and it turns out to be dangerous, you are already given the possibility to reverse the action, but if something approaches you, you cannot be certain that reversal of locomotion is possible. If we look to the game space, the encounter of an enemy will be detected as disturbances or changes in the layout. An enemy will be a detached object simulating locomotion and the motion towards you would be experienced as an expansion of that object in the layout. Seen together with your opportunities for simulating locomotion, what can be simulated in the game space is therefore not only just "motion", but specific styles of motion. A change in the optical structure is specific to the movement carried out; and an optical change that occurs on the basis of mutual approach, as is often seen in games, is the simulation of two locomotors or self movers. Locomotion is based on possibilities and constraints in the environment. As humans, we are given a perceptual niche where there are limits for our perception on both the macro and micro level. Some things are too small to be detected and some are too large, like atoms and galaxies. Every animal inhabits a niche where the information is nested within systems. A cave is nested within the mountain, just as furniture is nested within a room. The notion of nesting systems is interesting in the discussion of virtuality versus reality, since real changes occur in the layout in front of the observer while playing games. Instead of getting lost in the translation of game spaces into concepts, we can look at game worlds as nested realities; that it is a reality existing on its own premises within our larger reality. Playing games is a real activity, an experiential sense of being present, navigating through a nested reality. This statement can be supported, at least momentarily, by Christian Metz's notion of motion in film: "Because motion is never material but is always visual, to reproduce its appearance is to duplicate its reality" (Metz 1974:9). The motion of the body takes place in physical reality, while locomotive consequences are detectable as visually changing structures in the game space. So, in the case of navigating through game spaces it holds no significance, regarding the activity, to point out that we are disembodied in the process. The optical structures change according to locomotion, and that is what is real about it. We can state that the game world is a nested reality where the optical changes are caused by the bodily constraints and the prosthetic extensions of our perceptual system.

Key Ecological Concepts Outlined

Ambient, and Ambulatory Vision, is what we achieve by moving our head around and moving our body around. Getting information from the environment or optical ambient array is the main function of the perceptual system. Information pickup is an exploratory activity that involves the whole body. The perceiver obtains information by locomotion, which is an activity of transportation. We move about on our feet or in vehicles where the speed involved in transportation causes specific optical changes in the structure of the layout. In a stabile, solid environment, as in a living room; objects do not move on their own; but there *can* be changes in the optical structure caused by locomotion. Relative to locomotion, the optical changes are specific to the means of transportation. The ambient optic array will change according to the velocity.

Gibson formulates two sets of laws for navigation and manipulation with objects. The laws of Visual Kinesthetic and Visual Control (Gibson 1986[1979]) are not to be seen as laws in a rigid way, but more like guidelines for the description of changes in optical structures. The laws for Visual Kinesthetic describe changes in the layout caused by different styles of action; and the laws for Visual Control describe what to do to change the optical structures in relation to desired actions. I will give a few examples that are relevant for game spaces. In regard to the laws for Visual Kinesthetic, we look at the basis for locomotion:

1. Flow of the ambient array specifies locomotion, and nonflow specifies stasis.
2. Outflow specifies approach towards, and inflow specifies retreat from.
3. The focus or center of outflow specifies the direction of locom tion in the environment.

These examples have their equivalents in the laws for Visual Control: An example is the rules for *starting, stopping, and going back. To start, make the array flow. To stop, cancel the flow. To go back, reverse the flow.* In the case of encounters with enemies in the games space, we can look at the rules for *flight* and *capture*: For moving predators and enemies, *flight* is an appropriate form of action since they can approach. The rule for flight is, *to move as to minify the dangerous form and make the surrounding optic array flow inward.* If, despite flight, the form magnifies, the enemy is catching up; if it minifies, one is getting away. From the predator's point of observation, of course, the rule is opposite to that of the prey: *to move as to magnify the succulent form by making the surrounding array flow outward until it reaches the proper angular size for capturing.* – In game spaces it can be difficult to distinguish the prey from the predator. The player may be in the role of the prey, but act as a predator.

Ecological Optics in Game Spaces

I have tried to interlace the use of ecological optics in game spaces into the text and have not explicitly made an analysis; but as a clarification, I will point to genres that have action styles based on locomotion; that is, games that enhance the convergence of moving image and moving observer. The term "first-person-shooter" refers to games having first- or third- person perspectives, games that simulate the presence of a locomotor. In the visual perspective, it holds no significance to the styles of action where the game is situated on the narrative level. Be it a futuristic environment or that of the Second World War, the styles of actions will be describable in the terms of ecological optics. We simulate Ambient and Ambulatory Vision in the exploration of the game world, manipulating the image system's point of observation in order to gain information from and about the game world.

We simulate Approach and Retreat, as in the rules for Flight and Capture. When we shoot a figure in the graphical layout, we are simulating the removal of the dangerous form in the layout. As we simulate locomotion in the layout, we are engaged in a process of picking up information for action, and the consequences of our actions are immediately present as changes in optical structures in the layout. In "speed"-games we direct our attention to the surrounding changes in the optical structure, which will inform us about the velocity and the direction we are heading as described in the rules for starting, stopping, and going back.

Weibel's framing of the medium as a convergence of moving image and moving observer is a radical notion if used on computer games as image systems. The application of Gibson's ecological optics opens up the possibility to create strategies for the analysis of the complementary relation between the observer and the game space. What it points to is that the layout of the computer game space can be analyzed from a functional viewpoint and not merely as a visually arousing style of aesthetics. When we engage in visual media that we cannot control, we can address the mechanisms of the aesthetic experience on the pictorial level, but in the controlling of manipulative and navigable spaces, we need to direct our attention to the functional level of the informative layout present at hand.

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The Space-Image

Interactivity and Spatiality of Computer Games

In recent computer game research a paradigmatic shift is observable: Games today are first and foremost conceived as a new medium characterized by their status as an interactive image. The shift in attention towards this aspect becomes apparent in a new approach that is, first and foremost, aware of the spatiality of games or their spatial structures. This rejects traditional approaches on the basis that the medial specificity of games can no longer be reduced to textual or ludic properties, but has to be seen in medial constituted spatiality. For this purpose, seminal studies on the spatiality of computer games are resumed and their advantages and disadvantages are discussed. In connection with this, and against the background of the philosophical method of phenomenology, we propose three steps in describing computer games as space images: With this method it is possible to describe games with respect to the possible appearance of spatiality in a pictorial medium.

The Spatial Approach in Computer Game Studies

Within the last few years, there has been a paradigmatic shift within the philosophy of computer games: while computer games were primarily conceived of as interactive fiction or texts in the 1990s, starting around the turn of the millennium computer game research took a turn, trying now to define games in opposition to texts and other media like film. Even though it is obvious that computer games are games – a fact that is analytically true – it seems that such a statement does not grasp the essence of computer games. This essence is actually well captured by the old term “video game”; transcendentally speaking, it is a precondition of computer games that the player

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must perceive the game as an image before it can be played. In contrast to the reception of static images and even in opposition to moving yet determinate images, what is essential to this type of image is their ability to be actively manipulated. Thus, computer games as interactive pictures are constituted by both: reception and interaction.

The paradigmatic shift in question becomes apparent by a frequent reliance on the spatial description of computer games (e.g. Poole 2000, Aarseth 2001, Tong/Tan 2002, McMahan 2003, Newman 2004, Ryan 2004, Borries et al. 2006, Stockburger 2006). Indeed, space is the one category that has come to be accepted as the central issue of game studies, and the one in which all previous categories are integrated – a situation that supports the hypothesis that a paradigm change is taking place. According to Thomas Kuhn (1970) paradigms can only change when the new paradigm is able to assimilate central elements of the old. This case is illustrated, for example, in the concept of computer game as "narrative architecture," as Henry Jenkins (2004) proposed; he thus transposes the view that games are stories into the new paradigm, which claims that games are to be conceived of as things that are essentially defined by their spatial configuration (according to Jenkins, the narration in games is not to be found in the story line of the adapted story; but rather in the environmental setting within games.) At the same time, this paradigmatic shift means not only a renewal of computer game studies, but also image studies and picture theory itself: in respect to a theory of the pictorial medium, it can be argued that a new type of image is distributed through computer games, namely simulation pictures, the perception or reception of which includes interaction. There is a central medial difference between simulation pictures and classical forms of pictures, namely that while conventional pictures were constituted by pictorial space or an "image-space," interactive pictures on the contrary present a "space-image."

To put it in Alberti's terms, in traditional pictures (a category consisting predominantly of Renaissance perspectival paintings) the viewer looks "through" the picture frame into an illusive space created through the picture as an "image-space" (Heath 1986). The viewer envisages a pictorial space defined by certain attributes like flatness or depth, which relies on certain techniques like *sfumato* or the interplay of shadow and light. All these elements or techniques occur in computer games, albeit with the essential medial difference that can be reformulated in terms of spatiality: by interacting with the pictorial appearance – hence the "image" – the viewer also experiences a phenomenon that cannot be experienced in traditional imaginative space, namely the experience of motion as navigation. In contrast with the image of a film, which presents a determinate movement that is passively received by the viewer, the movement in an interactive image must be induced by the viewer. Here the experience of the picture is constituted by the possibility of active navigation through a pictorial space (Manovich 2001); by this the picture becomes a "space-image." Thus, while movies are characterized by the fact that they present artificial motion, computer games are characterized by the fact that they present artificial navigation.

Space "On" and "Off" the Screen

Within computer game studies exist some systematic analyses, which practice or actively thematize the shift towards a new approach on the basis of space. The earliest is that of Mark Wolf (1997), who has analyzed computer games looking at the difference between *off-screen space* and *onscreen space*. According to Wolf, video games can be categorized by the nature of the relation between these two. While early computer games consist mainly of contained spaces where there is no possibility to transgress the framing, three-dimensional computer games since the 1990s allow a transgression of the frame in any direction. In SPACEWAR! (1962), for example, all realms of navigable space are onscreen from the very first moment of the game, and this is the only space the player can navigate. Even though one may assume the existence of an off-screen space beyond the visible field, it can never be experienced by navigating it – simply because it has not been programmed. In a first person shooter-game like QUAKE (1996), on the other hand, the navigation in off-screen space is extended beyond the picture's frame.

Wolf has borrowed his category "off-screen space" from film studies, namely from Noël Burch (1981), and it is of no surprise that he does not and particularly *cannot* pay tribute to formal differences in navigation as such in his categorization, but only to the visual result of interaction. If applied to text-only adventure-games like ZORK (1980), for example, one would have to say that the onscreen-space of the game (in the sense of visible space) occurs entirely "off (the) screen." However, navigation through the game space is still possible – indeed it is the very basis of the game. Granted, this is a border case, but it shows, firstly, that an analysis of computer games as pictures would be incomplete without addressing the aspect of interaction; and secondly, that the aspect of space is even more fundamental than that of the picture.

Typology of Game Space

In this respect, recent categorizations have considered the navigational aspects of games; the most notable work on this topic being that of Clara Fernández-Vara's team of researchers and a group lead by Aspen Aarseth, whose paper "A Multi-Dimensional Typology of Games" at the first DiGRA-Conference at Utrecht proposed to analyze space by three "dimensions": *perspective*, *topography*, and *environment* (Aarseth et al. 2003). To say nothing of the second two, their first "dimension" comes as a surprise: in contrast to most computer space analysis, Aarseth and his co-authors explicitly do not distinguish between the perspective of the first and third person, but instead they declare the primary difference to lie rather between a "vagrant" and an "omnipresent" view.

Wolf's characterization thus could be reformulated as follows: SPACEWAR! is not only a single screen-contained game space, in which a supposed offscreen-space beyond the frame never reveals itself, but it is also a good example of an omnipresent view, for all areas of the navigable space are evident. In QUAKE, on the other hand, the player has to navigate vagrantly, i.e. the ego has to wander through game space in order to apprehend the spatial setting or game space. The difference between these two games, then, is said to be more fundamental than the difference between a subjective and a semi-subjective view (focalization) as put forward by narratologists (Neitzel 2005), to which the difference between the two views is relevant in respect to the identification with an avatar. As it turns out, Aarseth does not systematically ground this reduction, for he argues that games in present and future will have the option to switch between the two views.

Because it operates within the difference between *geometrical* and *topological* movement, the second category demonstrates the same insight. Even though "geometrical" is not an accurate name for what is at stake, the difference itself is vital: it is the difference between continuous movement and discrete movement. Whereas in a First Person Shooter game there is a constant variation of the picture according to input control, ZORK on the contrary allows only distinct movement like "north," "south," "east," or "west." The final difference suggested by Aarseth et al. is of that between a static environment and a dynamic environment; which, for example, means the difference between a filmic background and an interactive foreground or figures.

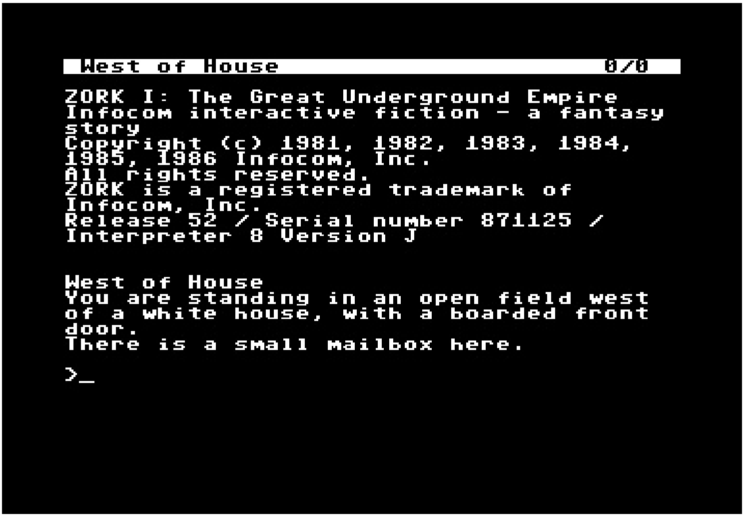

Fig. 1: ZORK (www.infocom-if.org)

Even though these primary differences – especially the first two – cover essential aspects of game space, they do not acknowledge the fact that, in computer games, there can be a difference between the space that is displayed and the space that is navigable; an omission which becomes particularly apparent when it is considered that these judgments do not take into account the difference between first and third person perspective. And even though it might be obvious that the main binary in games is the difference between an external perspective of interaction and a perspective from within game space, the schema especially does not address the tension between pictorial presentation and image navigation. For example, what this schema fails to account for is the limitation of space apparent especially in early shooter games like DOOM (1993), which did not allow for a vertical view. In other words, even though a continuous (geometrical) movement is possible, the topological limitation allows the player to navigate only on the surface, thus acting in a two-dimensional game world even though three dimensions are displayed. In contrast, in DESCENT (1995) the player can steer a vehicle continuously in any direction of a three-dimensional space. This is a fundamental difference: as the first version of QUAKE shows, three-dimensional game-play results in a different (two handed) interface-configuration, which in turn means a different game(space)-experience.

Fig. 2: DESCENT (gamasutra.com)

Visuality and Cardinality

At the second DiGRA-conference, Clara Fernández-Vara (2005) and her research team suggested differentiating between space presented (by the image) and navigable space: this was supposed to allow not only to describe ZORK in terms of a "non-presentational, yet topologically navigable" type of space, but also to focus on the conditions of game space as such: what their schema shows is that it is possible to not present the space one navigates (i.e. to have a "zero-dimensional" pictorial presentation of space, as is the case in ZORK), but that it is impossible to have a space of interaction with less then one dimension, i.e. a one-directional game. A game needs two spatial directions of interaction or at least the option between stop and go like in the sprinting event in SUMMER GAMES (1984). Most games have at least a 1.5-dimensional space of interaction, as one find in car racing games, where topologically speaking the road provides only one direction (forward), but the possible deviation from the path is what the gaming principle hinges on. This does not constitute a true "second dimension" of interaction, as would be the case if one took a turn at an intersection and then had to decide how best to reach the goal, but it is a navigation that consists in continuous movement.

According to Fernández-Vara et al., it has thus to be distinguished between the *visuality* of the presentational space and *cardinality* of the navigable space, and categorize games by the tension between them. This consecutively leads to descriptions resulting in being able to say that there is a difference between shooter-games before and after 1995; this difference being tantamount to a difference in the cardinality of spatial interaction: before that year it was only possible to see the third dimension, but not to move within it.

Three Essential Steps in Describing a Space-Image

At this point it shall not be discussed how a sufficient categorization of computer games' interactive spatiality would look like in detail. This is certainly a desideratum that requires further investigation. Instead, in the final part it is explicated how a method for describing games in respect to spatiality can be justified in regard to philosophy, and how against this background a description of the spatiality of games should proceed.

The philosophical approach that has to be considered to be inevitable for the description of computer games is that of phenomenology; understood literally and in its original meaning as the "logic of phenomena," which sets out to describe the essential structure of possible experience (Husserl 1982). Without explicitly calling on it, in their analysis of the space of games, all three studies discussed above contribute in some way to the phenomenology of computer games: Wolf insofar as he claims that every image is constituted by the difference between space onscreen and space off-screen, whereby only the relation between the two can differ, notwithstanding in many ways. But a case with neither onscreen nor off-screen space is inconceivable.

The same goes for the proposal of Aarseth et al.: the difference between "vagrant" and "omnipresent" is less a contradiction and more a definition of two extreme situations to be situated in a game. The difference between omnipresent and vagrant can therefore be reformulated in terms of spatial projection: phenomenologically speaking, there is no pictorial presentation conceivable that does not lie either within the realm of perspective or linear projection, or within the realm of non-perspective or oblique projection (Willats 1997). In other words, it is possible to switch between a subjective and an omniscient or "godlike" view, but it is not possible to have a picture in which space is presented in a way that lies outside the two possibilities (with early interactive fiction as border cases, in which space is not visible, but only navigable.) With some recent real-time strategy games like WORLD IN CONFLICT (2007), players can also morph between the omnipresent and vagrant view, with which the possible, phenomenological realm of pictorial space itself is presented.

Fig. 3: WORLD IN CONFLICT (www.worldinconflict.com)

Granted, a description based purely on visual aspects would be incomplete and would also have to take into account the possibilities of interaction. This is precisely what Fernández-Vara et al. did when they reflected on the phenomenological possibility of action space, and the results of their labor show that it is possible to have different dimensions of visibility and of interactivity (cardinality), and that both are limited in different ways. It is possible for there to not even be a visible dimension at all, but interactivity (an interactive picture) – indeed, a game – requires "more than one direction." Even though it is possible to program it, the result is that of a non game, as is the case in the experimental TETRIS 1D (2002), in which players score points by doing nothing and merely watching the bricks fall down, only able to speed them up. As the pieces are all only one brick wide, adjusting them does not pose a challenge.

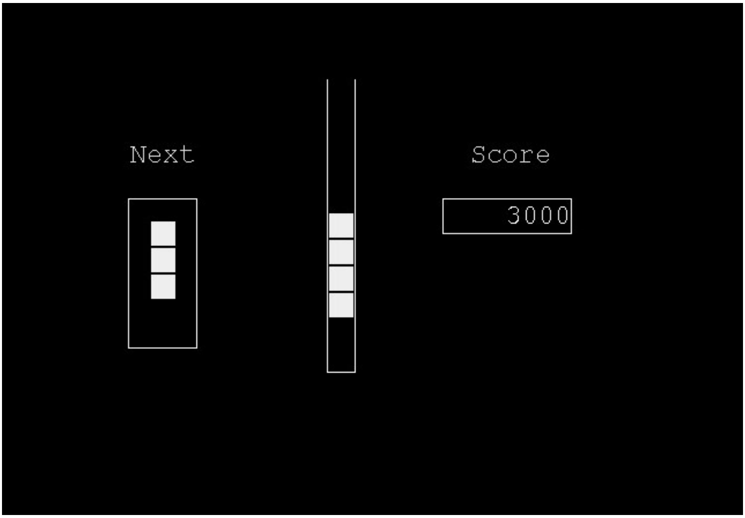

Fig. 4: TETRIS 1D (www.tetris1d.org)

The following procedure in describing video games can therefore be proposed (this constitutes a guideline for describing the spatiality of computer games – not against the background of a totality of all games, but in respect to games in their own specificity):

Step 1: One should start by looking at the *gap between movement or navigability and the presentation* video games. This gap often goes hand and hand with the difference between foreground (i.e. avatars and targets), and background (environment and filmed sequences). On the level of interactive pictorial objects, Ian Bogost (2006) calls this the "simulation gap" as the difference between what is visible and can be influenced by the player and what can only be seen. In respect to space, there is a difference of the action within game space and the perception of movement. The distinction hinges on whether said game space results only in a change of visibility, or also in a change within the environment, i.e. a reaction on the part of the objects. With this step, one can thus identify all spatial aspects relevant for interaction, and separate them from aspects of film-like, pseudo-interactive space as well as from imaginary space (as in text-adventures).

Step 2: The next step is to describe whether the interaction within the game space relies on *symbolic or tangible properties of the objects*: that is, whether the principle of interaction derives directly from the way objects are presented, or if the presentation is actually the *representation* of attributes that are not embodied by the object's appearance or behavior. In a chess game, for example, one does not interact with the figures on the basis of their materiality, but rather on the basis of their symbolic properties, which in this case are essentially spatial. This does not address a hidden symbolic meaning of the figures as warriors, but rather the "ludic meaning" of the chess symbols, which is spatial, too: each chess piece represents a capacity of discrete movement in the topological organization of the game space that cannot be derived from, and is not visible in, the respective piece.

To put it in Nelson Goodman's (1976) terms of semiotic picture theory, what is at stake here is the difference between "pictorial exemplification" and "symbolic denotation": while pieces in a chess game symbolically *denotate* the ability of a certain movement in game space, the virtual appearance of a zombie – physical as well as iconic – in a shooter game *exemplifies* the very attributes that become apparent while the figure moves, and in particular while it is being moved (such as when it gets shot). Even though pictorial exemplification is predetermined in action games, the two types of (re)presentation – denotation and exemplification – can also coexist in a game; this is the case in most platform-games and maze-games, where symbolic denotations exist in the form of power ups that do not "behave" the way they look, and at the same time there are figures that behave just as they appear (which, put quite simply, means that a player can crash into them with his avatar).

Step 3: The third spatial feature of games one should attempt to describe is the *perspective of interaction* in the game, which, according to Aarseth et al., can be either omnipresent or vagrant. But it also implies the question of the first, third, and even the second person perspective, in singular as well as in plural – an instance hardly recognized in game research: For example, playing a war shooter like CALL OF DUTY one plays in the first person plural perspective – "we"; as being with the group (which is run by the game's AI). Here again tribute must be paid to the fact whether or not it has effects on the pictorial presentation: Thus, in CALL OF DUTY, acting in the first person plural perspective makes no difference in visible game space, but it does in action space. On the contrary, in GHOST RECON (2001), a first person plural perspective exists which is also visually manifest – here, players can send part of their group or an accompanying group to a certain place in the game space and switch the perspective to any person in that group. This has a tremendous effect on the game space, as it allows players to view game space from an intersubjective multiplicity of standpoints. Very rare, but nevertheless possible, is the second person perspective experience of game space; in 2006 Julian Oliver released a second person shooter in which the origin of the perspectival view and the place in which pictorial interaction is rooted are interchanged: The inverted control in game play allows one to perceive space through the eyes of the opponent (YOU) while moving the body of the avatar (ME).

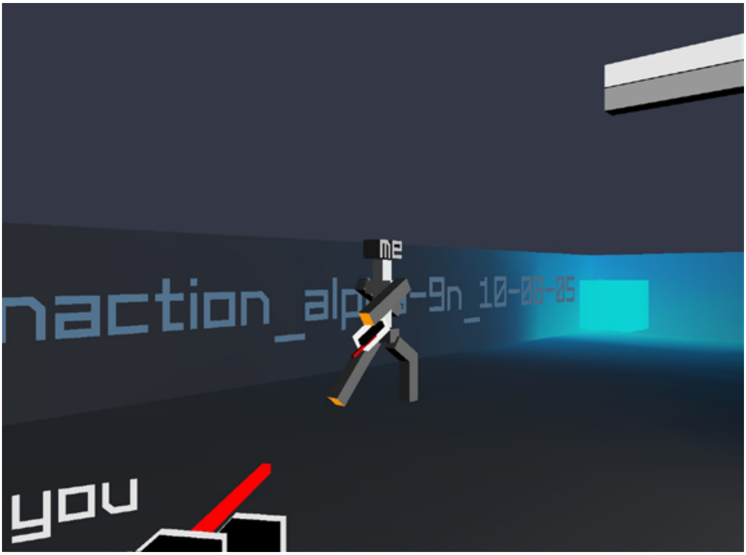

Fig. 5: 2ND PERSON-MISSING-IN-ACTION (selectparks.net)

At this level of game space, one must also make note of what, in philosophical terms, could be called the difference between a Cartesian ontology and a Wittgensteinian world-view, which addresses the status of the avatar. In PITFALL! (1982) the user has to react to the world as if *Cartesian ontology* applied, i.e. the player is excluded from game space as *res extensa* and is situated in the place of the *res cogitans*. The underlying projection is of parallel or isometric nature: it is neither subjective in the sense of the first person, nor is it omniscient, observing the whole territory of play. Here, the distance from the world to the point of action is characterized not by a possible range, but rather by total disjunction. This is, indeed, a third person perspective in the most literal sense, a situation in which the "avatar" at point of action is perceived by the player as a "he," "she," or "it," and not as "me." The game space is a "representation" in the full Cartesian sense of the word: it is represented to the autonomous ego (the user in front of the screen), who is not involved as a first person, either visually or interactively.

Fig. 6: PITFALL! (www.atariage.com)

On the other hand, what can be called the *Wittgensteinian world-view* is what is typically referred to as first person perspective. According to Ludwig Wittgenstein (1961) the ego "does not belong to the world," but must be defined as its "limit," which, again, is an eminent phenomenological insight: for instead of claiming the existence of a first person, this observation describes what it means to be in the position of it. Finally, this is why in respect to the space-image it is unfounded to refer to games such as MAX PAYNE (2001) as "third person shooters." Here seeing and acting have nothing to do with the Cartesian situation. What in narratological respect is classified as a semi-subjective view can be addressed accurately as "heautoscopy"; a partial disembodiment in which the cogito is still restricted by the limits of the corporeal range.

Even though the foci of these three steps (navigability and presentation, symbol vs. icon, perspective and space) do not cover all aspects of games or gaming, they are essential and indispensable for computer game research at the present stage – the present stage being characterized by a "spatial turn" in the philosophy of computer games and the focus on their specific medial aspects.

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Remarks on Digital Play Spaces

Most play spaces support completely different actions than we normally would think of when moving through real space, out of play. This paper therefore discusses the relationship between selected game rules and game spaces in connection to the behaviors, or possible behaviors, of the player. Space will be seen as a modifier or catalyst of player behavior. Six categories of game space are covered: *Joy of movement*, *exploration*, *tactical*, *social*, *performative*, and *creative* spaces. Joy of movement is examined in detail, with a briefer explanation of the other categories.

When analyzing game space, there are a number of approaches that can be applied (Taylor 2005, Fernández-Vara et. al. 2005, Stockburger 2006, Borries, et. al. 2007). The approach of this paper is similar to the pattern system proposed by McGregor (2007). The focus will be on player behavior, and furthermore it will introduce a method of abstraction which enables comparing complex game spaces. Ernest Adams (2003) shows how architectural theories could be interesting to game design in general. However, as Espen Aarseth (2001) has argued, game space is only an allegory of "real" space. Therefore, architectural theories can only help us understand game space when it serves the same purpose as "real" space. This would be the case in, for example, social spaces. Yet most game locations support completely different actions than we normally would think of when moving through real space, out of play.

Consider a typical *first person shooter*-game. A novice, exploring player might see a house, windows, a tree, and a small fence in a characteristic part of a level. The experienced, achievement oriented player regards this same game space as cover, sniping positions, a temporary hiding spot, and a jumpable obstacle. This illustrates how

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the same space can serve different purposes depending on the intentions of the player. It also gives us a hint of how to approach game space from a game design point of view. That is by considering the properties that are valuable to the player while playing the game. How does space support and modify certain actions, activities, and behaviors in games?

This paper presents a way of thinking about game spaces that originates from a player-centered game design point of view. It will discuss the relationship between selected game spaces and game rules in connection to the behaviors, or possible behaviors, of the player. This model of games is based on the concept of "games in virtual environments" (Aarseth 2003). Furthermore, the player is not the *player character*. A much more nuanced model, such as the one presented by Linderoth (2005) must be used to understand the relationship between the player and the player character in game spaces. The player character is a function of identity, tools, and props to the player.

Game Space

As technology has gotten better we have moved from text adventures to 2D games onto the 3D games of today. However, I want to argue that much of the basic functionality provided by game space to the player has remained the same during this evolution. Consider the change that has taken place from PAC-MAN (1980) to WOLFENSTEIN 3D (1992). The goal of PAC-MAN is to traverse every area of the level. This is visualized by yellow dots, allowing the player to see where he has been so far. In WOLFENSTEIN 3D the goal is to traverse the level until the exit is found. So, even though slightly different, both games are based on the player's ability to traverse the level.

The main difference between the view-points in these two games is that by switching to a first person perspective we can see less of the game space at the same time. In PAC-MAN the whole level is visible all the time, while in WOLFENSTEIN 3D we can only see the part of the level in the direction of the player's view. By switching to a 3D perspective the game designer makes it more difficult for the player to navigate the maze, by essentially hiding the layout of the map from the player. However, the visibility of the level is not only connected to the player view. It is possible to create a similar scenario in a 2D view with elements such as fog of war, darkness, partial views, and a scrolling screen. The 2D game THE LEGEND OF ZELDA: A LINK TO THE PAST (1991) includes dark areas where the player uses a flash light to show a triangular area in front of the player character. The visual information available to the player in this game location is almost identical to that in WOLFENSTEIN 3D. It is hard to compare the spatial properties of these three games directly, especially on the global level presented here. A closer look at the individual elements present in each game scene is necessary for an accurate analysis.

Abstraction

Consider the following screenshot taken from a demo of the game CRYSIS (2007).

Fig. 1: CRYSIS (Screenshot)

The text hint "[Space] – Jump" is shown in the center bottom of the screen. This is displayed to the player as he reaches this vertical obstacle in the beginning of the first level in the game. Why did the game designers feel it necessary to include this jump tutorial as one of the first interactive experiences available in something classified as a "shooter"? I would argue that it is because jumping is an essential behavior to this game and game genre. In order to understand this game location better, I propose that we find an equivalent 2D construction.

When transforming from 3D space into 2D, our aim is to find the intersection or representation that best describes the main player action or behavior in a simplified form without removing any key aspects. In the case above we are interested in the jump action and the movement over the obstacle. The main axis of movement is into the screen, and the secondary axis is the vertical movement over the obstacle. Any movement to the left and right does not modify the player experience significantly. – This leads us to the spatial figure in Fig. 2, which is essentially a view from the side. Since it is not possible to pass the obstacle to the left or right in this case, Fig. 2 includes all the major player behaviors of Fig. 1.

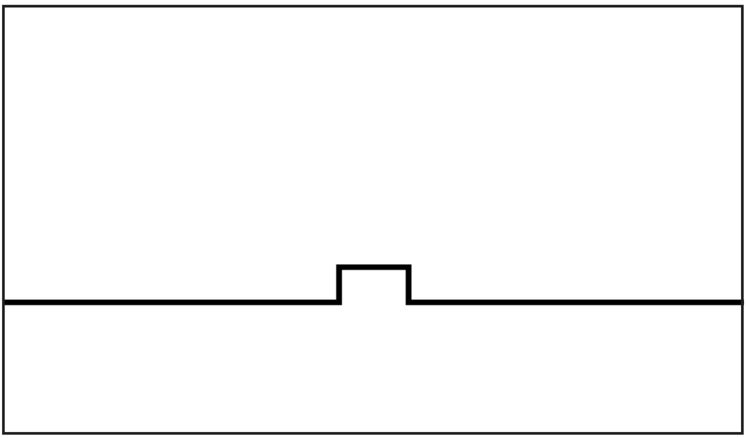

Fig. 2: The Short Platform

A player character approaching *The Short Platform* from the left can achieve two types of outcomes when trying to pass: 1. The player will jump too late (too close) to the obstacle and hit the vertical wall on the left side and fall back to the left and will need to go back and retry. 2. The player will land on top of the platform, remain for a short moment, and then continue down on the other side. The player tries to move his character from the left to the right. However, the obstacle introduces a vertical conflict in relation to the gravity available in this setting. In fact, gravity is the most important game rule in regards to jumping in this location. Without gravity the spatial structure will lose its orientation. Passing it will be reduced to an action of simply steering past it. I will therefore argue that gravity introduces orientation in game space. In particular we note that all directions are no longer equal in a space with gravity. Compare this to the game space of PAC-MAN were all directions have equal properties. Failure to jump has very low consequences in this case. The spatial construction introduces very little risk to the player. The player might lose time, but there is no risk of complete failure, such as the death of the player character.

Let us take an even closer look at the dramaturgy of movement over this construction. Consider the three edges constructing the short platform. We have 1. the left side, 2. the top edge, and 3. the right side. These three elements work together to create the following properties: 1. Creates tension and stress, it requires an active action from the player to be overcome. 2. Is the success state; being here is the reward for successfully completing a jump. It is a temporary elevated position. 3. Signals the return to status quo, and normality. – To summarize, we could put all the data regarding *The Short Platform* into a table like this:

Title	The Short Platform
Category	Movement
Sub-Categories	Vertical space
	Short-term positional change
Game Rule	Gravity
Player Action	Jumping
Risk	Low
Dramaturgy	Tension – Success – Relief
Layout	See Fig. 2

On Changing View

While a change of view from 3D to 2D does change the experience of the player; it does not change the fundamental function of a spatial construction in the game. There are many games where the player himself can turn the position of the camera view, or even choose between a 3rd person setup and a zoomed-in first person view. In this way, the player can view an obstacle from the side or behind. Even so, this does not change the obstacle at hand. The player still has to jump at the correct time to be able to pass and while the view might modify the difficulty, the fundamental challenge to the player remains the same.

In most third person view games such as WORLD OF WARCRAFT (2004), the player constantly needs to adjust the camera angle to get a good view of the game space. Adjusting and finding a good camera angle is an essential part of the player's skills in the game. SUPER PAPER MARIO (2007) has taken this concept a step further. The player plays in a side-scrolling, 2D-view; but can for a limited period of time switch to a full 3D-mode to solve spatial puzzles not possible in 2D. It is important to note that the 3D view is not always more powerful than 2D. Several passages are only possible by continuously switching perspectives.

More Examples

Now consider the construction *The Fence*. Similar constructions can be found in many game locations in FPS-games, platform games, or third person view games such as WORLD OF WARCRAFT.

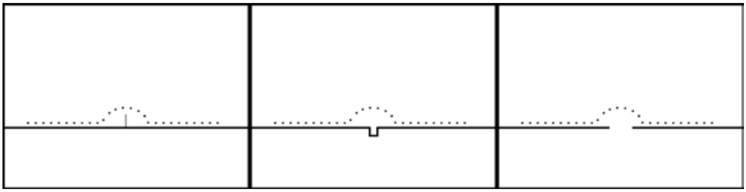

Fig. 3: The Fence, The Small Hole, and The Gap

The shape is similar to that of Fig. 2, but compressed horizontally, effectively removing the upper part. It enforces a *transient movement*, with no possibility to stop and rest at the success-state. The player character is either on the left or right of the fence when not moving. Tension and relief is compressed to one point. The ideal route over the obstacle is shown as a dotted line.

Let us now consider the middle construction in Fig. 3, *The Small Hole*. The route followed by a successful player is exactly the same as in *The Fence*. However, the failure scenario is different; the player will fall down into the pit and needs to jump up to get out. What is interesting about these two constructions is that the game designer has the option to choose between two structures that will provide similar movement patterns, but that are different in other aspects. Furthermore, analyzing the space in this manner makes it possible to compare them in ways that might not be immediately obvious from a purely aesthetic approach.

Now regard *The Gap*. Again, a successful passage will result in the same movement as in both previous scenarios. However, in this case there is a much higher risk involved in failure, creating a larger tension and stress-factor for the player. It is not possible to recover from failure here, a retry from an earlier position or re-play is the only option. – The examples in Fig. 3 are all different from *The Short Platform* in the relationship to how long the player remains at a different vertical position. The former all present a transient state, while in Fig. 2 it is possible to remain at the elevated state, creating a *short-term positional change*.

The Bigger Picture

I have discussed four examples in relation to movement of a single player character, specifically in a space with vertical gravity. Only the effects on movement have been analyzed and no other factors have been considered. *The Fence* and the *The Small Hole* would probably both serve as excellent cover or hiding locations from a tactical point of view, while *The Gap* does not provide any such properties. This leads to the question: What functions do game spaces provide to the player, given certain game rules? I have chosen to work with the following categories that will be briefly presented in this paper: *Movement*, *Exploration*, *Tactical*, *Social*, *Performative* and *Creative*-spaces. These categories coincide and slightly overlap the pattern categories proposed by McGregor (2007). They are furthermore inspired by the player behaviors described by Bartle (1996) as well as Caillois (2001). Before discussing examples from the other categories, let us explore the term *Joy of movement*.

Joy of Movement

When we use the term *movement* in relationship to game spaces, a more narrow definition might be necessary. To further emphasize the play-factor involved I have chosen to use the term *joy of movement*. It is borrowed from a similar term in interaction design, *joy of use* (Hatscher 2000), with influences from the theory of flow by Csikszentmihalyi (1990); in particular the part described as *the body in flow*. This in turn is naturally related to the activity *Parkour*, invented by the French performer David Belle. Joy of movement is the action of moving through a space for the thrill of movement in itself.

Joy of movement is constructed from singular elements such as those presented here already. These elements are then combined to create rhythm, dramaturgy, and melody in the game space presented to the player. A perfect example is found in SUPER MARIO WORLD (1990). The linear level layout in this game functions as a spatial narrative; there are sidetracks available but with little freedom, and most players will take the same path through the game world. The category "joy of movement" can be divided into several sub-categories or partitions, one being that of *oriented space* and *non-oriented space*. For instance, vertical spaces with gravity belong to oriented space. Further partitions include *local* and *global* constructions, where local elements are used as components in global spaces.

Under local vertically oriented space there are further sub-categories available. Two have already been brought up: transient and short-term positional change. Another is *permanent positional change*. We can see three examples of this in Fig. 4. All three of these structures will result in similar movement of the player character; they do however differ in aspects such as risk and player interaction. *The Smooth Slope* completely makes away with the challenge of a timed jump, and smoothly re-adjusts the player's vertical position while he moves from the left to the right. On the other hand, the *Unsafe Stairs* creates a big tension with its possibly dangerous gap.

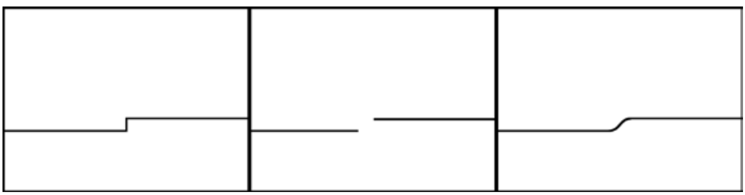

Fig. 4: Step, Unsafe Stairs, and The Smooth Slope

I will use the term *reduced horizontal space* to describe a non-oriented space where the player character movement takes place mainly in one dimension without the influence of elements such as gravity. Typical game locations include racing games such as POLE POSITION II (1988) with a view from behind the car and LE MANS (1982) with a view from above the track. The challenge to the player presented here is the ability to react to changes in directions of the passable area. Abstract representations of these spaces can be found in Fig. 5. The first example shows how a complete change of direction is constructed, whereas the second show a permanent shift in the horizontal position. A more open horizontal space is found in *The Round Corner* which will allow the player to follow the wall without effort (given that the wall is smooth).

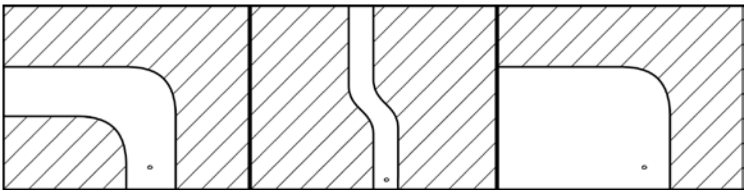

Fig. 5: Directional Change, Permanent Horizontal Position Shift, and The Round Corner

A game space such as PAC-MAN contains structures of reduced horizontal space. On the global level the player is free to move in each direction with equal properties. However, the narrow pathways reduce the player's choice of movement significantly. As the player character races through the level, the freedom to choose paths adds a tactical and navigational challenge. Yet, in regards to joy of movement on the local level, PAC-MAN is closely related to racing games. Furthermore, on a global level the maze in PAC-MAN serves to condense the play area while maintaining a long path to traverse.

Free horizontal movement can be found in games such as WORLD OF WARCRAFT. It generally has a free horizontal space, combined with oriented vertical space to create interesting obstacles. There are however here, too, many areas with more maze-like-structures or tunnel-shaped spaces. Especially the dungeons are often linear and based on reduced horizontal space. Totally free movement does exist in 3D game spaces; DESCENT (1995) is a game with 6 degrees of freedom. The game allows the player to navigate a space ship in a gravity-free space without orientation. However, since the game levels consist mostly of tunnels, large parts are transformed into something akin to a reduced horizontal space where the player can choose which way is up.

Global space is the combination of local elements into larger complex constructions. Three common examples are shown in Fig. 6. *Equal Spacing* creates a backbeat to the play rhythm, whereas *Escalation* is a natural element of any dramaturgy, and finally the third construction is a simple example of spatial *Melody*.

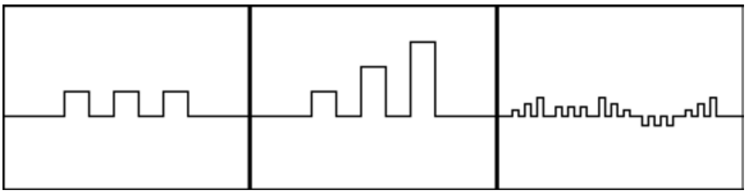

Fig. 6: Equal Spacing, Escalation, and Melody

Exploration

The Princeton online dictionary WordNet defines exploration as "to travel for the purpose of discovery". The purpose of this activity is clearly different from the one described previously under *joy of movement*. Whereas joy of movement focuses on the movement per se, exploration is about moving through game space in order to learn about it.

While exploring, the player will be influenced by several aspects of the game space. In particular the elements of the game world that help the player navigate. Frequent examples would include *road signs*, and other spatial hints of location and direction such as the architectural pattern *intermediate destinations* by Christopher Alexander (1977:586). In direct contrast are elements placed in the game space to create confusion. This includes constructions such as mazes, labyrinths, and incorrect information; among others. It is also in this sense that game spaces differ from "real" spaces; the game designer is not primarily working to make the game space as easy as possible to navigate in all areas. Instead, the focus is on creating an exciting space with a balance between confusion and ease of orientation.

A large part in the activity of exploration, as it is currently played out in digital games, is structured around hidden elements: Game objects or spatial constructions deliberately hidden, with the intent that the player should search for them actively or stumble upon them as a result of thorough exploration. Examples here include secret doors, hidden chests, key-lock problems, but also spatial *Easter Eggs* such as those found in ADVENTURE (1980) or DOOM II (1994); where a hidden room shows the game creator's name or image (Gouskos 2008).

Tactical Spaces

Tactical spaces affect the player's ability to perform a tactical action. Typical actions in an FPS-game would be to take cover, to hide, to snipe, or to ambush. Tactical spatial constructions are perhaps more than other categories bound to particular game properties. One such feature is the almost universal property of *Line of Sight*; an unobstructed straight line between two points in game space. Figure 7 shows three basic examples relating to line of sight and cover positions. The line of sight is represented by an approaching dangerous object. The first two protect the player character against a horizontal danger, whereas the last shows an example of a vertical cover.

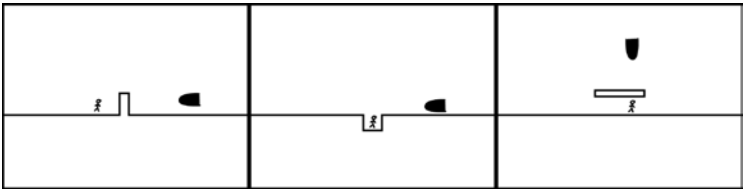

Fig. 7: The Wall, The Hole, and The Roof

As well as influencing the direct tactical choices of the player, tactical spaces additionally highlight the relationship between the location of the player character and the location of other game objects. Any spatial structure that affects the strategic power of the player tokens in regards to the game AI or other players is a tactical construction.

The Vertical Corner demonstrates this principle by showing the asymmetrical relationship between the player on top and the players below. The former can choose to expose himself or retract to a non-visible position, whereas the lower player characters are more constrained.

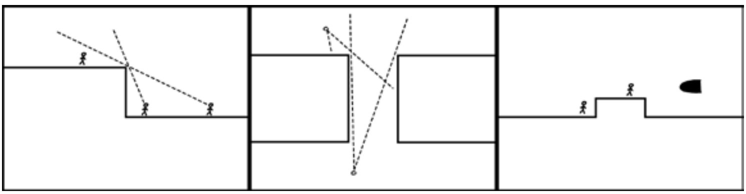

Fig. 8: Vertical Corner, Simple Entrance, and Exposed Position

The Simple Entrance is a typical example of a transition area and choke point. The player choosing to enter the narrow area in the center will be very vulnerable. In a similar fashion, the third example shows how the elevated position of a platform creates an *Exposed Position*. A game designer will often combine these exposed positions with some other strategic element that is crucial to the player, such as a powerful spawned object or other game objectives, to create tension and motivation to move to and through such areas.

Furthermore, line of sight is important in regards to the ability of the player to retrieve information about the game world. Information is mostly gained through visibility; the player knows what he sees. Any spatial construction that modifies the view of the player also modifies the information available.

Social Spaces

Social spaces are important to humans, in games and elsewhere. This is an area where it seems that theories from "real world" architecture can be directly applied to digital game spaces, in particular for online games with a first person or close 3rd person viewpoint. The purpose of a social space is to enhance the possibility of social interactions between players. Verbal as well as non-verbal social interactions are important to the players of online digital games. Communication and travel time could be instant in online games. However, travel constraints are often implemented to make the game world relevant. On the other hand, most online games have one space in common that allows instant and global communication; the chat window. This is a location where the player is identified merely with a text-label, his game name.

Still, players move around in the world and encounter new previously unknown players. A social space is a location that attracts players and facilitates socializing. It might be a place where the player feels at rest, or it might be a busy trading location. *The Promenade* is a typical example from Alexander (1977:168). It is based on the premise that "each subculture needs a center for its public life: a place where you can go to see people, and to be seen."

Performative Spaces

Performative spaces allow the player the means to perform or roleplay. Caillois has named this essential part of play mimicry. The player "makes believe or makes others believe that he is someone other than himself. He forgets, disguises, or temporarily sheds his personality in order to feign another" (Caillois 2001:19).

While roleplaying, the player uses game objects to create a personal fictional story. Of particular importance are objects that can serve as props in this narrative. This includes clothes, skins, and basically any texture or object that can be attached to the player character. Furthermore, the player character itself is a prop to the player. The performance of the player when directed towards others can be supported by being on a stage, or stage-like structure, such as a tavern or an elevated position. Finally, the player often has access to a number of animations that can be performed by his player character, called *emotes*. Typical emotes include greetings, hand waving, shaking the head, and dancing. – All these three items (props, stages, emotes) are for sale in the online world of SECOND LIFE (2003). By acquiring the artifacts needed, the player can customize his character, his performance, and his online identity in every detail.

Creative Spaces

A creative space allows the player the chance to create and innovate within the boundaries of the game world. This can be permanently, on a global level, or merely a local short time effect. What are the spatial elements that allow creativity in digital game spaces?

Let's look at the game LINE RIDER (2006). The main creative ability available to the player is the possibility to add a line at any arbitrary location in the game world. In this particular case the game world starts out empty, giving the player total control over the layout. However, the player is still limited to only using the element of the black line. Nothing else is possible, setting up a creative limitation that the player has to work within. Looking at the community around LINE RIDER (Marcandremob 2007), one can see the amount of work and planning that must have gone into many levels.

Now regard the game SIMCITY (1990). Here we find similar properties but with an increased complexity. The player can choose from a multitude of building tools ranging from different kinds of buildings, to roads, airports, electricity lines, and railroads. Many of the choices involved in playing this game are strategic instead of creative. However, players still have some creative freedom after they have made their strategic decision, and could play the game as an entirely creative exercise (although probably with limited success). Exactly as in real life, it is possible to create a functional city that is either aesthetically pleasing or not, and it is up to the player to decide what to create. – As we can see, there is a common factor here in that the player is given certain tools or powers to modify the game world and is then asked to be creative within certain limits.

Conclusion

I have presented a number of functions of game space in regards to player behavior. Game properties, such as gravity, have been matched with spatial layouts and specific player behaviors in order to better understand how these three aspects work together. Furthermore, I have shown how to reduce a complex 3D game into simpler abstract 2D components for easier analysis and comparison. It is my intention that the way of thinking outlined in this paper could serve both as a tool for further analysis of game space elements, and assist in the creation of new game spaces.

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Being "In the Game"

When people describe themselves as being “in the game” this is often thought to mean they have a sense of presence, i.e. they feel like they are in the virtual environment (Brown/Cairns 2004). Presence research traditionally focuses on user experiences in virtual reality systems (e.g. head mounted displays, CAVE-like systems). In contrast, the experience of gaming is very different. Gamers willingly submit to the rules of the game, learn arbitrary relationships between the controls and the screen output, and take on the persona of their game character. Also whereas presence in VR systems is immediate, presence in gaming is gradual. Due to these differences, one can question the extent to which people feel present during gaming. A qualitative study was conducted to explore what gamers actually mean when they describe themselves as being “in the game.” Thirteen gamers were interviewed and the resulting grounded theory suggests being “in the game” does not necessarily mean presence (i.e. feeling like you are the character and present in the VE). Some people use this phrase just to emphasize their high involvement in the game. These findings differ with Brown and Cairns as they suggest at the highest state of immersion not everybody experiences presence. Furthermore, the experience of presence does not appear dependent on the game being in the first person perspective or the gamer being able to empathize with the character. Future research should investigate why some people experience presence and others do not. Possible explanations include: use of language, perception of presence, personality traits, and types of immersion.

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Presence and Gaming

A well designed computer game possesses the ability to keep people in their seats for hours on end at rapt attention, with players actively trying to reach new goals and determined to overcome their failures (Prensky 2003). Sometimes people get so carried away that they even describe themselves as being "in the game" (Brown/Cairns 2004). Such statements are often thought to be describing presence: the sense of being mentally and physically present in a virtual environment (VE) rather than the place in which the participant's body is actually located (Sanchez-Vives/Slater 2005). Presence is also referred to as "the perceptual illusion of non-mediation;" (Lombard/Ditton 1997) i.e. the illusion that a mediated experience is not mediated.

Measuring experiences of presence is traditionally associated with virtual reality (VR) research, where users wear head mounted displays (HMDs) or interact within CAVE-like systems; i.e. a surround-screen projection-based virtual reality (Sanchez-Vives/Slater 2005). Participants know that the events they see, hear, and feel in the VR systems are not real events in the physical meaning of the word, yet they find themselves thinking, feeling and behaving as if the place and the events were real. For example, during a public speaking task participants responded to a virtual audience as if they were real people (Pertaub et al. 2002). Designing a questionnaire to measure the degree of presence subjectively experienced, Witmer and Singer (1998) emphasize factors such as the naturalness of the interactions with the VE and the extent to which they mimic real-world experiences. Hence one can suggest that HMDs and CAVE-like systems are effective in giving users the sense of presence because the environment appears to surround the user. Furthermore, VR systems are becoming increasingly realistic in terms of visual fidelity, sound, and haptics (i.e. touch and force feedback).

Several researchers have applied these same presence principles to gaming. For example, Alexander et al. (2005) discuss factors highlighted by Witmer and Singer (1998) in the context of video games for military training. Ravaja et al. (2004) also emphasize features such as a first-person view and the naturalness of the game. However, clearly if presence is experienced in gaming at all, the experience is very different to that traditionally studied in presence research.

In this paper, we argue that before measuring presence experiences in gaming, it is necessary to consider a number of issues which are particular to the experience of gaming, making it differ from the experience of presence in VR. Nowak et al. (2008) write about how the gamer must overcome their initial frustration with the gaming interface. Ravaja et al. (2006) suggest that users experience more presence when a game is highly engaging, because there are less attentional resources left over for the processing of the cues signaling that the mediated environment is artificial. However, few researchers have made the differences between presence experiences of VR and games explicit.

Therefore the aim of this paper is to explore the concept of presence in gaming. First we will discuss a number of issues which are particular to the experience of gaming: submission to the game, the mind/body illusion, and immersion as a graded experience. Then we will discuss the results of a qualitative study in which gamers were asked to define the experience of being "in the game."

Submission to the Game

Whereas a person in a VR system can make a full 360 degree turn, the VEs of computer games are restricted to a small screen. Furthermore, interacting with the game environment is limited to a number of preset gestures and can often be far from intuitive, e.g. players must learn the arbitrary relationship between pressing the button "A" and kicking their on-screen opponent. Despite these restrictions however, not only do players accept the small screen and learn the arbitrary relationships between the controls and the screen output, but the rules of interaction often become fully internalized to the extent that the controls are made to seem transparent (Garite 2003).

Jarvinen (2003) explains that players willingly subject themselves to the rules of the game because rules are what make a game enjoyable. Gaming is a process of problem solving (Jorgenson 2003). Players are faced with a number of information processing tasks (Garite 2003): gathering clues and treasures; keeping track of one's ammunition, health, and other levels; constantly updating a mental map of the universe of the game, such as the positions of pathways, places to avoid, etc. The enjoyment of gaming lies in facing these challenges and overcoming them. In order to experience this enjoyment, the player willingly learns to behave in accordance with the game's boundaries.

Furthermore, despite the interaction with the game being limited to a number of pre-set gestures, players experience a great sense of control in gaming because, unlike watching films or reading books, when playing a game the player takes on an active role. For example, Frome (2007) explains that when playing a first person shooter (FPS) the player determines much of what they see on the screen. When the player presses a button, the character they control throws a grenade, causing a building to blow up. When the player pulls a trigger, their character fires his weapon, shooting an enemy. As a result of the player's actions the game then responds in turn, i.e. there is a "feedback loop" between the person and the game (Friedman 1995). Therefore it is evident that the player experiences a high sense of control because the player is an essential part of the game: the player has to make their avatar act, otherwise there is no game (Perron 2005).

The Mind/Body Split

Another difference between VR systems and gaming is that whereas in the VR system the person remains themselves, acting accordingly, in the world of a game the player takes on the persona of their character. As a result, when people play games for extended periods of time they ignore their physical bodies and concentrate on what is happening to their virtual bodies inside the game world. In extreme cases this can have disastrous consequences. For example, in 2002 a Taiwanese man was reported to have died from exhaustion after playing for 32 hours straight (Garite 2003).

As well as being disembodied from their real body, the player is also disembodied from their virtual body. Using the example of a FPS, Young (2005) explains that the player looks through the eyes of a virtual character while playing, seeing what the character sees. The player does not see the character because the player is the character. In the heat of the game, all is forgotten except the action. People playing a FPS say things like "I got him!" and "He's over here," rather than "My avatar was out of ammo." or "Your character shot my character." (Young 2005) Similarly, Sommerseth (2007) writes that "regardless of whether the protagonist is a famous avatar that has an established autonomous identity and history, like Lara Croft or Mario, the moment I pick up the joypad to play Tomb Raider, I do not become Lara, but rather, Lara becomes me." The virtual body is absent because it has been overshadowed by its actions (Young 2005). Although the player takes on the mindset of owning the muscular virtual body in terms of their action within the game (e.g. strength), the body itself has been rendered "invisible."

Therefore, it is evident that there are two forms of disembodiment during gaming. The virtual body is absent because it has been overshadowed by its actions, the player taking on the persona of the character. Even more absent from perception is the physical body, the body that pushed the keys on the keyboard, moved the mouse, and allowed the images on the screen to be seen.

Immersion as a Graded Experience

A third difference between VR systems and gaming is the length of time it takes for presence to occur. In VR systems the experience of presence is almost immediate, the environment appearing to surround the user. In contrast, the experience of presence in gaming builds up much more gradually. Only as a result of a successful interaction between the person and the game do players experience a decreased awareness of the real world and a high sense of involvement in the game world.

The term "immersion" is used to describe a person's degree of involvement with a computer game. In interviewing several gamers and developing a grounded theory, Brown and Cairns (2004) identified a number of barriers that could limit the degree of involvement. These barriers arose from a combination of human, computer, and contextual factors (e.g. gamer preference, game construction, environmental distracters); and the type of barrier suggested different levels of immersion: engagement, engrossment and total immersion. An engaged user is one that has invested time, effort, and attention in learning how to play the game and getting to grips with the controls. The reasons why people play and their gaming preference will influence whether a person picks up a game in the first place. An engrossed user is one whose emotions are directly affected by the game. In order for engrossment to occur, good game construction is vital, e.g. visuals, interesting tasks, plot, and challenge. The gamer is now less self aware than before. Finally, a user that is totally immersed is one that feels detached from reality to such an extent that the game is all that matters. Total immersion requires the highest level of attention and is a rare and fleeting experience when gaming, whereas engagement and engrossment are more likely to occur. Presence is said to occur only in this last stage of immersion. Empathy and atmosphere interact in such a way that the user feels like they are in the VE.

Qualitative Study

Overall, it is evident that there are a number of differences between VR systems and gaming. Whereas presence in VR systems is immediate, presence in gaming is gradual. Furthermore, gamers willingly submit to the rules of the game, learning arbitrary relationships between the controls and the screen output, and take on the persona of their game character. Therefore, one can argue that in order to measure presence experiences in gaming it is necessary to create questionnaire measures specific to gaming.

Furthermore, due to these differences, one can question the extent to which people feel present during gaming. When gamers are involved in a game to the highest extent they often describe themselves as being "in the game," however, what does this actually mean? Does presence always occur at the highest state of immersion? Is it necessary for a player to empathize with the character (Brown/Cairns 2004)? Furthermore, do players experience greater presence in games that offer the player a first-person perspective (King/Kryzywinkska 2003, Ravaja et al. 2004)?

A qualitative study was conducted to explore the experience of presence during immersion. Participants were recruited through an opportunity sample. They were told beforehand that the researcher would ask them about their gaming habits and why they enjoyed playing computer games. Each interview lasted for approximately 45-60 minutes and transcripts were analyzed using open coding in order to create a grounded theory (Strauss/Corbin 1998).

There were originally 14 gamers interviewed, however Participant 6 was excluded from the study due to a corruption of the voice recording. Therefore, the resulting grounded theory is based on the interviews of 13 gamers in total. 8 were male and 5 were female. Their ages ranged from 19-32 years (standard deviation = 3.66). Between them they had experience in playing a wide range of games and consoles. The grounded theory covered a number of research topics, including people's reasons for gaming, game features that make a good game, and the experience of immersion. For the purposes of this paper, only the part of the grounded theory related to the experience of presence during game immersion is reported.

Being "In the Game"

Three of the gamers interviewed defined being "in the game" as being immersed to such an extent that they became highly involved in the narrative and felt like they were the character (i.e. a sense of presence):

– "I find that it's quite easy using a controller to forget that you're using a controller if the game is good." ~ P10

– "You get just so into that character you think it's kind of real, for like that moment in time." ~ P2

– "I like feeling you're part of a game, just the character that you're playing is you." ~ P11

However, such an experience was not true for everyone. Several gamers claimed that they were always aware that they were just playing a game (i.e. no sense of presence), even at their highest state of immersion:

– "I'm always aware that I'm just playing a game." ~ P4

– "I've never really felt like it was real." ~ P7

– "I don't feel like I'm actually in that world but it's very effective… it's very effective in drawing you in, but you're always aware that it's a game." ~ P13

Therefore, it is evident that when people use the phrase "being in the game" this does not necessarily mean that they feel like the VE is physically real. Instead some gamers use this phrase to mean that they are simply able to believe in the game world. Through their interaction with the game they are able to become highly involved with the characters and the narrative to such an extent that they feel like they have a place within the VE (although they never actually feel like they are the character):

– "It feels like you're in the game sometimes. You're always aware that you're obviously not, 'cos you're looking through a television screen… but you're kind of expressing yourself through the movement of the controller if you know what I mean… you have a place in the game, an environment in the game." ~ P11

–"It's not that you believe you're the character but it's just kind of a version of you." ~ P14

Therefore it would appear that "being in a game" can mean one of two things: either the player feels like the game world is real and they are the character they are playing; or the player simply finds the game world involving to such an extent that they are more aware of it than their real life surroundings:

– "I think it varies from person to person really. Some people probably feel like they're actually in the game, doing the things the person's doing in the game… I generally get immersed in the sense that I don't really notice time passing. So I kind of just forget about whatever's going on around me." ~ P5

– "I wouldn't say that I feel like I'm inside the game, but I'm not thinking about being in a room." ~ P10

These findings differ from Brown and Cairns (2004), suggesting that at the highest state of immersion not everybody experiences presence.

Empathizing with Characters in the Game

Several of the gamers interviewed claimed that games involving VEs and characters (e.g. FPS, role playing games) are more immersive than games not based on characters (e.g. puzzle games such as TETRIS (1985)). In some cases, gamers described themselves as becoming quite attached to characters in the game:

– "You can be emotionally attached to like characters in a game, er like in a film or a book, and those tend to be the games that are the most memorable.… there's a real story there." ~ P10

– "You get affections for the characters.… I used to think 'I don't want them to grow up yet, it's too soon,' so I… there are things you can do to like slow it down, to prevent it. I think if you earn points and things you can get them to buy potions so they don't grow old." ~ P14

In contrast, other gamers simply viewed the character as a tool in which they accessed the game:

– "They were just there to do my business and that's it. Buh-bye. I don't care about you." ~ P2

A person's view of the character appears to be an artifact of the type of game. For example, Participants 10 and 14 were both discussing narrative-based games in which characters' backgrounds and personalities played a major part, whereas Participant 2 was talking about a simple platform game. Furthermore, whereas Participant 10's game involved a first-person perspective, Participant 2's game involved a third person perspective.

In terms of being "in the game," it is interesting to note that Participant 10 was one of the gamers discussed earlier that claimed that when he was immersed he never felt like he was in the VE. In contrast, Participant 2 was one of the gamers that claimed that, when immersed, she did feel like she was there. Therefore, it would appear that because a person is able to relate to character, this does not necessarily mean that they will feel a sense of presence in the VE. Likewise, another person might view the character as a tool but yet have the experience of getting so caught up in the game that at times they view the game world as real.

Discussion

Overall, the qualitative study revealed that when people say they are "in the game" this does not necessarily mean that they feel a sense of presence in the VE (i.e. they feel like they are the character). Instead they might just be using this phrase to emphasize their high involvement in the game. These findings differ with Brown and Cairns (2004) as they suggest that not everybody experiences presence at the highest state of immersion (total immersion). In fact, several gamers claimed that they had never ever had the experience of feeling like they were the character. Furthermore, the experience of presence does not seem to be dependent on the game being in the first person perspective or the gamer being able to empathize with the character. Naturally this leads us to the next question for future research: Why do some people experience presence during gaming and others do not?

One possible explanation is the gamer's use of language. One could suggest that all gamers experience presence at the height of their game immersion but some gamers might be reluctant to admit this sense of presence, due to the stigma attached; e.g. news stories reporting the cases of death as a result of non-stop gaming highlight the negative consequences of extreme gaming (Garite 2003). Alternatively, another possibility is that nobody experiences presence. Perhaps some gamers are simply exaggerating, using terms such as "I felt like I was the character." not in their literal sense, but in order to emphasize their high level of immersion in the game and that they felt like they had a place in the game world.

As well as there being uncertainty in terms of the gamer's use of language when describing presence, there is also considerable uncertainty within the research community in terms of what presence actually is. In accordance with the rationalistic tradition, Slater et al. (2006) define presence as a psychological sense of being in a virtual environment. Furthermore, it is assumed that the visibility of the technical infrastructure would spoil the sense of presence and make the user "emerge" (Spagnolli/Gamberini 2002). In contrast, Floridi (2005) argues that it is debatable whether people actually believe they are in another world at all: instead it could be that the virtual world is now present in their space. Floridi (2005) gives the example of a person knocking down a wall so they can now see into the room next door. One would not say that the person was present in the other room but instead it has now become part of the existing room, i.e. the person's viewpoint has expanded. Alternatively, from a Gibsonian perspective, presence can be defined without the notion of subjective experience at all: presence is tantamount to successfully supported action in the environment (Zahorik/Jenison 1998). When the environment responds to the user's actions in a way that is perceived as lawful, presence is more likely to occur. Therefore, it is evident that the meaning of presence depends on one's concept of reality. Should gamers be asked whether they believe that they are now in another environment (present in VE)? Or should they be asked whether they believe that their environment has simply expanded to allow them to act in a space they could not act before (present in real world and VE)? Alternatively, maybe one should ask to what extent are actions supported by the environment (bypassing the whole issue of subjectivity)?

Another possibility is that gamers are pre-disposed in terms of their presence experiences, i.e. presence might be dependent on the role of personality traits. For example, Sas and O'Hare (2003) found that people who are highly fantasy prone, more empathic, more absorbed, more creative, or more willing to be transported to the virtual world are more likely to experience a greater sense of presence.

A further possibility is that there are different types of immersion. Perhaps people are more likely to experience presence in some types of immersion, and not in others? Ermi and Mäyrä (2005) propose the SCI model and argue that immersion can arise in a number of ways: sensory, challenge-based, and imaginative. Sensory immersion occurs when a person's senses are overpowered (e.g. large screens, powerful sounds, realistic graphics). Challenge-based immersion occurs when a person is able to achieve a balance of challenges and abilities (e.g. engaging game play). Imaginative immersion occurs when a person becomes absorbed with the stories and the world, or begins to identify with a game character. Referring to the SCI model, Arsenault (2005) argues that in games notorious for their absence of plot and characters, it is impossible for the player to identify with the game characters (imaginative immersion) and experience presence. However, it is still possible for the player to experience challenge-based immersion. Therefore, one could suggest that the gradation of immersion (Brown/Cairns 2004) might have to be re-conceptualized, so as to apply to different types of immersion.

Future research should investigate these possible explanations further in order to shed light on why some people experience presence and others do not.

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Gameplay in the "Zone of Becoming"

Locating Action in the Computer Game

Extending Alexander Galloway's analysis of the action-image in videogames, this essay explores the concept in relation to its source: the analysis of cinema by the French philosopher Gilles Deleuze. The applicability of the concept to videogames will, therefore, be considered through a comparison between the First Person Shooter S.T.A.L.K.E.R. and Andrey Tarkovsky's film *Stalker*. This analysis will compellingly explore the nature of videogame-action, its relation to player-perceptions and its location within the machinic and ludic schema.

The all-pervading importance of ludic action in analyzing gameplay is becoming increasingly evident. Recent commentators, like Alexander Galloway, stress this almost axiomatically: "if photographs are images, and films are moving pictures, then video games are actions. Let this be word one for video game theory" (Galloway 2006:2). The nature of this action and the space within which this occurs, however, belies conventional notions. Action in digital games is not merely that of the player acting on a passive object; rather it is more complex in that the machine also acts on the player. Furthermore, this action is not a single unified event: it is a multiplicity that is both different as well as repetitive. Such issues, which have been less compellingly addressed in earlier analyses, are well explained by some key concepts in the philosophy of Gilles Deleuze. These concepts, originally formulated in the context of cinema, need to be considered in terms of their applicability to digital gameplay. This paper aims to explore the nature of the action in videogames, using a Deleuzian framework. It will do so through a comparative analysis of the videogame

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S.T.A.L.K.E.R.: SHADOW OF CHERNOBYL (2007) with Tarkovsky's similarly themed film, *Stalker* (1979).

First, however, a brief conspectus of earlier opinions on videogame action is essential. There are not many critical accounts on videogame action and even these vary a lot. Usually these accounts engage separately with aspects of action in videogames. Commentators like Juul (2005) and Lindley (2002) point out how emergent and repetitive action in videogames makes it a phenomenon characterized by multiplicity and complexity. On another level, however, action is analyzed in terms of agency and immersive engagement. There are differences even regarding the nature of agency and engagement, as indicated in the varying analyses by Murray (1997), Ryan (2001), and Frasca (2005) respectively. Though these accounts are all valid in their own terms, the analyses of ludic action that they provide remain incomplete. A more comprehensive and coherent account, which combines the analyses of the various aspects, is necessary to attempt an understanding of videogame action, not as a series of discrete aspects, but as a process.

Galloway's account is a useful entry-point to such an analysis. He rightly states that action in digital games cannot be located in any one entity. In the first chapter of his book *Gaming* Galloway launches directly into a discussion of action as being performed "step by step [and] move by move" (Galloway 2006:2) by operator and machine in digital games. Whereas the action in earlier media was predominantly auditory and visual, that which takes place in videogames also involves the psychosomatic. Further, the action also occurs from the machine's perspective: the code responds to, and creates, situations of action. As the base foundation of his analysis, he reads games in terms of the "action-image" as described by Deleuze (1986:67). Though, in itself, this is a major contribution because it opens up further avenues into researching ludic action in videogames, Galloway's account does not engage in unpacking the advantages of analyzing videogame action within a Deleuzian framework. A fuller analysis is therefore necessary.

Galloway draws his concept of the action-image from Deleuze's analysis of cinema. However, Deleuze's own description of it is more complex and multi-faceted, and a brief introduction to it may be useful. Before analyzing the action-image, it will be helpful to note the two key ideas in Deleuzian thought that are helpful in understanding videogame action: these are multiplicity and becoming, respectively. Both of these aspects are intrinsic to the same process and an understanding of one will automatically involve the other. Hence, as noted earlier, a comparison with Deleuzian multiplicity and the process of becoming lends itself well to a holistic understanding of the process of videogame action.

A Deleuzian multiplicity is an immanent structure characterized by a variable number of dimensions and an absence of an extrinsic unity. Manuel De Landa, commenting on Deleuzian multiplicity, describes it as the space of all possible states that a physical system can have (De Landa 2002:13). This structure therefore not only includes the multiple branches of the emergent structure or repetitions of ludic action described by game studies commentators, it also includes the as-yet unrealized instances of gameplay. This structure is well described in Salen and Zimmerman's concept of the "space of possibility" in their key game studies text, "Rules of Play." The concept is defined as the "space of future action implied by a game design the space of possibility. It is the space of all possible actions that might take place in a game, the space of all possible meanings which can emerge from a game design" (Salen/Zimmerman 2004:67). The similarity of this with De Landa's and Deleuze's terminology is, therefore, not mere coincidence.

At the same time, another aspect of Deleuzian multiplicity makes the link with videogame action even clearer. In Deleuze, the multiple is characterized by univocity. The concept of univocity is not so much about a single meaning but rather of meaning existing as a multiplicity that is ontologically the same, but formally different. It can be argued that this is similar to the events (and actions) in digital games: the game is one but is expressed in many iterations. Again, these iterations of the same event occur within an ongoing process of difference. Therefore, there are many varied instances of gameplay for a game sold under the same title.

Within the Deleuzian multiplicity, actions occur as intensities and not as discrete events. As Abe Burmeister, commenting on intensity in videogame action describes it: "not as [a] state that is entered and left, but rather as one that is approached, but rarely if ever entered absolutely" (Burmeister 2005). This is because the actions are actualizations of multiple virtuality and they are best seen in their interconnectedness, which involves an understanding of them as being continually-in-process. Deleuzian multiplicity necessitates an understanding of events as a mesh of actions-in-process rather than as discrete instances of action. When this process is considered in respect to the player and the system, the other key Deleuzian concept is seen in play: the bipartite ludic action is a becoming. In Deleuzian terms:

> A becoming is not a correspondence between relations. But neither is it a resemblance, an imitation, or, at the limit, an identification […] What is real is the becoming itself, the block of becoming, not the supposedly fixed terms through which that becomes passes (Deleuze 1988:262).

"Becoming" is, therefore, the involvement that results from the being-in-process of videogame actions. Instead of providing a total "holodeck-like" identification, as claimed by theorists like Murray, engagement in videogame actions is closer to the process described by later commentators. It occurs within, and as the result of, a continual passage between actualizations and identities. Having said this, a more nuanced analysis of Galloway's account of the action-image and related concepts will be helpful in providing a clearer perspective on analyzing videogame action as a bipartite process of involvement which occurs within a multiplicity involving the player and the game-system.

Galloway's bipartite and multisensory conception of action in videogames, summed up in his use of the Deleuzian action-image, needs more background. It must be mentioned, here, that this analysis is concerned only with examining the implications of Galloway's concept in terms of its Deleuzian sources. A discussion of Deleuze's full account of cinema is not the aim of this paper. According to Deleuze, the action-image is a part of the movement-image, a way of understanding cinema through the flow of actions and perceptions. It is also intrinsically linked to the perception-image and affection-image – both part of the movement-image. The operation of the action-image is described by Deleuze as "no longer elimination, selection, or framing, but the incurving of the universe, which simultaneously causes the virtual action of things on us and our possible action on things" (Deleuze 1986:67). Deleuze's description develops on Galloway's formulation of bipartite action: the virtual action of the ludic machine on us and our possible action on it caused by the "incurving of the universe." This immediately brings up other considerations. The action is located in the virtual and the possible, which form the core elements of Deleuzian conceptions of multiplicity. Further, the process is an "incurving of the universe", an intense process of involvement. In the framework of the action-image, the multiple and the intensive can be seen as intrinsic to the functioning of each other. Our analysis of videogame action would therefore find a fuller explanation within this apparatus. The process will be clearer only if the flow from perception to action is studied.

In Deleuze's schema, perception is a fluid process which is related to the thing being perceived but formed in relation to another framing image. In the case of videogames, the gun in the FPS screen illustrates this very well: the player is the gun in one sense, while in the sense supported by the game logic, she has the gun – the perception has begun to shift from direct identification to the relation to a frame. Without the perception-image, the action-image is incomprehensible because the boundary between them is imperceptible. Deleuze provides a very vivid description of the transition: "[B]y incurving, the object renders its unstable facet towards me, at the same time my delayed reaction, which has become action, has learnt to use the [...]" (Deleuze 1986:64). To carry on with the gun metaphor, the player now presses the "trigger" (which is a key or a mouse button outside the frame of the game) and the action is carried out – she fires.

Deleuze's comment, however, brings up more questions. Why is the reaction delayed? The action, at least as experienced on the FPS screen, is instantaneous. Or is it? To analyze this, another state called the affection-image, which comes between the perception-image and the action image, needs to be considered. This is the locale of the "incurving" that Deleuze speaks of and it is also where the reaction is "delayed." When the receptive facet absorbs a certain tendency instead of acting on it, the process of affection comes into play. In the locale of the affection-image, therefore, there are many tendencies or possible events waiting to be acted upon. Affection, then, is the zone of the possibilities. Deleuze's description of the movement from perception to action worth noting – the imperceptible shift from one to the other is described as a "becoming."

Before proceeding further with the discussion of the zone of possibilities and becoming, it will be necessary for a brief digression to clarify a problem with Galloway's understanding of the affection-image. Following Bergson, Deleuze describes the affection-image as a motor effort over an immovable sensible plate. The latter description is easy to misconstrue. Perhaps based on this, Galloway sees an analogue of the affection-image in what he calls the ambient acts in digital games. He gives the example of moments in games like

SHENMUE (1999) where minor movements continue to take place onscreen even if the player leaves the game on and goes away. There are certain problems with this position. Many games such as RTS games like AGE OF EMPIRES (1997) carry on acting, and the algorithm actually causes meaningful changes to the state of the game, even when the game is left alone. More importantly, it must be realized that the affection-image does not just apply to certain special cases in games. As part of the movement-image, and therefore inseparable from the action-image, affection is an intrinsic quality in digital games. The player does not need to walk away from the game for the affective to be in process. In fact, it is constantly in process in the in-between of the gameplay; this is the part where the actions of both the game and the (human) player are yet to be determined. Having clarified that the Deleuzian affection-image is generally and intrinsically applicable to analyses of gameplay rather than to particular instances, it will be important to study it in more detail.

Deleuze's original concept of the affection-image applies to cinema and he illustrates it through two types of examples from film. One of these is the close-up and the other is the "any-space-whatever", the Deleuzian undetermined and fragmented space. Both of these represent intense situations; there is a clear link to conception of intensity described above.

In the close-up, Deleuze comments, "we find ourselves in front of an intensive face each time that the traits break free from the outline, [and they] begin to work on their own account, and form an autonomous series which tends towards a limit or crosses a threshold" (Deleuze 1986:91). He provides the example of the close-up of the priest's face in Eisenstein's *General Line* (1929), where the close-up shows the priest as man of God changing into the priest who is the exploiter of peasants through a series of affective movements on an otherwise motionless face. The any-space-whatever is similar in its function: "[I]t is not an abstract universal, in all times, in all places. It is a perfectly singular space, which has merely lost its homogeneity, that is, the principle of its metric relations or the connection of its own parts, so that the linkages can be made in an infinite number of ways. It is a space of virtual conjunction, grasped as a pure locus of the possible" (Deleuze 1986:109). The locus of the possible is directly related to Deleuze's understanding of multiplicity, as understood from the description of the space of possibility above, and it is also the intense zone where actions are in-process.

In Deleuzian terms, the action itself emerges as a "duel of forces; a series of duels – duel with the milieu, with the others, with itself" (Deleuze 1986:142). Within the space of possibility, the action in digital games is also a series of duels: literal duels with other characters in the game-system, a struggle against the milieu's affordances and restrictions (for example, one can break boxes in HALF-LIFE (1998) but not water pipes) and; finally, a struggle with the other identity/ies that we take on in the game.

The close-up and the any-space-whatever seem to be throbbing with possible events about to take place – the events are not yet instantiated but are part of a continuous process of change. This affects identity, location, and diegesis. Actions in digital games involve such a process of "becoming." They occur on an instant to instant basis and in constant interaction between the human and machine. The resultant choices are made from a range of possibilities constrained by many influencing factors, be they algorithmic code or player predilection, mood or strategic plan. Finally, the elements of the system keep changing during gameplay as each one approaches the other. In the digital game, this happens in a zone analogous to the affection-image (exemplified in the intensive face of the close-up or the any-space-whatever) in cinema. The above analysis shows how conceptions of agency and engagement must take into account the interplay between the machine and the (human) player that occurs within an intensive space of moment-to-moment actualizations of events. The process of becoming therefore both needs and supports the variations in gameplay and the multitelic possibilities that form the space of possibility. The space of possibility in digital games can, therefore, be called the "zone of becoming." What follows is a brief exploration of how videogame action is located in this "zone."

This analysis will focus on a literal "zone": a place which is there and, yet, not there; where wishes come true and, yet, they do not, and finally, which the player is free to explore and interact with. The "zone" in question is the special post-apocalyptic place (hence the quotation marks) in the computer game called S.T.A.L.K.E.R.: SHADOW OF CHERNOBYL and in the similarly named film by Tarkovsky. A second blast at Chernobyl has caused serious radioactive reactions and mutations to life in the region. It has been cordoned off by the government but is nevertheless a favorite haunt of bounty-hunters looking for radioactive artifacts or for the legendary "wish granter", which is supposed to make one's wishes come true. In the light of the above discussion, it will be intriguing to compare the affection-image in the film with that in the game, so as to better understand the process of action in the two media. In the game, the player plays as a "stalker" or an illegal explorer/artifact scavenger in the Zone much like the protagonist of the film who also explores the Zone and takes people there as an illegal guide.

The Zone itself is an extremely intriguing part of the game. It is the locale of the game – the space on which the player moves, lives, and survives. Unlike the almost unpopulated Zone of the film, it is beset with mutant animals, zombie-fied stalkers, stalker factions, scientists, traders, the regular Ukrainian army, and the Spetsnaz. The landscape itself, however, is equally stark. The game is in color but the colors are drab, and at times, the landscape verges on being sepia-tinted. The Zone constantly exhibits micro-movements and there are various "anomalies", or areas of radioactive unpredictability, some of which the player becomes familiar with during the course of the game, and others which remain unknown. The game has a built-in randomizer function that enhances its emergent properties and makes the anomalies and challenges appear in different places and in different instances of gameplay.

For example, on reaching the level called Pripyat (which can be the penultimate stage of the game unless the player goes back to other visited areas) during a gameplay session, the player was attacked by a pack of mutant "pseudodogs" and killed after a brief fight; but in another session, on retracing the same moves, these dogs were nowhere to be found and it was possible to move to a different section.

An online review makes an important point about the game. Its concluding comment seems to get to the soul of the game: "For those that manage to survive the Zone, the most disappointing thing about the game may be that it may leave you hoping that there was more." (World 1-1 2004). The key point to note here is that the Zone will, "leave you hoping that there was more." What the reviewer sees as "…disappointing thing […] hoping there was more" is actually more complex. The disappointment may arise because the game does not provide a feeling of completion – there is always more of what the reviewer calls "unfulfilled promises." The Zone is a zone of "becoming" and, as in an "any-space-whatever," it is a locus of possibility.

The game has seven different "official" endings, of which in five of them the player encounters a mechanism called the "wish-granter", reminiscent of the wish-fulfillment room in Tarkovsky's film. The wish that the player makes in front of the wish-granter is decided for the player by the game. A first impression might make this seem like a strange predestined world, but there is more to consider. The wish that the player "makes" depends on his or her reputation (built up as a cumulative of his or her actions) in the game. Therefore, this is not a denial of player action. Rather, it is the result of a series of choices that developed the character of the player within the game. Gameplay therefore results in a becoming-stalker and this becoming is actualized from within a multiplicity of possibilities. The telos that a player reaches may vary in each instance of gameplay, because each time it results in a different becoming and, therefore, different characteristics both for the (human) player and the (machine) algorithm. The characters of the human and machine players, as discussed above, are not discrete and are always interdependent: hence, action is experienced as a complex of the interactive choices of both the human and machine components. In the "wish-granter" endings of S.T.A.L.K.E.R., the wish is made for the human by the machine, but only as a result of the series of choices that the human has made when interacting with the algorithm. Characteristically, even the wish is fulfilled and yet not fulfilled – in one of the endings, the protagonist asks that the Zone disappear and everything around him suddenly grow lush and green, and when the camera turns towards him, reveals that he has gone blind. Besides the "wish-granter" endings, the game has two other possible endings. In these, a further new level is revealed where the player encounters an element called the C-Consciousness. Here, it is possible either to become part of it, or to destroy it, and neither option provides a conclusive ending.

The Zone, therefore, exists as a space of possibility and whatever happens to the player in the Zone (there is always a high chance that he or she will not complete the game and will meet an end not described here) is an actualization of the virtual possibilities. The same can be observed in Tarkovsky's film. Anna Powell, discussing Tarkovsky's *Stalker* in terms of Deleuzian ideas on cinema, comments on the "overt stretching out of the affective interval between action and perception" in the film. She goes on to say that "as Zone and viewer, screen and brain intersect, we are the visitors on which it depends. Together, brain and screen make an unformed hiatus of waiting, with potential for unexpected change" (Powell 2007:139). In the film, there is a hint that different alternate states of existence are present within the Zone, and a sudden shift from color to sepia in a scene showing the protagonist lying in a different place from where he is shown earlier and later seems to illustrate this. The game, too, shows sudden glimpses from what seems another existence: whether these are flashbacks or flash-forwards or alternate possibilities in the protagonist's story is not clarified. The similarities between the digital game and the Deleuzian analysis of film in terms of perception, affection, and action become clearer through this comparison of the game and the film versions of the Zone. Of course, the media-specific differences between the two media forms persist: gameplay allows for a greater degree of multiplicity within its structure and also, arguably, for a more heightened degree of engagement through the act of becoming-stalker. Nevertheless, the Deleuzian analysis of cinema in terms of perception, affection, and action is extremely useful in understanding videogame action.

S.T.A.L.K.E.R. is about *becomings* and its action is defined by the process of becoming. Indeed, it occurs within, and as, the micro-movements that were observed in the affection-image. Galloway is right in claiming that digital games are driven by action, and his application of the Deleuzian concept of the action-image certainly opens up important avenues for researching the nature of action in digital games. Action is present in the interaction of human and machine, as a choice actualized from the many possibilities in the locus of the affection-image, which mediates between perception and action. What Deleuze observes in earlier narrative media, like cinema, is equally, if not more applicable to digital games. Without considering the space in which ludic action, in its multitelic and multitemporal dimensions; and the intensive engagement between the player and the machine through which it is conceived; any understanding of gameplay is left incomplete. True, the one word for games research may be action, but it exists only as part and parcel of perception and affection. Action occurs within an intensive and ongoing process of the realignment of possibilities within the deep space of gameplay: or every time we click the mouse and fire into game-space.

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Trigens Can't Swim

Intelligence and Intentionality in First Person Game Worlds

This paper explores the role of the intentional stance in games, arguing that any question of artificial intelligence has as much to do with the co-option of the player's interpretation of actions as intelligent as any actual fixed-state systems attached to agents. It demonstrates how simply using a few simple and, in system terms, cheap tricks, existing AI can be both supported and enhanced. This includes representational characteristics, importing behavioral expectations from real life, constraining these expectations using diegetic devices, and managing social interrelationships to create the illusion of a greater intelligence than is ever actually present. It is concluded that complex artificial intelligence is often of less importance to the experience of intelligent agents in play than the creation of a space where the intentional stance can be evoked and supported.

Intentionality and Games

In 1969, seven years after SPACEWAR! (1962), but still quite firmly within the pre-history of computer games, Dennett argued that

> A computer can only be said to be believing, remembering, pursuing goals, etc., relative to the particular interpretation put on its motions by people, who thus impose their own way of life upon the computer […]. Thus, computers, if they are intentional, are only intentional in virtue of the intentionality of their creators (Dennett 1969:40).

Whilst Dennett was referring to an intentionality imbued into a system by its programmer, this paper deals with a slightly different concept: the intentionality created by a series of cues and effects

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attached to fixed-state systems in games. The fundamentally important issue with agents in games is not their intelligence but rather its appearance: the interpretation of their actions as intelligent by the player. A smart agent whose intelligence is not believable is not, to the player, a smart agent, regardless of their internal complexity. As games increase in complexity, in terms of both sensory fidelity and semantic structures, issues with breakdowns in the created diegesis are amplified. At the same time, agents become ever more important as means of carrying the action and controlling the flow of activity: it is telling that of the major first person shooter (FPS) titles released between 1998-2008, the vast majority contain persistent non-player characters (NPC) represented in-game, and over half feature either squad-based activity, or inter-agent conflict in significant portions of the ludic arc. It is recognized that game AI is usually fairly simple (in artificial intelligence terms, of course), with Adams and Rollings even going so far as to say, "most current video games do not, in fact, contain much real AI" (Adams/Rollings 2007:21). What this paper aims to demonstrate, however, is that when considering the impact of intelligence of agents in games, rather than the state systems themselves, it is often the cuing, by the system, of the adoption of the intentional stance in the player, and a selection of cheap and simple semantic tricks that achieves as much in terms of the player projecting intelligence into the system. Butcher and Griesemer report on play-testing the artificial intelligence of HALO's (2001) enemy avatars:

> Even if you make something as obvious as you can possibly make it, half the people will miss it the first three times they see it. In HALO the Grunts run away when an Elite is killed. Initially nobody noticed so we had to keep adding clues to make it more obvious By the time we shipped we had made it so not only does *every single* Grunt run away *every single* time an Elite is killed but they all have an outrageously exaggerated panic run where they wave

> their hands above their heads, they scream in terror and half the time one of them will say 'Leader Dead, Run Away!' I would still estimate that less than a third of our users made the connection (Butcher/Griesemer: 2002).

Intelligence in games is restricted by players; in terms of both what they will recognize and what they will accept. What Butcher and Griesemer are describing is a failure on the part of the player to read an intentional cue. The actual intelligence of the Grunts, as dynamic objects in a computer space, is largely irrelevant next to this issue. Another example may help here. BLACKSITE (2007) makes much of its squad based action, where keeping the morale of the assistive agents is of high importance and that the ongoing relationship with these agents was central to the affective experience of the game. Amongst the many faults of BLACKSITE, however, is the occasional inability of the in-game agents to look the player in the eye. Attempting to form a connection with a character who, regardless of one's attempts to rectify it, appear to stare obsessively over one's left shoulder is not simply unnerving, but hugely damaging to any sense of intentionality that the clearly complex state-system attached to the agent is trying to provoke. A failure to achieve something as fundamental as facing the avatar undermines any more complex AI than might be in the game. However, when this basic feature is attached to characterization, the result can be quietly breathtaking. Consider HALF LIFE 2's lauded persistent agent Alyx Vance. Glancing across from the driver's seat in EPISODE TWO's (2007) "Riding Shotgun", to catch Alyx smiling happily at Freeman, then looking away as if she realizes she's been caught staring is quite unnerving: it's simply such a (small) human action.

Indeed, several recent research papers have, rather than trying to make agents smarter, tried to make them more natural (Horswill/Zubek 1999, Freed et al. 2000); which is to say they try and improve the likelihood of behavior being interpreted via the intentional stance.

Gorman and Humphrys, arguing for an AI model based upon agents learning to imitate player behavior, lament that

> Modern, commercial computer games rely primarily on AI techniques that were developed several decades ago, and until recently there has been little impetus to change this. Despite the fact that the computer-controlled agents in such games often possess abilities far in advance of the limits imposed on human participants, competent players are capable of easily beating their artificial opponents, suggesting that approaches based on the analysis and *imitation* of human play may produce superior agents, in terms of both performance and believability (Gorman/Humphrys 2006:1).

We will not dwell on the performance issue here; it is the question of believability that concerns us, in particular the inherent criticism Gorman and Humphrey make that old fashioned, fixed-state artificial intelligence falls short of offering this. However, Dennett's intentional stance does not, critically, require the object of its gaze to actually be in any way intentional in itself. Rather, it is down to us: "*we* must *treat* the noise-emitter *as an agent*, indeed a rational agent, who harbors beliefs and desires and other mental states that exhibit intentionality" (Dennett 1991:76, italics mine) and we can demonstrate this by offering a simple example from perhaps the earliest of what we might call the modern shooters.

One of the many brilliant things about DOOM (1993) is the fact that if a Zombie accidentally shoots an Imp, the Imp retaliates by hurling a fireball right back at the guilty party. Once a player has realized this, they can use it to their advantage, trying to maneuver different classes of agent in front of one another in the hope of starting an inter-agent gunfight that will thin the opposition out before they have to wade in themselves. What is also added to the mix, perhaps even more importantly, is the ability of the player to virtually bootstrap the actual intelligence inherent in the system, to a higher, anthropomorphized level. An extremely crude input-output response provides the player with the tools they need to enhance their projection of intentionality onto the agent, deepening the experience and layering capacity into a system that outstrips its actual complexity.

Fig. 1: Imps and Zombies in Doom (Screenshot): Both AI and visual representation are very simple.

DOOM's imps and zombies are intelligent in only the most rudimentary way but it does not matter. The imp turned on the zombie because it was hurt and responded in rage; the reaction is easy to anthropomorphize because it is so familiar. Critically, although it does not require intentionality, cognition, or any form of evident higher order deliberation to be anchored to the agent, merely a simple rule, it is recognizably, anthropomorphically instinctive and causal. The imp attacked the zombie *because* the zombie shot the imp.

From Simple Rule to Complex Behavior

"Functions" according to Searle, "are never intrinsic, but are always observer relative." (Searle 1995:14). – Consider the following:
IF [CHANGE AGENT STATE] = reduce HEALTH by 10 or more, THEN:

HEALTH = HEALTH -*n*
MOVE = MOVE +10
RESPONSE TIME = RESPONSE TIME +20
% of SHOOTING = % of SHOOTING +20
ACCURACY = ACCCURACY -20

This is obviously a very simple version state system, but what it demonstrates is that adjusting even a small number of pre-existing variables provides high potential for interpretation. Our agent, on being wounded, will move faster and react more quickly. It is much more likely to fire on any object that fits the definition of a target (at the most simple, an object moving within a defined field relative to the agent), but it will be much less accurate. A subjective interpretation of rage or panic is unproblematic – it perhaps even resembles the 'fight or flight' reflex.

Any cues for anthropomorphism, once added to the agent's available actions, and judging by the simplicity of the state-system and visual representation of DOOM's Imps, are enough to initiate the intentional stance. Very simple rules of behavior, supported by an appropriate context of action, enable the anthropomorphizing tendencies of the intentional stance to bootstrap function into new conceptual – and illusory – degrees of projected mind.

Fig. 2: Far Cry's Trigens (Screenshot): Prior to seeing them, we are told they are genetically engineered apes, the visual appearance and movement then supports this.

Let us start with FAR CRY (2004) and their mutant monkey menace: Trigens. In the game, Trigens can't swim: a Trigen will drown if it enters even relatively shallow water. This co-opts our folk theory about apes (consider the last time you saw, whether in daily life or via television, a gorilla swimming). Trigens will not thus not enter water, but may be tricked into doing so – a quick duck as they leap to attack can become a potent weapon. Given the information that Trigens cannot swim and Trigens do not normally enter the water, the most economical interpretation is the anthropomorphized *Trigens are afraid of water*. This, given our lack of experience of swimming gorillas, makes ecological sense. In essence we are filling the gap between cues with an inference deliberately set-up by the system. A gorilla that leapt into the water and commenced backstroke is something that, based on our folk understanding of the world, would give us pause for thought.

On the other hand, people can swim, so it would be strange to find an entire army of non-swimmers. Thus, FAR CRY's Mercs will happily enter the water and swim. Here, however, we can find a good example of a breakdown of implied intentionality. On entering the water, Mercs have a bad habit of staying put until they are encouraged to leave or are picked off by the player. Indeed, whole groups can be enticed into the water at once by a few well-aimed shots or even tossed rocks to get their attention. This creates a kind of odd pool party, complete with eight to ten professional killers treading water together indefinitely whilst hurling abuse at an unseen adversary. Unlike the apparent – and apparently sensible – reluctance of the Trigens to enter the water, the Mercs appear to love paddling so much they see no reason to get back onto dry land, despite the fact they cannot use their weapons whilst swimming and appear fully aware that an armed and dangerous enemy is in the vicinity. There are two things we can draw from this: firstly that a breakdown of intentionality is caused by a conflict of two behaviors: the Mercs have shifted state into a combat mode (i.e. they are tracking the last sight/sound of the player and are barking appropriately) yet they have rendered themselves defenseless and are not seeking a resolution to this problem. The second is pure inference based on ecological validity: no human being in their right mind would put themselves in such a position, and the pool party effect does not fit any imported schema for human behavior within this ecological context.

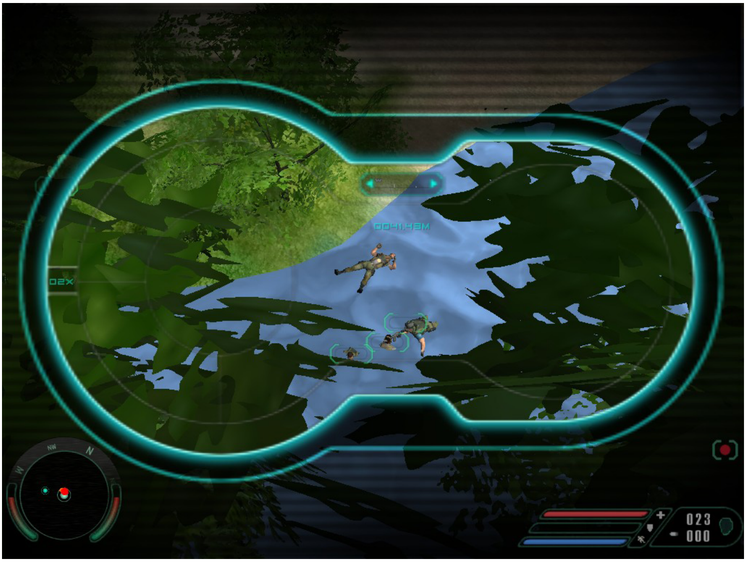

Fig. 3: A Far Cry 'Pool Party' (Screenshot): Even though the Mercs are being shot at, they continue to swim defenselessly.

Compare this to the kinds of overheard conservations between Mercs triggered by the player aiming the binoculars at them from a safe distance.

> *Merc One:* We're twenty feet from the equator here, genius. It's Micronesia, for crying out loud.
>
> *Merc Two:* Sure, but if it's not the heat it's the bugs. I hate bugs.

There are three things to note about this. Firstly, it does not involve any intelligence to be attached to the agents in any way; it is simply a triggered audio file. Secondly, it is not essential; the player can complete the entire game without experiencing this conversation or any other conversation like it. No actual information of any significance to play is delivered by it; unlike if one of the Mercs had said "…and I spent six hours guarding that goddamn grenade store in the locked hut by the beach… You know the one with the brass key we keep hidden under the bucket in the pig shed". What it does do is expand the potential for the intentional stance to be adopted towards the Mercs: we are given information that allows this to happen by telling us that they *know* where in the world they are (and thus also reaffirms they are in the world); one *dislikes* the heat but not as much as he *hates* bugs (he has thoughts about many things). Finally, we are also given a status relationship between the two, as the derogatory "genius" comment suggests we are hearing a conversation between two equals (they have a social life outside the game). Finally, the conversational tone, its informal banter, sets up a relationship that has a temporal span: we can project that these agents *know* one another and have done for some time (they have a history outside the game).

What is essentially happening is that the intentional complexity is being virtually increased by a triggered audio file. This extends the process noted with the original DOOM's inter-agent conflict in personalizing two agents. We are given specific information that can be used to derive extended intentionality. Now, as soon as they become aware of the player, they will revert to depersonalized combat behavior but, however fleetingly, they have been individualized, and this has been accomplished by supporting a relatively simple, shallow deployment of information that works because it is ecologically valid: two bored men stand around complaining about their lot. The very banality of the conversation gives it a depth; it is eminently recognizable, and it humanizes what are for all other intents and purposes, simple agents. Likewise, a Covenant Grunt in HALO will scream and run away when its Elite is killed, but it will never beg for its life. But the panic and cowardice that is displayed is enough to help the player bootstrap the simple bot up to a more complex level of intentionality.

Ecological Validity

Avoiding water is just one way in which an agent can relate to the environment. Just the simple act of ducking for cover enables us to draw the inference from an agent that it is environmentally aware – it has a degree of self-knowledge. If it can distinguish between a normal barrel (a good place to take cover) and an exploding barrel (a bad place to take cover), this is increased dramatically. The way in which Steelhead Chimeras from RESISTANCE: FALL OF MAN (2006) use their Augur rifles is another good example of this. One of the game's several special function weapons, the Augur will target enemies and hit them through walls, and Steelheads will use this rather than engage the player directly. In system terms, this *decreases* the complexity of the task of line-of-sight aiming, as the Steelhead just orientates to the player's position regardless of what is between the two points. From an affective point of view, however it *increases* intentionality: the Steelheads *know* where Kale is hiding and will flush him out into the open by targeting him through a wall. They *know* their capabilities in relation to the environment. Just as a Trigen is not only *aware* of water; it *understands* it should not enter water, a Steelhead is aware of Kale and understands that even though it cannot see him, it can still hit him. A Merc is both aware of, and understands the purpose of (and, on a third level, can exploit) an alarm box on a tent pole. A Trigen is perceptually aware of the pole, in terms of collision detection, but has no demonstrable capacity to understand that the alarm box will summon more Mercs let alone the capacity to therefore set it off. Thus, for a Trigen, the alarm box affords nothing more than a constraint to movement, whereas for a Merc, it affords a means of calling reinforcements. Note that both of these are entirely ecologically valid according to likely expectations. It would be as ecologically invalid for a Trigen to pick a phone and call for help as it would be for a Merc *not* to use an alarm. The point is that the semantic characterization of the agent has a profound influence upon the expectations of its behavioral set and that, in turn, can be used to manage the actual state system required in order to implement it.

To put this another way, DOOM 3's (2004) assorted demons and zombies are profoundly stupid, in that they rarely take advantage of the environment, but their lack of complex interaction with the environment is validated by their semantic attributes: they are zombies, after all. As a result, a vastly simplified relationship with the environment can be established that retains ecological validity. DOOM 3 bypasses the problem of requiring complex relationships between agents and environments by using the living dead or beasts from Hell – with a distinctly less than human lack of interest in anything other than dismembering the player. HALO's marines and Covenant are somewhat similarly marooned on an alien and ineffable world. Not only do they thus have no real means of interacting with Forerunner technologies, but they are in extreme, pseudo-liminoid psychological states that support this non-interaction: the Covenant are *fanatics*, the humans are *desperate*. Thus, a powerful means of ensuring the state system has ecologically valid behaviors of doing this is adjusting the semantic characteristics of the agent in question.

Thus, simple rule sets are often deployed within a liminoid world, where everyday activity has been suspended, or through liminoid entities, which exist outside the expected complexities of normal behavior (Pinchbeck 2006, Dovey/Kennedy 2006). The crew and Marines of the Pillar of Autumn are in battle from the outset, as are the troops battling across the surface of Stroggos in QUAKE 4 (2005). It would simply not be ecologically valid to find them shopping for vegetables or cleaning their cars. Even easier to manage are demonic or alien populations: the majority of the FPS populations fall into this category, and the system can assume a far greater degree of control over the expectations of validity inherent in such populations. Intentionality is sandwiched between expectations managed through semantic characterization on one hand, and ecological validity as evidenced by appropriate actions on the other.

Fig. 4: Two Human Agents in S.T.A.L.K.E.R. (Screenshot): Although they belong to different factions, they are the same basic agent.

Similarly, they are useful for adding complexity where an increase in agent numbers may damage ecological validity. DEUS EX (2000) may be futuristic, but it attempts to create a recognizably 'realistic' cyberpunk near-future; having too many non-human agents would place a strain upon this diegesis (it could be argued that it already struggles with Greasels and Karkians, although, perhaps due to its co-option of well known conspiracy themes, not with Greys). The large number of competing factions in the game, however, allows for a huge diversity of human troop agents simply by affiliation (and a few adjustments to visual appearance). By contrast, QUAKE 4 has many agent types, but only two factions – human and Strogg. This distinction establishes a very different approach to play: in the latter, if it's not human, it's safe to shoot without any further thought. In the former, there are implications for both action (is this the right human to be shooting at) and prediction (if I shoot the NSF agent, the UNATCO troops will side with me, but this may affect my ability to get inside the Mole People's tunnels). In other words, by imposing factions into the population, the game system is suggesting that higher orders of intentionality are at work – and at stake. The Strogg have limited intentionality: it is enough to believe that they want to kill anything human, including the player. On the other hand, the NSF may want to kill UNATCO troops, but this is actually because they *believe* UNATCO troops to be supporting a regime *responsible* for the spread of a lethal virus. Indeed, DEUS EX forces a confrontation between the initial political and moral stance of the player and the plot's development when it is revealed that the player has been betrayed. The sequel, INVISIBLE WAR (2003), goes even further by not settling on an unambiguous nemesis like Page; all the factions are problematic and the player can side and switch until late in the game. Thus, the ramifications of their actions can be inferred through simple reactions of factional agents, increasing the order of intentionality the player has to invest in the game which, in turns, requires a different, more cognitively engaged style of play, which has implications for attentional resources and attached significance.

Not only this, but factions allow broad-stroke reactions to be delivered across a wider group, in a conceptually similar manner to Selfridge's Pandaemonium (1959). What matters is the overall effect of many stupid process taken as a whole. Thus, rather than packing many demons into few agents, it is easier both in terms of system capacity and design, to include a larger number of stupid agents and make intentionality *a product of generalized reaction across a factional group.* For example, the Templar and Illuminati are fundamentally opposed in Invisible War, and ApostleCorp are opposed to both. In the Cairo Acrology towards the end of the game, the player enters a hangar controlled by the Templar. The player has the choice of cooperation or refusing. In the latter case, they must fight the Templar, but gain respect from the Illuminati. In the former, they gain the allegiance of the Templar but lose this with the Illuminati. Whatever the outcome, the player then finds Paul Denton's body in suspended animation. Denton can be revived or killed. Reviving him angers both Templar and Illuminati, but serves the agenda of ApostleCorp; killing him does the opposite.

This is all fairly straightforward, but what is important to note is that the response to the player's actions needs not be subtle. Because the political decisions are depersonalized, the level of required representation is reduced. When the player tells the Templar to "Go to Hell" and they immediately attack, each individual Templar's reaction is unnecessary as they operate en masse. Each of the Templar is extremely stupid and has a tiny behavioral response set: Alex agrees to give blood: do not attack. Alex refuses to give blood, attack immediately. But the combined mass of Templars enables a virtual, more complex affective response to be insinuated by the system. Likewise, all any individual Dutyer or Freedomer 'knows' is the relative position of Strelok along their allegiance bar, whereas the overall effect is of a group of individuals responding to the shifting tactics of the player. The system is responding apparently intelligently to the player, but the requirements of each individual agent are reduced, as the shift is illustrated by the avatar's relative position to factions, rather than personalized reaction.

So factions, in other words, may assist an ethical framework for activity, which itself requires a higher assumption of intentionality. A singular faction of agents, as we find in DOOM 3, leaves no room for consideration of approach. Inter-factional conflict, such as that found in HALO, DEUS EX, S.T.A.L.K.E.R. or FAR CRY inferred projected intentionality without the system having to do much additional work. Trigens will attack Mercs as well as they players, and Mercs see Trigens as every bit as much of a threat, so the groups can be maneuvered into a position where they will attack one another, allowing

Jack Carver to slip past unnoticed. The application of this strategy depends upon the expectation of agents to act intentionally. Exactly the same is true of the Flood and the Covenant in HALO, and essentially all DEUS EX and Invisible War do is allow a degree of choice in how this is manifested exactly. The *actual* behaviors of the Mercs and Trigens remains highly limited, but the simple factional conflict response allows a greater degree of intentionality to be inferred: We believe that the Mercs are *concerned* about the threat of the Trigens, who *want* to kill them, therefore, they will engage the Trigen *unless they think* we represent a greater threat.

An agent's capacity to both enable and manage the adoption of the intentional stance in a player is as important to its projected sense of intelligence as any innate properties of the underlying fixed-state system. Not only that, but this can be achieved without complex artificial intelligence, indeed, with just a few simple tricks and proper understanding of the role of environmental and social context in intelligence. With only a few simple rules, complex behaviors can be extrapolated and when these have a clear ecological validity, we naturally assume the intentional stance as the most economic means of dealing with the behavior. Thus, rather than noting the ludic structures which mean that Trigens will not enter water as they will be immediately removed from play, we opt for the simpler version: Trigens do not enter the water because Trigens cannot swim. On the same level, Mercs *should* trigger alarms to get help because they are 'intelligent' people; Stroggs may be stupid, but this is alright, because they are little more than crudely reanimated cyborg corpses; Grunts are cowards, not technicians or philosophers. Simple evidence of predictable, contextual behavior is enough to trigger the intentional stance, through a process not dissimilar to narrative closure, and an information load that gives just enough to enable this process – but no more – will cover the remaining cracks.

Thus, when Grunts run away, it makes the Covenant that much more acceptable as a virtual enemy. Faced with a one-man killing machine your comrades are already calling "The Demon", who has cut swathes through your ranks and just wiped out your Elite line manager (who is twice your size and the only one amongst you likely to stand a chance in a fair fight), we can empathize with this response. It's a truly sensible thing to do, a choice we'd all probably make under the circumstances. And with that simple masterstroke, it no longer matters where the Grunts sleep on their staggeringly empty battleship, or who brings them their food, or letters from home, or any of the other things we may expect of a reasonably intelligent creature. We empathize, we attach intentionality because we recognize an ecologically valid act. If agents are to be believably intelligent, they must have characteristics we can identify with as showing evidence of intentionality, in an ecologically valid context, and this frequently has little to do with the complexity of the state system. Indeed, agents in games have a great deal to say to us about the notion of intentionality and its relationship to intelligence in general.

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The Perception of Video Games

From Visual Power to Immersive Interaction

This paper highlights the different ways of perceiving video games and video game content, incorporating interactive and non-interactive methods. It examines varying cognitive and emotive reactions by persons who are used to play video games as well as persons who are unfamiliar with the aesthetics and the most basic game play rules incorporated within video games. Additionally, the principle of "Flow" serves as a theoretical and philosophical foundation. A small case-study featuring two games has been made to emphasize the numerous possible ways of perception of video games.

Most of the misunderstandings regarding the question of what a video game really is derive from the different ways of how a game can be perceived. A video game is, in very rough terms, a multi-medial, interactive piece of media that can be experienced in many ways. These range from just hearing audio or just looking at a screen while somebody else is playing to having a strong immersive experience as one has when one is actually playing. The notion to define what a video game is or, for example, how to define the term *gameplay* are very hard tasks, even for those who are submerged in video game culture and sciences. In everyday life this unclear state of the essence of digital games leads to a lot of misunderstandings, e.g. for the intricate debate about violence in games; and how video games in general might affect kids, their behavior and interpersonal actions.

When introducing people who have not played many video games in their lives to those games for the first time, questions like "What is the point behind all this?" will arise. It might sound easy to boil it down to the fact that the uninitiated just have to try out games

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themselves to understand what a game experience is like – but this is certainly just one part of achieving media literacy with regards to video games which have so much content to offer and where, in truth, there is no right or wrong when it comes to perception. Sending people away by saying "play for yourself, look and you'll see" does not suffice when you want somebody to get some insight into the numerous ways of experiencing a video game, and it will, to name an example, not offer an explanation as to why some piece of entertainment software is woven together the way it is.

This paper intends to lay down the different possibilities of how to experience video games and what this means to the diverse forms of impact the appearance of a game (audio, video, interactive gameplay) can have on a certain person. To emphasize these different experiences, I put the various forms of perception into a small empiric research (case-study) involving two videogames, GEOMETRY WARS (2003) and STARCRAFT (1998).

Talking about a theoretical background, my assumption is that, as with the philosophical principle of Constructivism, there is no impartial, normative way of perceiving video game content but – according to the individual player's social experience, gaming skills, and state of mind – there do exist many different perspectives in experiencing a video game and getting opinions and/or emotions out of the experience (with diverse reactions like "This looks very violent," "These repeating noises remind me of techno music," or "It felt like there was no border between me and the game!"). The premise within this research does *not* imply the (too) simple conclusion that because playing games is part of our life, like everything else we experience, video games just have to fall under the principle of Constructivism (if incorporated into the current pattern of thought). Instead, the principle of Constructivism serves as a theoretical foundation, and also as an analogy, for the various forms of video games and how they are perceived.

What a Video Game Can Be Like

Despite game studies having had some intense recent years of fruitful research and publishing, there are still very few approaches to the question of what a video game is – not to mention the more difficult questions that follow: "What is gameplay?," and "Why are games fun?," or, "Are they?" – In the book *Difficult Questions about Videogames* seemingly simple questions like these are asked by the editors James Newman and Iain Simons to "makers, players, writers, thinkers, all passionate about videogames" to provoke "erudite reflections and interpretations" that cover a broad spectrum in content and scope. The responses to the questionnaire from games researchers Lisa Galarneau (asked question: "What is gameplay?"): "[Gameplay is] the process of interacting with the game, either via the game designer's agenda, or your own" (cit. by Newman/Simons 2004:65); and Christian McCrea (asked question: "Why is playing videogames fun?") are as follows:

> When playing is fun, it is because the technology becomes invisible, and you experience a moment of pure loss; where you're being pushed forward towards a point (cit. by Newman/Simons 2004:235).

When approaching the field from a technical side of view, it is an easier task to find some kind of "solution" about the question of what a game is. Many people who work within academic research, journalistic fields, or are game designers themselves can agree on a description of video games as being: multimedia, complex, cultural products which have to be interactive.

One question has not been addressed thoroughly though (a result of describing a video game as mentioned above) – after having agreed about what it is in a basic, technical way (for now and in a certain context, at least) the most obvious follow-up question would be: What does this mean when it comes to perceiving video games? There are lots of different ways of perception, with the following distinctions in experiencing them: Perceiving digital games as audio only, video only, or as audio and video (no personal interaction); as well as audio only, video only, or as audio and video with personal interaction. Certainly, when it comes to the term *play*, the non-interactive forms of appearance are not really important. Regarding reactions which arise from the experience of any kind of performance with relation to a video game in action (seeing, hearing, watching, playing, seeing other people play), things are different. Most of the political debates about how video games might influence children and teenagers have their roots in representative people never having experienced a game interactively. When asked about their knowledge of digital games, many say they have watched others playing or have only seen video-trailers or screenshots. While it is a fair call to blame their ignorance, the different interactive and non-interactive perceptions of video games are well worth an academic look.

Individual Players, Individual Actions

As with other forms of media, there is no explicit rule defining how to consume a video game and where the benefit lies or should lie when dealing with a game. From a commercial point of view – which is important because that is the field where advanced and complex video game projects are realized – video games are all about entertainment. Therefore, the primary objective of playing a game should be getting "fun" out of it. Why and how this fun is created is very hard to come by, especially with statements allowing for free interpretation that involve words like "ride", "addiction" or "satisfaction", as stated by different interviewees (Newman/Simons 2004:177, 241). When reading reviews about commercial video game products, there are certainly some specifications about what exactly makes a game a "good game" (referring to parameters like difficulty or diversification in landscape). Nevertheless, how each individual person attains "fun" out of video game content differs from one individual to the next. The possibilities for consideration range from: good controls, and diverse challenges within the game; to freedom of play, and/or the possibility of hacking, or modding (extending) the game content. Dependent on experience, age, gender, skill, interest and other parameters, some players can only attain the fun factor from a narrow, tightly woven gameplay whereas other players would be bored if they could not cruise around in a virtual world like the one in GRAND THEFT AUTO 3 (2001) or hook up the map editor and create own content, e.g. in a First Person Shooter.

An additional factor to consider is – although at first, every game outlines the basic purpose of its content and challenges for the player – there is no right or wrong when it comes to playing a game. Hacking into DOOM (1993) via secret code words and thereby making your game character invulnerable or ignoring missions in GRAND THEFT AUTO: VICE CITY (2002) and just driving around in a car, listening to a certain in-game radio station, are not more valuable ways of playing the games than if players had chosen the "official" path of playing by the rules and recommendations set by the game developers. – It is clear that playing by the rules and playing with the rules of a game go hand in hand (Salen/Zimmerman 2006:15).

Basic Ways of Perceiving Video Games

Similar to the non-normative ways of playing a game and the individual focal points for each player (what is most "fun" for her or him), there is also the issue of the appearance of video games. As they are a complex mixture of audio, video, graphics, digital space, and artificial intelligence; they can evoke many different types of reactions from humans. Even if we have agreed that a video game has to be interactive – which means, the player has to act and re-act according to the things happening and the tasks assigned in a game – in order to define it as a video game, the performance can be received non-interactively as well.

In the following passages, I will compile the various possibilities of perception of video games and video game content. The premise here is that the game performs as intended (software in execution). That means that text description of a game, video-trailers, screenshots, artworks, etc. are excluded in this list (although these forms of video game representations are not unimportant when it comes to creating a mindset about a certain piece of interactive entertainment software).

Non-interactive (person watches/hears):
- Audio only
- Video only
- Audio and video

Interactive (person plays):
- Audio only (e.g. videogames for the blind)
- Video only
- Audio and video

Apart from these six basic forms of appearance, detailed distinctions include:
- Intended (original machine) or individual hardware setup (e.g. emulation)
- Original content (created by the game designer) or user generated content

In addition to this list, it is important to point out which parts of the individual game content are being watched/played and for how long; as well as place and situation where the video game content is being received. Furthermore, for the creation of cognitive processes and opinions/reactions about a passive or an active way of the perception of the game, the parameters of the individual person have to be taken in account.

Analysis in Relationship to Constructivism and Flow

The last two chapters have pointed out the basic parameters for the various possibilities of video game perception. Without going into psychological details with regards to how the acts of watching, hearing, and playing a game is transformed into cognitive and emotive reactions; there are few doubts about the broad range of feedback that these possibilities can evoke.

> A precise study shows that we never use all given signals but, through our current state of consciousness, just choose a relatively small amount of signals. Furthermore, to this choice we add visualized perceptions we can remember (von Glasersfeld 2003:22).

According to Glasersfeld's theories as applied to games, the construction of an own, very personal perception of a digital game or video games in general is inescapable. Because of the complex nature of video games, the impact of this constructivistic aspect is much stronger than in other forms of entertainment media which are not interactive (theater, cinema, music) – unless one is the creator of theater plays, movies, or plays an instrument.

Even when one puts the non-interactive appearances of game content aside, focusing on the intended usage of video games – that is, to play them – the diversity of perception is still very strong. Expanding the personal parameters of the player's persona to the actual act of playing a game, the intensity, depth and speed of working through a game's content and the responses in behavior and emotions are always different. As a casual player, she or he would probably play a game just for one or two hours a day, choose an easy or medium skill level and focus on completing the main tasks in the game. A dedicated player, on the other hand, is liked to play longer in one go, choose a more difficult skill level and would generally be quicker and more intuitive in completing the tasks the game demands because she/he is usually more experienced in understanding recurrent video game structures and "gameplay grammar." For every new game, every type of gamer has yet to learn that "to play a game is the identifying of the different elements seen onscreen and understanding how they function and behave" (Wolf 2003:50).

Apart from these basic starting positions to gaming which differ from person to person, the act of playing the game is to be able to establish a very tight connection between the player, the game, and the necessary interfaces (controller, screen, etc.). Damian Stewart talks about "an extension of the body" which is the video game's pendant to Mihály Csíkszentmihályi psychological principle of Flow as a mental state of immersion or the "state of mind when conscious is harmoniously ordered" (Csíkszentmihályi 1990:6):

> Gameplay is the subjective experience of a particular state of mind. […] [T]he player ceases being aware of pushing buttons on the controller and seeing the results on the screen, and instead engages their mind with the abstract conditions of the game directly (cit. by Newman/Simons 2004:69).

As the active state of flow demands a mixture of conditions like a minimum of skill and playtime as well as enough willingness for relaxation, it is an educated guess that the impact during and after playing a video game can vary radically between different persons – even if they play the same game for the same amount of time in the same place and share demographic data (age, gender, etc.).

Examples of Videogame Perception (Case Study)

The method of research for the following study is a qualitative content analysis which involves two video games, the arcade action game GEOMETRY WARS and the real-time strategy game STARCRAFT. Each game has been played for several hours as well as been watched for at least two hours. This basic analysis serves to cover the two main forms of video game perception (audio and video, actively and passively). Although, for thorough empiric qualitative research, there would be a need for at least ten to fifteen test games and persons in order to get proper results; the primary intention of this study lies in highlighting the complexity of video game perception in accordance to case studies.

> Case study researchers may seek only an idiographic understanding of the particular case under examination, or [...] case studies can form the basis for the development of more general, nomothetic theories (Babbie 2008:326).

Game Comparison

GEOMETRY WARS is a video game primarily developed for the Xbox console and its controller which involves two analogue sticks for giving direction commands. Both sticks are used in the game for steering a tiny spaceship (the player's "character") around the screen and for shooting laser bullets in a chosen direction. The basic gameplay feature lies in the possibility of steering and shooting in different directions. The enemies in the games are colorful geometric shapes that appear at certain points within the game space. Direct contact with the player's spaceship results in the loss of a life. The goal is to continually shoot down the emerging foes on screen which grow in numbers as time goes by, and who make the game harder.

STARCRAFT is a real-time strategy game developed for Windows and Mac featuring a fictitious universe consisting of three different species (Terrans, Protoss, Zerg). The game is played via mouse and keyboard and has complex rules as each of the species are represented through different buildings and units which can perform various tasks (food supply, specific attacks, etc.). The main modes of play are a single-player campaign, where the player has to work through different missions, and multiplayer; where one can play with or against up to seven other human or computer players.

Analysis and Results (Geometry Wars)

When the game is being watched and heard, the distinctive feature is a constant frenetic action on-screen which is intensified by bright colors and glowing outlines of the shapes and the backdrop of the game space. The techno music score is in alignment with the visuals which present constant movement; accordingly, there are sound effects to match. The player's character shoots his laser bullets almost all the time. Later in the game (five minutes into the game and thereafter) the spawn rate of the enemies is so dense that the shooting never stops until the game is over (that is when the player has finally lost all of his lives).

When the action gets more intense, concentration on the spaceship model is essential in order to avoid becoming confused by the all the lights, colors, and shapes. The game results are optimized when the playing person remains alert and on the move, while finding a systematic way of keeping distance with the foes at all time.

In the passive perception of GEOMETRY WARS, the game makes a strong aesthetical impression and exposes the fast movements on the screen through intense colors and repetitive sounds. Without actively playing the game, this leads to the watching/hearing person becoming overexcited (and as a reaction to this annoyed and bored) rather quickly because there is no distraction (through gameplay) from the flamboyant audio-visual presentation.

While playing the game, the desire to achieve a good performance makes it necessary to blend out the multimedia presentation to a certain degree in order to not get distracted from the main task that is to avoid collision with the enemies and to stay alive. The overall experience is focused on the gameplay while the presentation serves only as an amplifier for subconsciously strengthening the possible state of Flow.

Analysis and Results (Starcraft)

STARCRAFT features on-screen action that oscillates between easy-going and fast-paced gameplay, according to the input of the player. The graphics are functional but not overexposed (like in GEOMETRY WARS); the musical score varies a lot. The sound-effects mostly consist of affirmative answers from the buildings and units, placed and built by the player ("Yes, Sir," "I'm on it!" etc.) that often repeat themselves.

When watching a person playing STARCRAFT, it is important to note whether one knows about the rules of the game or not as in GEOMETRY WARS (due to the more complex nature of the game) in order to evoke a positive reaction. If the rules of the game are not fully understood, the notion that a lot of repetition is happening (like in GEOMETRY WARS) tends to be stronger, which in this case nearly equals the (non-interactive) perception of both games (watching/hearing) – although STARCRAFT has much more depth to it in terms of gameplay than GEOMETRY WARS.

When playing STARCRAFT, it takes a long time to fully understand the rules and dynamic of it. If understood, the concentration while playing the game is usually very high because of the task of commanding different units and buildings at the same time. This brings both games – although they do not share much content in gameplay – in close proximity to one another with regards to the perception of a gamer. Also, the playing and the watching/hearing person who are both adept, has a stronger relationship with their perception of STARCRAFT than with GEOMETRY WARS.

Consequences of Video Game Perception

The following graph gives a short summary of the analysis above and shows – if only in rough terms – how the basic positions of perception usually affect the emotional reactions to the two games.

	GEOMETRY WARS	STARCRAFT
Hearing	slightly annoyed	annoyed
Watching (uninitiated)	excited	confused/bored
Watching/hearing (uninitiated)	annoyed	strongly annoyed
Watching (adept)	slightly focused	focused
Watching/hearing (adept)	focused	strongly focused
Playing (adept)	strongly focused	strongly focused

The ways of perceiving video games depend not only on how a certain person seeks contact with a specific game (or game content), but how literate that person is when it comes to video games. Many misconceptions and reproaches towards digital games which arise in the public arena lead back to the underestimation of that diversity of perception. To make a comprehensive discussion, e.g. about the affect of video game content on children and teenagers or cognitive and emotive processes, there is a need to establish a transparent method of showing gaps and differences in perception. If these differences can be pinpointed and defined more clearly, it will provide the discourse about video games with much more effectiveness and productivity.

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The Magic Circle

Britta Neitzel

Metacommunicative Circles

The paper uses Gregory Bateson's concept of metacommunication to explore the boundaries of the 'magic circle' in play and computer games. It argues that the idea of a self-contained "magic circle" ignores the constant negotiations among players which establish the realm of play. The "magic circle" is no fixed ontological entity but is set up by metacommunicative play. The paper further pursues the question if metacommunication could also be found in single-player computer games, and comes to the conclusion that metacommunication is implemented in single-player games by the means of metalepsis.

It has often been argued that play and games are in a way self-referential. According to Friedrich Schiller (1967), play drive creates an autonomous aesthetic domain with its own "living forms" (*lebende Gestalten*), which are in themselves both eternal and transitory. – Schiller's approach to play is strongly connected with his aesthetic ideal and can be associated with Kant's notion of beauty as evoking disinterested benevolence. But Schiller's influence is not restricted to aesthetics. His idealistic notion of play had an influence on the conception of kindergarten by Friedrich Fröbel (Scheuerl 1994:92). – Following this line of thought, Johan Huizinga (1955) argued that play takes place in a realm of its own, a "magic circle" separate from the rest of the world because of its own rules and boundaries. Hans Scheuerl (1990) introduced the concept of circular movement to describe the nature of play, while Roger Caillois (2001) established the criterion of separation in space and time as a distinctive feature of games. Boundaries and frames which separate games from their social environment and establish a world in which play activities have only a meaning in themselves seem to be an important attribute of games.

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But where there are boundaries, there is transgression of these boundaries. Referring to the concept of metacommunication that Gregory Bateson (1972) has rendered fruitful for play, I will argue that the idea of a self-contained "magic circle" ignores the constant negotiations that establish the realm of play. The "magic circle" is no fixed ontological entity but is set up by play. In his theory, Bateson focuses on play and restricts himself to stating that games are more complex than mere play. The paper will also consider metacommunication in games and develop the hypothesis that games employ the rhetoric figure of metalepsis to create the impression that they take place in a *magic* circle.

Metacommunication in Play According to Bateson

Inspired by his observations of monkeys in the San Francisco zoo, Bateson put forward the hypothesis that play behavior comprises metacommunicative signals which are noticed and interpreted both by players and observers:

> I saw two young monkeys *playing*, *i.e.*, engaged in an interactive sequence of which the unit actions or signals were similar to, but not the same as those of combat. It was evident, even to the human observer, that the sequence as a whole was not combat, and evident to the human observer that to the participant monkeys this was 'not combat.' Now, this phenomenon, play, could only occur if the participant organisms were capable of some degree of metacommunication, i.e., of exchanging signals which would carry the message 'this is play' (Bateson 1972:179).

A metacommunicative message refers to the communicative situation in which a speaker and hearer (or players) are involved. According to Bateson, the metacommunicative message 'This is play' establishes a paradox comparable to the one described by Russell and Whitehead as the paradox of the set of all sets, which are not members of themselves. (I will not draw on the set theoretical explanation of the paradox here, but only refer to an example closer to life for an explanation: the one of the male barber who shaves all men of a village that do not shave themselves and no-one else. If he does not shave himself he would be a man who does not shave himself and therefore would have to shave himself. If he shaved himself he would not only shave the men who do not shave themselves but also a man who shaves himself – namely himself.) The message "this is play" implies a negative metastatement such as "These actions in which we now engage do not denote what those actions for *which they stand* would denote" (Bateson 1972:180). Since "standing for," according to Bateson, is a synonym of "denoting," the sentence may hence be paraphrased as:

> These actions, in which we now engage, do not denote what would be denoted by those actions which these actions denote. The playful nip denotes the bite, but it does not denote what would be denoted by the bite (Bateson 1972:180).

Since the underlying paradox evinces the logical contradiction "bite and not-bite" we are faced with an infringement of the law of the excluded middle. But on which level does the paradox emerge in play?

Consider the example of two girls boxing in play. The bodily actions may be quite the same as in a real fight; nevertheless, the girls are not fighting at all, even though their fists may be clenched and they may even hit each other. Playful boxing is an iconic sign of real boxing with the difference that players, in contrast to fighters, will not end up with a bloody face or a broken nose. Evidently, there is a difference concerning the consequences of the two modes of behavior. The agents' motives and intentions differ, too. While a real fight is carried out because of anger, fear, or hatred; a playful fight has no such causes.

Playful fight can hence be interpreted as a sign of real fight. Signs of action differ from the action they refer to, especially in their pragmatic dimension, which concerns the effects on our lives. For example, the statement "Smoking 30 cigarettes daily will cause lung cancer" can be used to frighten people, but it cannot cause lung cancer; only the actual act of smoking may do so. Only performative speech acts of the subtype of the declaratives – as Austin (1970) called them – do more than refer to an effect; if uttered appropriately, they are able to cause the effect which they refer to. The utterance "I herewith declare you man and wife", spoken by a registrar, really makes the couple husband and wife. As long as we do not confound signs with their objects there is no paradox. Words and utterances can mean objects and actions, but they do not exert the same influence on our lives as the objects and actions they refer to, and they do not have the same consequences. Signs and their objects are of a different kind or, as Bateson put it (in reference to Alfred Korzybski): the map is not the territory.

Play does not draw a complete distinction between the map and the territory, but uses metacommunication to mark the difference. The iconic representation of the bite does not mean the same as the bite, but nevertheless it does not simply negate the bite. Signs in play negate their objects through affirmation. A playful action denotes, and at the same time it does not denote, the "real" action to which it refers. Instead, it has a different meaning. The action to which the player's iconic nonverbal sign refers is actually performed, but the meaning which this action has in a nonplay context is negated with the performance of this action. In this sense, there is a paradox. – For Bateson

> play marks […] the crucial step in the discovery of map-territory relations. In primary process, map and territory are equated; in secondary process, they can be discriminated. In play, they are both equated and discriminated (Bateson 1972:185).

Both in therapy and in play, metacommunication is part of communication:

> As we see it, the process of psychotherapy is a framed interaction between two persons, in which the rules are implicit but subject to change. Such change can only be proposed by experimental action, but every such experimental action, in which a proposal to change the rules is implicit, is itself a part of the ongoing game. It is this combination of logical types within the single meaningful act that gives to therapy the character not of a rigid game like canasta but, instead, that of an evolving system of interaction. The play of kittens or otters has this character (Bateson 1972:192).

In play, participants have to be aware of this paradox, which is especially evident when we consider role play or acting. Actors have to play their roles as convincingly as possible, but at the same time they have to be aware that they are just playing their roles. – The concept of *mimicry*, as described by Roger Caillois (2001), is very similar to Bateson's concept of metacommunicative play. – An actor or actress who fails to realize the difference between theater and life is no longer an actor or actress. They behave like a schizophrenic who actually believes to be another person. The connection between play behavior and psychiatric anomaly is apparent, as Bateson has shown.

Play activities (not framed by games) must be self-referential; otherwise play cannot take place at all. Metacommunicative self-reference sets the frame of reference for play. Thus, a magic circle which encompasses play is not set up independently from play but by the act of playing itself. The magic seems to arise from the oscillation between the inside and the outside of play.

Metacommunication in Games

The distinguishing feature between games and play is that games are played according to rules, whereas play is spontaneous and has no previously established rules. The rules of a game determine the range of the players' possible moves and in some games, their temporal and spatial order. According to Salen and Zimmerman (2004), game rules limit the players' actions; they must be explicit and unambiguous, shared by all players, fixed, binding, and repeatable. While in play, every single action must give evidence that it is play, games have rules that set a frame for all activities. Game actions are thus dispensed from metacommunicative and self-referential discourse, whereas play is not. It is not the players who establish the sphere of the game but the rules, which create a circle within which all and only game actions take place. Is there metacommunication in games at all?

Rules of a game exist before the actual game is played. They are constitutive rules (Searle 1969), which prescribe the possible game-actions precisely and which are valid independently of whether the game is played or not. Thus, no game-action needs the marker "this is a game-action." The game situation is completely framed before the players begin to play. Additional communication about the game only has to take place when players arrange to meet for a game. Batesons assumption that games are constructed around the question "Is this play?" (1972:182) refers to this determination. If it is already defined which activities belong to the game, metacommunicative play is no longer needed.

But usually self-referential metacommunication takes place when a game e.g. a card game, is played. For example, when players change their communicative role from ally to opponent and begin to speak like friend or foe, flattering each other or using playful verbal injuries against the opponent. Metastrategic discourse of this kind is not prescribed by the rules of the game; hence it is not part of the game although it is still a mode of play. This is a very fragile communicative situation because there is always the danger that playful rudeness or simulated verbal injuries might be taken seriously as a personal offense.

Thus, games evince a kind of double framing. Firstly, the game is framed by its own constitutive rules. (In addition to the constitutive rules, which define the game, the games may be regulated by additional regulative rules, which determine the players' activities in various ways. For example, the atmosphere of the play regulated by its social setting as informal, relaxed, funny, or competitive; and even professional.) Secondly, but only optionally, a game may also be framed by play accompanying the game. The social setting is an important incentive to the players, but it is not constitutive of the game. (In surveys dealing with the reasons for playing digital games, "playing with others" has often been given as one of the main reasons, see e.g. Ermi et al. 2004.)

In sum, playing and gaming must be distinguished. A game is not play, but play tends to occur concomitantly with games. A game activity or gaming is a rule-governed activity guided by the intention to win. – Searle assumes that a rule underlying all games is that each party should try to win. – A play activity or playing, by contrast, refers to an activity not framed by constitutive and fixed rules but by metacommunication. In English, it is unavoidable that the expression "playing a game" also contains the verb "play" which should theoretically be distinguished from the concept of "game". The expression can also be read as a hint that gaming without playing seldom occurs. (The term "gaming" is usually a synonym of "gambling" or "playing for a stake". In gaming, usually a certain amount of money is at stake. In the sense it is used here, only winning the game is at stake. Gaming can describe the seriousness of a player who wants to win a game.)

Metacommunication as Metalepsis in Single Player Computer Games

The social frame which permits players to play comes to existence whenever players meet for a game, which includes multiplayer computer games. Even when played in the bodily absence of other players, they fulfill the prerequisites of metacommunicative play. But this is not my concern here. I will focus on single player computer games.

By definition, these computer games have only one player. There is nobody with whom the single player can discuss his or her moves so that no metacommunication can be expected unless the player assumes the computer to be the other player. But *playing* with a computer seems to bear some problems. Computer programs have an affinity with game rules since they share the attributes of being unambiguous, repeatable, fixed, and binding (Neitzel 2009). For using a computer one must give unambiguous commands defined in advance. Play, by contrast, is based on ambiguity; the frame of play is fluid because it is only established during play. Therefore it is very unlikely that play, which is concomitant with the game when several players interact, occurs in a single player's interaction with a computer game. The computer is a game-machine, not a play-machine.

Yet single player games have devised strategies, which simulate metacommunication. They can be found at various levels of the game and involve the single players in their different roles as gamers or players. I would like to examine such strategies in the following.

The strategy of fictional metacommunication can be traced back to the early times of computer games; it can be found in games such as Infocom's ZORK (1980), which is a so-called *text adventure*. As the genre name suggests, ZORK operates with written text only. The game may start as follows (player input being marked as > and lines added for further reference):

West of House

You are standing in an open field west of a white house, with a boarded front door.

There is a small mailbox there.

> open mailbox

Opening the small mailbox reveals a leaflet.

> read leaflet

leaflet, taken

‘Welcome to Zork’

Zork is a game of adventure, danger and low cunning. In it you will explore some of the most amazing territory ever seen by mortals. No computer should be without one.

> go north

North of House

You are facing the north side of a white house. There is no door here, and all the windows are boarded up. To the north a narrow path winds through the trees.

> go east

Behind House

You are behind the white house. A path leads into the forest to the east. In one corner of the house there is a small window which is slightly ajar.

> open window

With great effort, you open the window far enough to allow entry.

>enter

Kitchen *Score: 10*

You are in the kitchen of the white house. A table seems to have been used recently for the preparation of food. A passage leads to the west and a dark staircase can be seen leading upward. A dark chimney leads down and to the east is a small window which

is open.
On the table is an elongated brown sack, smelling of hot peppers.
A bottle is sitting on the table.
The glass bottle contains:
A quantity of water
> open sack
Opening the brown sack reveals a lunch, and a clove of garlic.
> eat lunch
(Taken)
Thank you very much. It really hit the spot.
> open bottle
Opened.
> drink water
You have to be holding the glass bottle first.
> take bottle
Taken.
> drink water
Thank you very much. I was rather thirsty (from all this talking, probably).

The usual way of navigating through the ZORK world is by typing orders, such as “go north” (l. 11), which are given to an unspecified addressee in the world of ZORK. In such moves, the player is an addresser who utters the order, and there must also be an addressee to comply with the order, but who is this addressee? Since the player is faced with nobody else, the commands seem to be addressed to a fictional character in the game world by the mediation of the computer, but the answer which appears on the screen conveys a different impression. An unknown voice writes back: “*You* are facing the north side of a white house” (l. 13). This means the addressee can be no one else but the single player, that is, the same person who gave the previous order. As a result, the single player turns out to be both addresser and addressee and is entangled in a self-referential communicative loop. The player is both inside and outside the diegesis of the game at the same time. As the participant who gives the order, the player is outside; as the one who is addressed by the text of the program, the player is inside the fictional game world. In terms of systems theory (Luhmann 1995), the player is an observer who is observing him or herself. Action and the observation of this same action are carried out at the same time. This textual strategy introduces an element of play into the game since the self-referential system of address exemplifies well the dilemma which characterizes play according to Bateson, the dilemma of being and not being in a given role at the same time.

On the operational level, the commands of the player and the answers of the program can be compared with performative speech acts, even if they do not have the form of a statement but of an imperative. The imperatives typed by a player do not operate like commands but immediately have factual results in the fictional game world. Typing "open window" means that the "you" in the fictional world *is* opening the window.

However, at the level of the players' interaction with the machine, there is no self-reference. As far as the computer is concerned, players who type orders, such as "go north", actually produce a sequence of electronic signals whose effect it is to trigger a sequence of digital operations and hence have an utterly alloreferential semiotic effect.

In his illuminating article *Gamic Actions* (2005), Galloway distinguishes between diegetic and extra-diegetic operator (this means: player) actions. The addressing-system of text adventures shows that these actions cannot be separated, but both belong to the process of playing the game. To actually *play* the game, the metacommunicative entanglement is unavoidable.

A new communicative scenario begins with the kitchen scene (l. 22). The programmed addresser now speaks in the voice of a counselor thanking the player (l. 35, 44) and giving advice ("You have to…," l. 39). In line 43, with the remark "I was rather thirsty (from all this talking, probably).", the addresser's voice assumes the new role of a personal speaker who does not only refer to his own bodily needs ("thirst"), but also turns self-referential and metacommunicative with a comment on his own "talking". There is hence a situational catachresis, a break in the continuity of the participants' roles. Now, the addressee is no longer the same as the addresser, and the player, no longer isolated in soliloquy, is faced with an addresser who seems to be a true interlocutor. Here, the intrigant, as Aarseth (1997:127) calls this communicative instance, shows his face: "an immanent adversary who inhabits rather than transcends the game."

The strategies of metacommunication in ZORK, in which intra- and extradiegetic frames are manipulated, are well-known from literature. In literary theory they have been described as metalepsis. Metalepsis is a narrative device that manipulates the level of narrating with the level of the narrated events. As Marie-Laure Ryan (2004:441) puts it: "Metalepsis is a grabbing gesture that reaches across the levels and ignores boundaries, bringing to the bottom what belongs to the top or vice versa." Examples are fictional characters who address their author or their readers, or narrators who enter the world of fiction created by themselves.

Ryan distinguishes between rhetorical and ontological metalepsis: Whereas rhetorical metalepsis maintains the levels of the stack and follows the principle of LIFO – "last in, first out" (Ryan 2004:439) – in rhetorical metalepsis, the levels of narrating and the narrated world remain distinct, although there is some rhetorical reference from one to the other. Ontological metalepsis, which results in real life interferences from the world of the narrator to the narrated world or vice versa, is even at the root of ZORK as well as of any other computer game. The player who, at the desk in front of a home computer, types orders such as "open window" (l. 19), "open sack" (l. 31), or "open bottle" (l. 36) is rewarded with immediate obedience not only of undisclosed agents but also of inanimate objects, such as windows, sacks, or bottles. Players of computer games thus seem to have the power of metaleptic interference into the world of fiction that, in principle, should exist independently of the world of their own social environment.

Metacommunication, which is the basis of play and which can also be found whenever people play together, is integrated in single player computer games by the textual figure of metalepsis, which can be called a simulation of metacommunication or fictional metacommunication. The fictionalization of metacommunication in computer games is not dependent on the use of text, but is also an operational strategy used in games that have a graphic surface. In these games the player no longer has to type "open window" but simply presses a button on the keyboard or a game controller to open a window in the diegesis. Games based on a graphic interface try to conceal the metaleptic entanglement, obvious in text-based games. But it is still observable, as a last short example from the METAL GEAR SOLID series may show.

In the METAL GEAR SOLID games, the protagonist, Snake, has the task to conduct important secret missions in foreign territories while avoiding contact with the enemy. To obtain the goal of the mission – rescuing an ally or destroying the enemy's weapons – the real gamer usually has to save the game occasionally. In the series, this game activity is integrated in the game's diegesis. The diegetic (fictional) and the extradiegetic (operational) levels are thus interconnected. At the diegetic level of all the games of this series, Snake has to sneak into buildings of the enemy all alone, but he remains connected with his headquarters and also with a paramedic by radio. The headquarters advise him how to find his way through the enemy's territory; the paramedic keeps Snake's state of health under surveillance.

Shortly after the beginning of the mission in the first METAL GEAR SOLID (1998), Snake receives a call from the headquarters. In addition to getting information about the mission, Snake learns how to contact the headquarters and he can ask the paramedic for a report on his health status. When the paramedic complies, the game is saved. The action of saving the game by recording the state of health has two addressees, the fictional character Snake, and the gamer who wants to save the game – METAL GEAR SOLID 2 (2001) and 3 (2004) operate accordingly. The paradox created by the metacommunicative message "this is play," in play, is particularly evident at the operational level of the game: addressing the gamer means addressing the protagonist, and addressing the protagonist means addressing the gamer, while recording the state of health at the diegetic level actually means saving the game at the extradiegetic level.

Summary

Bateson's paradox, according to which play simultaneously affirms and negates, is able to account for the manifold shifts between communication, metacommunication, and self-referential communication in computer games. In play, the borderline between real life and its negation in the sphere of mere play must be constantly explored since there is no distinct marker to distinguish between play and nonplay. According to Bateson, playing involves permanent metacommunication, which sets up a frame for play and occurs simultaneously within that very frame. This means that no "magic circle", in which the players step for playing, precedes play, but that it evolves only with the beginning of play. The borders of the magic circle are constantly negotiated, and probably changed.

Games, on the contrary, mark their boundaries very distinctively by their own rules which determine what is allowed as a game activity, and what is not. The rules of a game set game activities free from setting up a play sphere by metacommunication. They make game activities possible at a purely functional level. (Nevertheless, there are also game activities that have a symbolic meaning in addition. For example, placing a piece of a board game on a certain field of the board can mean buying a street or occupying a city.) Gaming – a term that can be used to describe playing a game with respect to its pure functionality – is almost always accompanied by play that uses the game only as starting point for play amongst the players. Play can go parallel with games. If the *magic* is found on the functional game level or in the play activities surrounding this strictly framed circle, is a question only the players can answer.

Single player computer games evince no metacommunication. However, they simulate metacommunication by the device of metalepsis. Single player computer games set up a fictional play situation in which metacommunication from the fictional level to the player world can take place. – This is not the case in all computer games, but only in games that create a game world and do not merely show objects on the screen which can be moved around by the player. The latter, which do not create a fictional world, have been called games with an opaque interface by Bolter/Grusin (2000). – The difference between this kind metacommunication and metacommunication in play as described by Bateson is due to the fluid frame of play. While play is only established in the process of playing, being constantly subject to possible changes, metaleptic metacommunication is part of the game program and a central issue of computer games. Thus, the basic indecision of play in respect to its status as real or fictional (or as territory or map) is implemented in digital games as constant metaleptic entanglement. The magic of any circle does not evolve from any strictly drawn borders but from the penetrability of theses borders.

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Différance at Play

Unfolding Identities through Difference in Videogame-Play

This paper approaches the debate over the notion of "magic circle" through an exploratory analysis of the unfolding of identities/ differences in gameplay through Derrida's *différance*. Initially, *différance* is related to the notion of play and identity/difference in Derrida's perspective. Next, the notion of magic circle through Derrida's play is analyzed, emphasizing the dynamics of *différance* to understand gameplay as process; questioning its boundaries. Finally, the focus shifts toward the implications of the interplay of identities and differences during gameplay.

In the game studies debate, the works of Jacques Derrida have been related to the dynamics of videogame play. For example, Galloway (2006) has brought to attention Derrida's notion of play and compared it to the conceptual framework of Huizinga and the anthropological approach of Clifford Geertz (1973) in order to analyze videogames as actions. Bogost (2006) has drawn an analysis conceptualizing videogames as simulation in a postmodern perspective in which Derrida was taken into account.

In a more conservative approach, this paper focuses on theoretic concerns over elementary concepts in game studies – the magic circle and game play – having as a main objective a reading of these concepts through Derrida's *différance*, thus focusing on dynamic/ processual relationships in gameplay. The main objective is to question and broaden the theory perspectives over the given conceptualizations constructed in the past years in the field.

The analysis is directed to the unfolding of identities/differences in gameplay. In the Derridean literature, one of the possible conceptions of "play" can be understood as the temporal and relational pro-

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cess in which things appear as such for someone. In this text, I take this particular aspect to analyze the magic circle, at first in terms of concept, then as the phenomenon of gameplay. In other words, the concept of gameplay – or the magic circle – is analyzed through the "play" of its systemic relationships, the constitution of boundaries or its erosion.

Différance and Play

In Galloway's comparative analysis, the term "play" is investigated through the theories elaborated by Geertz, Huizinga, Callois, and Derrida. Galloway notes: "Play brings out for Derrida a certain sense of generative agitation or ambiguity" (2007:28). The term is paramount in Derridean literature and yet the reader will not find a (precise) conceptualization. Galloway's analysis highlights the linguistic/semiotic aspects in Derridean literature – "the play of signification."

In contrast, my approach to the theory is directed to the systemic relations that certainly engender a semiotic dimension but do not dismiss the hermeneutic/phenomenological aspects involved in the act (and theory) of play. These systemic relations are understood as temporal processes but do not necessarily constitute a text or a narrative.

The words "game" and "play" are extensively used in everyday life as metaphors and expressions related to a myriad of circumstances. While play indicates, for example, a pleasurable and inconsequential activity, it can also be understood as in the expression "to be in game" or "play" [*être en jeu*]: to be in question, at stake, at risk, open to change, to the future, finitude or outcome. The emphasis in this perspective tends to be passive rather than active. In other words, it does not refer to an agent pursuing a strategic objective in a system as is the case in many videogames, but rather refers to the process of being affected by relations or by "what comes."

"Play" in a Derridean context is understood as this "stakeness" in which any element, sign, or entity enters when in relation to others; and occurs in both phenomenological and semiological dimensions. Thus, "play" is a twofold process of signification and "becoming." To be in game or to "play" in Derrida's terms would be the equivalent of "being" in traditional thought. The notion of play is inseparable from *différance*, which is neither existence, nor essence. It cannot be followed by the lines of logical-philosophical discourse or by empirical-logical approaches. *Différance* is *not*; where "not" is the silent/invisible unfolding of the ontological difference. *Différance* is not a being or phenomenon, neither is it a sign or a concept. This process is both temporal and spatial. Derrida describes it as

> The trace beyond that which profoundly links fundamental ontology and phenomenology. Always differing and deferring, the trace is never as it is in the presentation of itself (Derrida 1982:23).

In this "play", an element is always in relation with other elements; it is derived/departed from, or referred by something else. For example, a triangle is commonly defined by three lines in a specific placement. In traditional thought, these are the essential characteristics of a triangle or in other words, what is necessary to identify such an object as it is. Yet, thinking in terms of the play of *différance*, this definition is only meaningful as it relates and differs from other shapes or configurations, such as a circle or square, or three parallel lines.

In my example, I refer to a geometric concept, but in Derridean thought, any concept, element, subject, or object is at play (in terms of signification and as phenomenon.) Any identity appears in an inter-related process with other identities, although not necessarily given as a "representation." – *Différance* establishes differences between elements in a system, and as a result the identity of each element. In Derridean thought, there is no elementary or primordial structure, neither is there essence to define or generate identities, there is just the trace: *différance*.

This perspective contrasts to structural thought, where a system is conceived as an elementary or primordial arrangement, that is, the implication of an essential order between elements, or an essential set of characteristics constituting element identity. For Derrida, identity and meaning are not necessarily stable or permanent, they are processes. Thus, what is at play is the differentiation between elements in an open-ended un/ordered temporal arrangement. Whatever can be thought is always conceived in relation to something else, differing from something else, and consequently always in the process of forming its own identity; any concept, any sign, any structure, any being.

Play (Différance) and (Game)Play

So far, I have outlined the movement of *différance* as identity process, contextualizing "play" in Derridean thought, and thus discerning it from the practices of play as in, for instance, the context of game studies. Now I ask: How can this generic and theoretic "Derridean play" explain gameplay?

For Huizinga, gameplay is associated with "secrecy", as "inside the circle of the game the laws and customs of ordinary life no longer count" (Huizinga 1955:12). What binds players and creates the sphere of magic are rules, which must be obeyed for a game to happen as such. The magic circle and the game are over when cheaters or spoil-sports participate. Spoil-sports disrupt the magic circle, while cheaters make the game meaningless. Huizinga indicates that the magic circle (gameplay) differs from reality. In my reading of Derrida (1982), it differs from reality, constituting its identity as such by this interplay of identity and differentiation. Therefore, gameplay can be conceived as something foreign from reality (difference) as well as through the characteristics shared by them (identity). For instance, at the same time we play "realistic" games and generate simulated environments, we also conceive "reality" as a game: markets, politics, work, or any other system where one becomes involved in a strategic agent position. – Game and play belong together as a process; for a game to happen it must be played. Aarseth indicates play as a hermeneutic process to understand the magic circle dynamics:

> If we have not experienced the game personally, we are liable to commit severe misunderstandings, even if we study the mechanics and try our best to guess at their working (Aarseth 2003:5).

Salen and Zimmerman have also observed the interdependence of game and game play, by suggesting that play is an element of games, "a primary schema to understand them" (Salen/Zimmerman 2004:303). Games are also a subset of play, it is one of the possible ways which the act of play occurs, consisting in a formalized form of play. Moreover, Salen and Zimmerman suggest that games are emergent systems, by introducing Jeremy Campbell's concept of emergence, in which "a modest number of rules applied again and again to a limited collection of objects leads to variety, novelty, and surprise" (cit. by Salen/Zimmerman 2004:158). – "Emergence is a crucial facet of understanding how the system of a game becomes meaningful to players" (Salen/Zimmerman 2004:158). Game and meaning are both processes that occur through play.

To a certain extent, this framework coincides with Derridean thought. In the play of *différance*, identity and meaning are given by the relation or interaction with objects and signs, in a twofold process: semiotic and hermeneutic. Identity and meaning *emerge* through play. In other words, to identify anything as such, a set of associations take place in terms of identities and differences from other objects; signs, entities, etc., constituting a relationship between elements that is at the same time systemic and processual.

However, Derrida's theory contrasts the works of Huizinga and Salen/Zimmerman, as these authors reinforce the importance of rules in the creation of meaning and thus a positive gameplay experience; while in Derrida's approach the rules are also in a process of articulation – play – among objects and identities. For example, card games depend strictly on rules to be played as canasta or poker. For Huizinga, if rules are changed or disobeyed, the game or match is spoiled, disrupted. In contrast, thinking in terms of *différance*, rule definitions are conceived as a process, that is, card games rules are in constant articulation through play, and thus games as poker or canasta are singularities, among many other different card games extinct, present, or possible.

In both perspectives, gameplay is understood as a systemic relationship between rules, players, and game elements. The difference is the way these systems are articulated. For Huizinga, the system of the magic circle is closed, while for Derrida the play of elements would be the equivalent of system, or in other words, an infinite open-ended system of relationships in process.

The conception of closed systems presumes the notion of boundary between what belongs to the system and what is foreign. In contrast, Derrida invites us to think about the relationship between the intrinsic elements in a system and what is foreign to this system in terms of identity, difference, and differentiation between these elements. There are no boundaries, unless through conceptualization and appearance of how something is in relationship to another.

For Huizinga, the boundaries of the magic circle are "broken" whenever a foreign element "invades" it. Following this argument, when a player modifies a game by adding elements to the game or changing the rules (modding), the act of play is disrupted into something else. First, the algorithm is altered, resulting in a different game process and player experience. Second, the act of play is subverted, as the player is playing a game not as an actor, but as a creator. A modder interacts with a game by breaking the magic circle or engaging with the game in a particular way- as an art practice (Postigo 2007). The idea of an essential magic circle hinders play possibilities, limiting it to specific roles or (re)actions.

Perhaps the *magic* is not in the *circle*, that is, the boundaries of play might be inadequate to understand certain games. For example, hybrid reality games are designed to be played through mobile technologies which "create new spatial perceptions, by merging physical and digital spaces, and new possibilities for social networks in both spaces" (Sousa e Silva 2006:234). The gameplay in these games is through articulation of material and semiotic elements, and not necessarily apart from reality.

Moreover, it is difficult to establish the limits of gameplay and player interaction in general, considering the social space where game occurs: One enters in a game realm but also maintain the dynamics of sociality with peers (Dixon 2004). That is, gameplay is one form in which social interaction is performed. Even the player identity in avatar performance is given through multiple relations (e.g. Meadows 2008, Boudreau 2007).

By considering game and gameplay as open-ended systems, it is possible to analyze a wide range and inter-relations between games and players in social, phenomenological, and semiotic aspects. Another example that illustrates these complex relationships is introduced by Consalvo (2007), who defines the process of "cheating" by understanding the dynamics of the relationships at stake between the algorithm and player, game developers, media and market. In the author's analysis, all these elements are at play.

Difference through Gameplay

I have previously mentioned that game emerges through gameplay; constituting its identity as such. How does this process occur, or in other words: How does this Derridean play contribute to the study of games and videogames?

In recent years, many conceptual attributes of games were defined and investigated by researchers; such as rules, fiction, narrative, algorithm, simulation, to name the earliest ones. Although it is necessary to ground an object through conceptualization, such projects can be enriched by considering exogenous relationships – conceptual or interpretive – between games and other objects or phenomena.

From my perspective, a game would not be strictly conceptualized; rather, it *appears* from its differential relations. Instead of thinking in terms of essential or primordial qualities in a game, it can be understood as several different objects and systemic associations at play, resulting from *différance* through gameplay.

In a broad sense, games are understood as hybrid objects. This hybrid character is usually investigated in terms of what a game inherits from other objects, may it be as textual analysis where a game is conceived as representation, or else, in the example of (new) media studies, regarding issues of remediation.

Yet, it is possible to draw the analysis considering both relations of heritage and difference among objects. Instead of asking what games represent and thus investigate how they represent something; I invert the question: How do games differ and from what do they differ?

A game has to relate to something outside the game in order to constitute something playable – such as a narrative, film, an everyday life situation, or a subjective experience. Certainly, these relationships can be understood as representations, especially in the analysis of simulation videogames. However, even if in many cases these differentiations occur from narratives or result in realistic simulations, narrative or simulation are not necessary in constituting a game. As noted by many authors, the notion of representation is inadequate to understand a game like TETRIS (1985), although TETRIS can be related, for instance, to geometry knowledge.

For Derrida, the relationship between signifier and signified is at play, thus what is called representations is a process of differentiation between signifier and signified. In other words, what we play in a game is always something else than what is represented, although these elements inherit some of the characteristics from the signs or elements they derive from.

By playing ping-pong, I know it is somewhat like tennis, somewhat like soccer, and these hints allow me to interact with it and understand its singularity – as ping-pong – and not as a simulation or representation of tennis. In a game like CIVILIZATION (1991), what I interact with is a map that pinpoints my troops, cities, and territory, resembling a cardboard game. The relationships I trace between elements in a game and foreign elements – map/gamemap; cardboard game/digital cardboard game – from my experience, general knowledge, or memory are fundamental to the gameplay.

Moreover, as player, I expect also that every match will be different as well as its outcomes, different process in which the elements in the game are rearranged and meaning is highly variable and unstable. As suggested by Carr, "if meaning is associated with reception and interpretation, then a significant portion of the meaning of Civ III is generated by or emerges through play" (Carr 2007:233).

In the play of *différance*, the associations between elements take place differing and deferring. In the CIVILIZATION game example, the cities, buildings, and religions are elements in which their identities are in a systemic relation in the game and beyond the game, constituting differentiations, decontextualized and recontextualized and always at play.

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Pulling the Strings

A Theory of Puppetry for the Gaming Experience

The paper aims to bring the experience of playing videogames closer to objective knowledge, where the experience can be assessed and falsified via an operational concept. The theory focuses on explaining the basic elements that form the core of the process of the experience. The name of puppetry is introduced after discussing the similarities in the importance of experience for both videogames and theatrical puppetry. Puppetry, then, operationalizes the gaming experience into a concept that can be assessed.

The Experience of Playing Videogames

The experience of playing videogames, or the gaming experience, is the topic of discussion of this paper. Here, we present a theory that aims to operationalize the concept of the gaming experience. The theory is grounded in a concept called puppetry. It was obtained by using a bottom-up approach (Calvillo-Gámez et al. 2008), starting with narratives that reviewed videogames until a theory was formulated using different types of iterative coding mechanisms in order to find those common elements (Strauss/Corbin 1998). In this paper, instead of focusing on the methodological formulation of the theory, we take a top-down approach. We present the theory and discuss the different elements that form it. In justification, we will discuss both the importance of having a theory that operationalizes the gaming experience and the use of the theatrical concept of puppetry to describe the experience of playing videogames.

After presenting the basic definitions that will be used in this paper, we divide our discussion into three sections: First, we present puppetry in the concept of theatre. The aim is to highlight the

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similarities that it has with videogames, in particular the idea that puppetry is defined in terms of its experience and not of its physicality. Next, we present a theory of puppetry to describe the gaming experience. We do not discuss the origins of the theory, but just the theory itself. We argue that the experience of playing videogames is centered on the control and ownership of the player towards the videogame. The final discussion is about the importance of operationalizing the concept of the gaming experience, and how puppetry takes the first steps towards this operationalization by identifying a clear set of hypotheses grounded in latent and observable variables.

We focus on the importance of operationalizing the concept of experience as we are interested both in understanding the experience and having a falsifiable theory about it. Experience is by definition a subjective term: an individual tells of the lived experience according to that person's own accounts (McCarthy/Wright 2004). And there are no objections from us regarding that perception. However, if we are to study the concept of experience, we need to be able to operationalize it under scientific grounds. When individuals play the same videogame and have good experiences, they are able to share them among other players under a common framework of what constitutes a good gaming experience. We are looking for that common framework in which the experiences are shared. The experience might be personal, but the framework in which the experience is built is general. We write this paper under two influences, that of our own discipline of Human Computer Interaction and that of objective knowledge according to Popper (1997).

Basic Definitions

User experience is a relatively new concept within Human Computer Interaction (HCI). Preece et al. (2002) define experience as how the interaction *feels* to the users. They succinctly address experience leaving it as a vague term full of subjectivity: an application taps into experience when during the interaction process factors such as fun, enjoyment, pleasure or aesthetics are influenced. This seems a typical understanding of user experience within HCI. The use of the concept user experience has problems and advantages. Ironically, the problems and the advantages both spring from the many meanings this concept can take, making it too widely applicable. The term user experience is usually employed when interaction designers or analysts refer to a concept that goes beyond usability and looks at the relation of the user with the application (Dix 2003). Usability defines how an application is implemented to let the user perform a task effectively and efficiently. The main focus is productivity, to let the user do the tasks with good quality in an optimal time and the secondary goals are user satisfaction and user preference (Bevan 1995). As designers tried to maximize satisfaction and user preference, they started looking at something beyond usability, something that could provide the user with a better experience. This meta-usability approach is one in which the user would think about the experience. It is not only about using it, but using the application to have a better experience performing the task.

Understanding experience as part of human life has long been the concern of different branches of philosophy. In this section, we address two of the schools of philosophy that have dealt with this issue and that are of recurrent use within HCI: phenomenology and pragmatism. Phenomenology considers that “the central structure of an experience is its intentionality, it is being directed towards an object by virtue of its content or meaning together with appropriate enabling conditions” (Smith 2007). Phenomenology looks at the experience beyond the sensory qualities of it. It explains the relationship between the individual and the experience. This relation of object and individual was greatly studied by Heidegger (1971). He introduced two concepts, “ready-to-hand” and “present-at-hand”. Ready-to-hand is the way we perceive tools as instruments to pursue a task, that is, the tool is invisible as long as we are able to use it. The ontology of the object depends on the use given by the individual, as the tool by itself is useless. Present-at-hand is when the individual reflects upon the tool; in other words, the individual studies the tool instead of using it. The concept of present-at-hand is not necessarily the inverse of ready-to-hand. It is true that when an object is present-at-hand, it ceases to be invisible; this might be because the tool failed to allow the task to be performed, or because the individual became interested in understanding how the tool performs. These two concepts reflect Heidegger's position against the Cartesian dualism. He defended that it is not possible to separate mind and body as one needs the other. Individuals can think and be, but not one as a consequence of the other, but as a relationship between both of them that it is reflected upon the interaction with the world. In order to understand an experience, both the object and individual are joined together either to perform a task or to understand how the tool performs the task.

On the other hand, pragmatism studies the practical consequence of the actions of the individual. Among the many branches of pragmatism, Dewey studied experience for education and art. Dewey was interested in how our interaction with art or education affected the future; he stated

> the quality of experience has two aspects. There is an immediate aspect of agreeableness or disagreeableness, and there is its influence upon later experiences [...] Hence the central problem of an education based upon experience is to select the kind of present experiences that live fruitfully and creatively in subsequent experiences (Dewey 1997:27).

Dewey explains that an experience can be "mis-educative if it has the effect of arresting or distorting the growth of further experiences" (Dewey 1997:25). He defined experience as the result of the interaction of the individual with the environment at a given time. The individual internalizes the experience in order to make it personal. Pragmatism helps us understand the individual in the face of the outcome of the interaction process.

Experience is dual: it is both a component (a phenomenological approach) and a consequence (a pragmatic approach). Dewey's and Heidegger's concepts relate to the idea of the colloquial experience. Whenever there is interaction, there is experience. From this stand point, HCI's concept of "creating an experience" is, at best, a conceit. Experience can not be created as it always exists. However, it can be influenced by acting upon the environment and understood by looking at it in these two-fold phenomenon. As it has been presented so far, experience is both the process and outcome of the interaction. Here, we build on the theories presented by Dourish (2001) and McCarthy & Wright (2004). During the interaction, there are elements of the application, which, if they are missing, can eventually provide a negative experience. The outcome of experience is linked to the elements that form the process. We start the discussion on understanding the gaming experience by modifying Dewey's concept of experience and proposing our own: *Experience is both the process and outcome of the interaction of a user with the environment at a given time.* Environment is defined by the interactive application. By looking at the process and outcome of the interaction separately, we are able to look into a more tractable concept of experience. Having defined the approach that we are taking towards experience, we proceed now to discuss the concept of gaming experience.

Gaming Experience

There have been different efforts that aim to understand the experience of playing videogames. There has been a big effort to compare the experience of playing videogames with that of reading (Aarseth 1997, Rush 2005, Murray 1997, Ryan 2002). This has generated a furious debate (Juul 2001, Frasca 2003) of whether games tell stories or not. We see this debate not as a matter of whether a game indeed tells stories, but as matter of understanding videogames in terms of the experience they provide.

It can be said that the objective of a videogame is to provide players with a positive experience. Salisbury and Fields (2004) identify three phases of the experience of playing videogames: selecting the game, engaging with the game and mastering the game. Out of these three phases we concentrate on the second one: engaging with the game. We are interested in the prosaic experience of a player with the game. We do not look at why was the game selected, or how can the player master the game while becoming immersed (Brown/Cairns 2004, Ermi/Mäyrä 2005), present (Spagnolli/Gamberini 2002) or in flow (Csikszentmihalyi 1990, Sweetser/Wyeth 2005). Neither are we interested in the social aspect of playing videogames (Lazzaro 2005) nor in the design process to produce a good videogame (Crawford 1984/Hunicke et al. 2004). Our primary interest is to identify, once the player is playing, the core elements of that experience, which we are calling the gaming experience.

Before discussing the different elements that form the gaming experience and the theory of puppetry that encapsulates such elements, we proceed to discuss the concept of puppetry in theatre. As mentioned earlier, this is done with the aim of highlighting the similarities between puppetry and videogames. It is also done to clarify the meaning of puppet, which goes beyond a doll attached to a set of strings.

Puppets, Artists & Audiences

Puppets are shadows, hands, dolls, figures and figurines. The physical representation of the puppet is eclectic, but still, we are able to recognize one when we see it. They are not puppets because of their physical characteristics, although they share a common semiotic, but because of the experience they convey.

Puppetry is experienced differently depending on whether it comes from the artist or the audience (Tillis 1992). Upon the artist, the puppet is a medium under his control that frees him of any responsibility. The artist is free to act in an unreal world as the consequences are only in that world. However, the object manipulated by the artist only becomes a puppet once the audience gives life to it. The audience recognizes that it is an object performing in front of them, but they suspend their disbelief and bring life to the object so that it becomes a puppet. Tillis calls this effect "double-vision", seeing the object both as an object and as alive. Puppet is defined as a

> theatrical figure perceived by an audience to be an object, that is, given design, movement and frequently, speech, so that it fulfils the audience's desire to imagine it as having life, by creating a double vision of perception and imagination, the puppet pleasurably challenges the audience's understanding of the relationship between object and life (Tillis 1992:65).

We find that in videogames the player performs both the functions of the artist and the audience, while the videogame performs the function of the puppet. The player has control over the medium, a medium unbounded by reality. While at the same time, the player becomes the audience by allowing, via double-vision, the game to be real. It is this process of control and life giving that is at core of the gaming experience.

Puppetry as a Theory for the Gaming Experience

The player forms the gaming experience by grabbing control of the videogame and creating ownership the experience. The gaming experience is built by the puppetry of the game. Puppetry is achieved when the player has ownership, which is achieved when the player has control over the game. In case of poor control, the player can be influenced by other factors that facilitate ownership. We define puppetry as a concept formed by control, ownership and facilitators. Control represents the basic actions that the player takes upon the game. Ownership is when the player takes responsibility of the actions of the game, he feels them as his because they are the results of his conscious actions and the game has acknowledged these by rewarding him. Facilitators are the external factors, such as the available time to play, previous experiences, or the aesthetics of the game.

Players see the videogame, in relation to the experience, as gameplay and environment. The former is the soul of the game, providing the rules and scenarios on which the game develops. The latter is the body of the game, creating a scenario, providing the sound and the graphics. The player controls the videogame and makes it his own. The player owns the experience of the game by applying his strategies. These strategies are used to win the game or to accomplish the player's own goals. As the game progresses, the player starts to receive different types of rewards, which can be helpful towards winning the game, or just something that the player enjoys doing. It is also an opportunity so that the player can do something alien to his reality. In order to have ownership, the player has to grasp the control of the game. There are two types of control, mechanical and virtual. Mechanical is related to how the game is implemented into the specific console. Virtual control is formed by the basic actions that the game provides to the player. The facilitators that influence puppetry are part of the subjective relationship of the player with the game. They can be a previous experience with a similar game, the amount of time willing to play, or the aesthetic value that the player can perceive from the game.

Describing the Gaming Experience Using Puppetry

We now proceed to discuss each of the members of the elements of puppetry. Two different videogames are used as examples: TETRIS (1985) and STARCRAFT (1998). They are chosen because they represent two tangential different types of videogame. The concept of Control has six members clustered in two groups: Virtual and Mechanical. Virtual are the basic tools available to the player: small actions, goal and something to do. Small actions are the basic actions that the game performs. In TETRIS, they are rotating the figures or moving them left, right and down; in STARCRAFT, they could be selecting the troops, moving them or telling them to attack or to build something. Goal is the high level objective that the game poses to the player. In TETRIS, the goal is not to lose by arranging figures while avoiding cluttering the figures at the top; in STARCRAFT, the goal is to conquer your enemy. Something to do is the game keeping the player occupied while achieving the goal. In TETRIS, the player is kept busy by providing figures to the player every time the previous one is placed; in STARCRAFT, the player is kept busy by developing the settlement or scouting the land. Mechanical control is bounded by the physical implementation of the game: controllers, memory and point of view. Controllers are the physical devices used to manipulate the game: control pads, mouse, etc. Memory is the ability of the player to remember the binding between small actions and controllers. In TETRIS, this bound is defined by knowing that, for instance, pressing the left arrow moves the figure to the left; in STARCRAFT, it is such things as using the mouse to draw a rectangle to select the troops. Point of View is the position of the player in respect with the rest of environment, what the player sees. In TETRIS, the player has a front view of all the game and the upcoming figure; in STARCRAFT, the player sees the environment from above, but only a small part of the map is displayed.

The concept of Ownership has four members: big actions, personal goals, rewards and you but not you. Big actions are the strategies that players take towards accomplishing the goal. It is using the available small actions to form a big action. In TETRIS, the player performs a big action when he takes the figure from the top of the screen to his desired place, moving it to the left and rotating it; in STARCRAFT, it is finding a new mine, exploiting the resources and defending it from attacks. It is not only through strategy that the player makes the game his own game, it is also through personal goals. In TETRIS, it is not necessary to arrange the figures so that four lines can disappear at once, when the appropriate figure appears, but players do it. The game responds to the player's efforts by rewarding him, either by passing levels, defeating bosses, or by saving his record as the highest score or the fastest time. Finally, there is catharsis on behalf of the player, to be someone alien. The player becomes a general, a murderer, or starts solving under pressure or time constraints. As it is the case in STARCRAFT and TETRIS respectively.

Sometimes, control is poor, but the player is still willing to get ownership. This can be due to the game aesthetic properties, previous experiences or time. The player is only willing to play aesthetic property longer because of the aesthetic pleasure in the environment. In STARCRAFT, the player may select Terrans solely because he likes how they look, even though he might have no control over them. Previous experiences refer to the fact that the player may play longer just because a previous similar game was engaging. Finally, it is the amount of time that the player is willing to dedicate to a particular game. TETRIS could be played for only five minutes, while STARCRAFT is usually played for hours.

Puppetry as an Operator

The objective of this paper is to present a theory that can operationalize the concept of the gaming experience. Towards this end, we presented a definition of user experience and a theory that described the basic elements and their relationship to produce a positive gaming experience. This is done with the objective of bringing the concept of user experience to "World 3" (Popper 1994). The importance of "World 3" is that it is here where objective knowledge resides, the type of knowledge that allows ideas and concepts to be falsifiable and autonomous.

Puppetry proposes four clear hypotheses: The absence of puppetry leads to a poor experience; high ownership leads to high puppetry; high control leads to high ownership; and control and high facilitators lead to ownership. Puppetry is formed by three main categories: ownership, control and facilitators. These three categories are three latent variables or constructs. They were introduced in order to explain the process of the gaming experience. The three constructs cannot be observed or measured directly. However, it is possible to learn about them by observing their members. The members of each category are observable variables that can be quantified through empirical observations. The following Figure presents all the elements of puppetry.

Latent Variable	Measurable Element
Mechanical Control	• Controllers • Memory • Point of View
Virtual Control	• Small Actions • Goal • Something to Do
Ownership	• Big Actions • Rewards • Personal Goals • You but not You
Facilitators	• Aesthetic Values • Previous Experiences • Time

Fig. 1: Elements of Puppetry

Puppetry describes the relationship between the player and the videogame. It does not measure the game or the player, but their relationship. It does so by proposing a series of falsifiable hypothesis and observable measures that bring the concept of user experience closer to the world of objective knowledge and operationalizes the concept of experience. We argued that the concept of experience as it stands is problematic as it is hard to operationalize. To overcome this, a definition of user experience was introduced that looks at it as a two-fold phenomenon: process and outcome. The process was justified as a consequence of a phenomenological interaction with the world. It is in the process where the common elements that influence the outcome create a personal experience while also allowing it to be shareable.

Puppetry covers both sides of the definition, the name gives a metaphor to which the player can help internalize the experience and its elements are those that affect the building of the experience. We identified the core elements of the process of the experience as control, ownership and facilitators. The theory was named puppetry as it shares several characteristics with the theatrical puppetry. Puppet and videogame have to be defined in terms of the experience they produce and not in terms of their physicality. The roles of artist and audience in the theatrical puppetry have parallels with the player. The player is the artist who has control of the game-play and environment of the videogame. Besides, the player is responsible for bringing the game to life. Puppetry, as we have proposed, describes and assesses the gaming experience. Puppetry describes the experience in relation to the player and the videogame. It helps to understand both the process and the outcome of experience. Puppetry brings experience as an objective concept that can be evaluated and is falsifiable, as well as be internalized.

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Michael Liebe

There is no Magic Circle

On the Difference between Computer Games and Traditional Games

This text compares the special characteristics of the game space in computer-generated environments with that in non-computerized playing-situations. Herewith, the concept of the *magic circle* as a deliberately delineated playing sphere with specific rules to be upheld by the players, is challenged. Yet, computer games also provide a virtual playing environment containing the rules of the game as well as the various action possibilities. But both the hardware and software facilitate the player's actions rather than constraining them. This makes computer games fundamentally different: in contrast to traditional game spaces or limits, the computer-generated environment does not rely on the awareness of the player in upholding these rules. – Thus, there is no *magic circle*.

In this paper, I compare the special relationship of the game space in computer-generated environments with that in non-computerized playing situations. Herewith, the transference of the so-called *magic circle* of traditional games to computer games is challenged.

The computer game is a very complex phenomenon. Like its neighboring media, such as television and cinema, it is a combination of cultural expression and technological innovation. It not only opens the field to narrative and art, but also includes the vast area of sport. This makes it even more difficult to grasp. Therefore, it is essential to focus on a specific type of game or specific aspects of the computer game in order to provide a valid argument for my premise. As the possibility to play a diverse number of games without depending on a human opponent is a crucial characteristic of computer games, I

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will concentrate mainly on single-player games with the focus of interest on the computerized game space and rules.

I will first portray the concept of the magic circle and then discuss its lack of adaptability to the computer game using the example of KLONDIKE SOLITAIRE (2006). The magic circle is used here to better express the difference between computer games and traditional games.

The Magic Circle

The phrase *magic circle* was coined by the Dutch anthropologist Johan Huizinga in 1938, in his pioneering work, *Homo Ludens*:

> All play moves and has its being within a play-ground marked off beforehand either materially or ideally, deliberately or as a matter of course [...]. The arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc., are all in form and function play-grounds; i.e. forbidden spots, isolated, hedged round, hallowed, within which special rules obtain. All are temporary worlds within the ordinary world, dedicated to the performance of an act apart (Huizinga 1955:10).

Here, Huizinga originally lists the "magic circle" as only one of many different playgrounds, but all having "special rules." This concept has been adopted, elaborated upon, and enhanced by successive game scholars. In this sense, the French philosopher Roger Caillois took up Huizinga's notion of the marked-off playground and included it into his 1958 definition of play among six other attributes, such as: "free," "uncertain," "unproductive," "governed by rules," and "make believe." He describes play as an activity which is "separate," i.e. "circumscribed within limits of space and time, defined, and fixed in advance" (Caillois 2001:9). With Caillois's *Man, Play, and Games*, the idea of defining games and play on the base of a bordered environment with its own rules became commonly accepted.

The concept of the *magic circle* became popular in contemporary game studies as did the research on computer games due to the work of the design educator Katie Salen and the game designer Eric Zimmerman, who managed to combine practical design approaches with theoretical reflections on games in their compelling work *Rules of Play* from 2004. They describe "the magic circle" of games as the boundaries established by the act of play and the real life contexts around games. Games in this respect are understood as systems delineated by rules, which create a separate sphere of complex meanings. Thus, the term today is widely used in order to mark the "special place in time and space created by a game" (Salen/Zimmerman 2004:95).

Yet this adoption causes some conceptual problems: Despite the seeming familiarity of the field of research, there is an important difference between the approach to games by Huizinga or Caillois on the one hand and Salen and Zimmerman on the other. The former focus on *play* as a dominant factor in human history and the cultural development of modern civilizations, whereas the latter concentrate their analysis on aesthetical, design-oriented, or theoretical descriptions of the object *game*. Before I further discuss the contemporary perspectives, I want to take a closer look at the work of Huizinga as the source of the concept. By doing so, I will be better able to compare and distinguish the attributes of computer games in contrast to the characteristics of traditional games.

In Huizinga's view, play is so important to mankind that he shifts the notion of Homo sapiens – the intelligent being, to Homo ludens – the playful being, as the creator of human culture. Huizinga's *Homo Ludens*, as well as the above cited *Man, Play, and Games* by Caillois, were motivated by the study of culture with the focus on play and games. Both emphasize the process of playing and its importance to human culture rather than concentrating on the formal features of games. Especially Huizinga, in agreement with Friedrich Schiller, sees play as an end in itself (1955:49). Huizinga accordingly makes this attitude part of his definition of the term "play":

> Play is a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding; having its aim in itself and accompanied by a feeling of tension, joy, and the consciousness that it is 'different' from 'ordinary life' (Huizinga 1955:28).

As well as in the quote featuring the term *magic circle*, the notion of a difference to ordinary life forms a central aspect in this definition of play. It is mainly used as an example to explain why the upholding of this special separateness between play and ordinary life is so important for the gaming situation. Over and above this, the "magic circle" Huizinga refers to is part of religious practices performed with "sacred solemnity." Hence, playing a game becomes similar to performing religious rites – a fact that is not unexpected in this context. While comparing rites with games, Huizinga found that both are performed within an extraordinary frame and are strictly guided by rules that do not directly apply to ordinary life. Upholding these rules is in both cases a matter of agreement between the participants and the players. There is no physical or tangible restraint obliging them to behave according to these rules. The separate space and time continuum is a fragile construction which can easily be interrupted and destroyed by disturbances from outside or misbehavior inside the circle. Additionally, it is important to note that Huizinga repeatedly insists on the awareness of the players of the rules, rites, and appropriate behavior within the game frame. According to his definition, playing a game is a deliberate action: If a player does not want to play, the *magic* process of creating this separate space will not occur. – So, although Huizinga did not explicitly define the concept of the *magic circle*, it becomes clear that to him play takes place within boundaries where proprietary rules apply. This separate framework has to be intentionally upheld by the players and participants during the act of play.

Next, I want to describe the concept set up by Salen and Zimmerman for they accord the *magic circle* to both computerized and traditional game environments. By doing so, they have a similar approach to computer games as other recognized game scholars do, such as Gonzalo Frasca (2003) or Jesper Juul (2005). They generally focus on the formal aspects of games and interpret computer games in line with traditional games. Salen and Zimmerman explicitly apply the notion of the *magic circle* to rule-based games instead of free forms of play because, in the latter, the borderline between the act of playing and not playing is indistinct – as they state, there are many "ambiguous behaviors, which might or might not be play." Thus the *magic circle* is only established while playing games with a clearly defined "beginning, (a) middle, and (a) quantifiable outcome" (Salen/Zimmerman 2004:94). These characteristics are fundamental to their definition of games in general: "A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" – a definition which they also apply to computer games (Salen/Zimmerman 2004:80).

The *magic circle* in Salen and Zimmerman's *Rules of Play* is a metaphor for describing the artificiality of the gaming situation: the boundary established by playing a game contains its own rules; it creates a distinguishable time and space continuum and separates it from ordinary life. Within this metaphoric space, the meanings of certain objects, happenings, and behaviors change. For example, a white line on the ground becomes the border of a playing field; a ball landing in a net counts as a score, and catching a ball causes a player to be out. Yet this does not happen automatically. The players have to deliberately agree beforehand to uphold the particular borders, rules, and goals in order to play the same game and to know how to win this staged and artificial conflict.

Due to this aspect of the *magic circle*, it is possible to improvise on the playing field or with the material of an individual game. Actually, with some games it is not even necessary to have obvious or tangible markings or material at all – it is often enough to simply decide to play. This (potential) immateriality of the game setting is the factor which makes the circle *magical*: "to decide to play a game is to create – out of thin air – an arbitrary authority that serves to guide and direct the play of the game" (Salen/Zimmermann 2004:98). The process of beginning or playing a game is at the same time a process of establishing a new, special, and separate space with its own rules for solving and governing an artificial conflict.

The rules of the game, then, not only define limitations on possible actions, but also provide certain actions with a special meaning – a meaning not necessarily in accordance with that of the same action outside the *magic circle*. The abstract idea behind this becomes obvious rather quickly when thinking of NASCAR races or boxing matches: Although a fist-fight (to most people) is already a special situation outside normal life, such a conflict on the street is definitely fought out more liberally than within the boxing-ring; where the participants have to wear gloves and are not allowed to hit certain parts of the body. The conflict in games relies on alternative meanings of actions and objects on which the participants (and spectators!) have to agree. Generally, these agreements include the restriction of possible actions and define the ways in which the conflict can be resolved.

Ironically, it is these restrictive rules which make a game playable. The goal of playing a game is not only to successfully reach its winning condition, but to enjoy the obstacles set up by the rules. Salen and Zimmerman (2004:97) refer to this aspect as the "lusory attitude" of playing. Rules clearly play a very important part in making a game enjoyable or fun for the participants, and at the same time mark its separate place. – In short, the concept of the *magic circle* of a game, as adopted from Huizinga and introduced to game studies by Salen and Zimmerman, describes an agreement among players to follow the appropriate rules within a bordered environment and to deliberately restrict the range of their possible actions in order to play a game.

The Computer Game

Having portrayed the origins of the concept of the *magic circle* and how it has been adapted to current game studies, I want to discuss the difficulties of its application to computer games: As stated in the introductory chapter, it is always problematic to generalize with such a complex phenomenon. There are only a few things all computer games have in common. Yet these few attributes have the power of explaining some fundamental characteristics of the medium.

Firstly, despite the obvious differences in interfaces – the hardware platforms are all based on computational technology, as the German media philosopher Claus Pias (1999:82) shows in his in depth analysis of the origins of computer games. *Secondly*, computer games are obviously also games – a fact which provides the medium with another basis to build on: interactivity. Not only Britta Neitzel (2000:43), one of the first beside Pias to seriously reflect on computer games in German academics, makes interactivity a definitive attribute of games. All games rely on interaction – be it with one's partner, one's opponent, or with the game itself.

Both factors complement each other. In line with the game designer and philosopher Ian Bogost (2007:42), the added value of computation technology to computer games is the ability to store and process large amounts of information, allowing meaningful and "sophisticated interaction". This combination also allows the creation and presentation of virtual environments that do not have to have a corresponding model in the real, physical world – a phenomenon which Gonzalo Frasca (2003:231) enhances with his concept of games as "simulations". These game spaces, moreover, are not only presentations of a particular environment, but are also there to be actively explored. According to game studies pioneer Espen Aarseth (1997:64), exploration is virtually one of the "functions" of the player in a computer game. Without interaction and involvement, the game space remains a hollow collection of signs and rules. Thus, the bottom line is that computation technology and interactivity form the core of all computer games.

These core characteristics are obviously different from those of traditional games where no computer is involved. Nevertheless, as shown above, Salen and Zimmerman do not effectively differentiate between computer games and non-computer games. To them the "computer hardware and software are merely the materials of which the game is composed" (Salen/Zimmerman 2004:86). They take it for granted that the concept of the *magic circle* also applies to computer games – an idea widely accepted in game studies.

In the frequently cited publication, *Half-Real*, Jesper Juul also applies his theories to computer games as well as to the games played in the time of Huizinga, Caillois, and earlier. As with Salen and Zimmerman, to Juul all games are based on common grounds and "video games are the latest development in a history of games that spans millennia" (Juul 2005:54). From this point of view, computer games are simply a re-mediated form of games. There is no fundamental distinction made between games played on a board, on a field, with a deck of cards, or games played on a computer.

Juul also supports this premise when he discusses the *magic circle* and the different borders of a game space within the fictional space of a computer game: using the example of the computerized soccer adaptation, FIFA 2002 (2001), he notes that the game space is "a subset of the larger world" within which the "magic circle delineates the bounds of the game" (Juul 2005:164). The re-mediated game of soccer then has two borders: one between the computer and the outside world; and another within the computer game environment, as the soccer field again is delineated from the rest of the virtual game space; such as the stadium and its surroundings (Juul 2005:165).

However, this transformation of the concept of the magic circle to the computer soccer game stands in conflict with its basic principles. As shown above, the *magic circle* is based on solemnity, on an agreement between all participants to uphold the rules and dedicate their behavior to the possibilities artificially limited through the game setting. But in computer games, the limitation is artificial in a different sense: in a computer game the whole *world* or game environment is synthetically assembled by the computer program – including the soccer field or any other playground. Hence, only those actions may be performed which are included in the game program. Moreover, the virtual game field and the virtual space surrounding the playground are both based on the same code.

But in traditional games the *code* of each space is a different one: The ordinary-life-space has different codes from the game space. To remain with the example of soccer, there is no physical law or *code* that prohibits the players from repeatedly kicking the ball into the audience instead of the opponent's goal. However, in computer games – as Juul actually states in the following passage: "there *is no* 'ball' that can be out of bounds" (2005:165, author's emphasis). Yet, despite this observation, he does not comment on the fundamental consequences of it. Instead, he continues to evaluate the notion of the *magic circle* as a frame for the playground within the virtual space of the digital environment.

The consequences of this are that in a computer game everything is programmed, every possible action, every physical simulation, even the boundaries of the virtual space itself. As a result, there is nothing *magic* about the *circle* delineated by the virtual soccer field. Players do not have to adhere to the code of behavior and the rules, but simply have no other choice than to act within the frame of the possibilities provided by the computer program.

To emphasize this difference, I want to discuss the function and meaning of the rules in a game more profoundly. With their design guide book, *Patterns in Game Design*, Steffan Björk and Jussi Holopainen provide a useful starting point:

> Rules limit the players' range of actions while they are playing, enforce certain actions, and describe the order in which actions should be taken. Rules also describe and lay out the boundaries of the game and govern exactly how all the other components of the framework are instantiated in the game itself (Björk/Holopainen 2005:15).

This definition of rules fits well with the description of the *magic circle*. It is the rules that mark the boundaries of the game space and define which behavior is appropriate and which is not. Moreover, as stated before, it is these limitations that make a game playable. But what has not yet been mentioned is that rules in computer games play a different role from those in traditional games. Although there are a lot more rules in computer games through the complex software and hardware of any modern game, the game experience is far less rule-governed than that in traditional games:

> Computer games can paradoxically be perceived as less rule-governed, because players do not need to explicitly be taught rules in computer games, they can try numerous actions and activities and learn by experience how the rules in the game work (Björk/Holopainen 2005:15).

What Björk and Holopainen see as a paradox of computer games – that there are many rules but the player has to learn little explicitly – is actually the fundamental characteristic of the medium.

In her fruitful analysis of the usage of a computer, the German philosopher Sybille Krämer (1995:231) discovers that working or playing on a computer is always like experimenting with a (yet to be discovered) "system of rules". In other words, the rules of the game are part of the system, but the player does not have to learn beforehand which actions are allowed and which are not: He does not have to artificially limit his action possibilities according to the rules in order to play correctly. Illegal actions cannot be performed or they are automatically penalized. The rule system does not have to be *magically* upheld by aware players. The rules are upheld by the program code.

In order to underline my point, I want to now show the difference between computer games and traditional games using a well-known single-player game. The solitaire game of KLONDIKE provides a good example as it is a single player game in both cases – in the computer version (commonly known because of its shipment with the operation system, Microsoft Windows) as well as in the card version. In this game, all game actions and the game material are well-regulated.

In the case of the physical, non-computer game, one plays with a deck consisting of 52 playing cards; differentiated by the four suits *spades*, *hearts*, *diamonds* and *clubs*, each having 13 cards; i.e. from *ace* to *king*. These cards are laid out on any clear, flat surface, for example, a table – according to strictly defined rules. I am going to provide the rules here in full length, as it is this mechanical, almost code-like, instructional language which is typical for such rule texts. – As taken from the gaming website solitaire-game.com:

> Klondike:
> This solitaire game uses one deck (52 cards). Twenty-eight cards are dealt from the deck into the 7 tableau piles with the number of cards per pile increasing from one to seven from left to right. The top card is face up, the rest face down. The object of the game is to move four aces to the foundations as they become [sic!], and to build the foundations up in suit from Ace to King.

> The rules:
>
> Top cards of tableau piles and waste pile are available to play.
>
> You can build tableau piles down by alternate color. One card or group of cards in the proper sequence can be moved from pile to pile. If during the play any of [the] closed cards become the top card of a stack it turns over. Empty tableaus may be filled with a King or group of cards headed with a King.
>
> When you have made all the available plays on the board, begin turning over cards from stock. 3 cards at a time are turned over from the Stock [sic!]. You can move cards from stock pile to the tableau piles and to the foundations according to the rules mentioned above.
>
> You have two redeals.

Clearly, game rules have the function of telling the player how to play the game; i.e. which actions are allowed to be taken, how the game material is placed, defining when the game ends and which winning conditions exist. Hence, it is not surprising that this rule text reads like a program code. The player is conditioned as to how to play the game. This is necessary, as it is the player who has to uphold these rules and, moreover, in this single player game, also functions as his own referee. The player himself decides if he is going to play according to the rules, if the winning conditions are really matched, or if he is going to deal again before the game ends.

Furthermore, none of these rules is actually a must: there is simply no physical law determining how one has to deal out cards or where one can put them. The cited rules are an addition to the naturally existing physical laws like gravity or drag. – This changes fundamentally with the computer (i.e. Windows) version of KLONDIKE SOLITAIRE. Here the software program fulfills the function of the referee, so it is impossible to change the rules or winning conditions spontaneously. But, in MS-SOLITAIRE it is even impossible to make accidental mistakes. Of course the player can still play badly, but he simply cannot place the cards wrongly. Any attempt to place, for example, a black *ace* on a red *9* will be restricted by the computer program. An error sound is played and the *ace flies* automatically back to the place it was taken from. Hence, the computer adaptation of the game transforms the theoretical restrictions into practical ones.

Fig. 1: Adaptation of KLONDIKE SOLITAIRE on MS Windows Vista (Screenshot)

Just as the ball in the previously used example of soccer, the card symbols in the computer game version of KLONDIKE SOLITAIRE are mere simulations of playing cards and do not have *natural* attributes or behaviors: every detail; such as the look and feel, the possible actions, the results of trying to do something else, etc. has to be coded into the game program. Without hacking the code, only those actions may be undertaken which complement the rules of the game. No throwing away of cards in a frustrated outbreak, no peeking or seeking is possible. Not even the surface on which the cards are laid out is a free choice; and as dealing is a matter of an automated deck, the player cannot even make an accidental error while dealing. The rules are sustained entirely by the game program. Therefore the idea of the *magic circle*, in which the participants deliberately uphold the rules of the game in order to make the game enjoyable and playable, cannot be applied to single-player computer games.

This disparate function of the rules also implies other differences to traditional games: Computer game programs accordingly define what one *can* do, and consequentially do not really *restrict* practical possibilities, but *enable* them to be performed. This explains why computer games can contain many more rules than traditional games without making them too complicated. The player can only act within the boundaries of the programmed possibilities and does not have to remember what is allowed or not allowed, as he simply has no other choice. At the same time, he could not do anything at all if the program code did not provide him with a framework of action possibilities. Rules in computer games are not a negative form of *restriction*, but actually constitute a positive form of *enablement*.

The Difference

Rules in computer games play an alternative role to those in traditional games and actually mark the difference between the two: The concept of the *magic circle* does not apply to computer games in the way it does to traditional games. In the computer game all possible actions are implemented in the (formal) software code. Consequently, the restrictive nature of rules does not apply to computer games in that sense; as action possibilities first have to be provided by the computer game program before they may be performed.

While in traditional games players can spontaneously improvise on the gaming material and potentially do a lot more than the rules of the game would allow, in computer games the player could not do anything at all if the rules and the game space were not defined in the software. Based on their computational technology, computer games provide an artificial environment with proprietary rules and create the possibility for a diverse range of actions. So, instead of restricting potential player behavior, the computer game rules first of all facilitate or *enable* possible player actions.

Hence, the aspect of entering the *magic circle* does not rely on player awareness or an (informal) agreement between the participants. In contrast, in a traditional game, the player remains in the physical environment with its natural laws and proprietary possibilities and can deliberately choose to ignore this equality and stick to systematically outlined rules – or not, as the case may be. In this way, the natural possibilities are artificially restricted by the players themselves who let themselves be guided by the rules of the game.

Consequently, the idea of the *magic circle* is based on factors that are not relevant to computer games. The hard- and software of the computer contribute a lot more than the material to the game – they determine the role and function of the rules, and basically enable the game actions to be performed. Computer games are no mere extensions of traditional games but, with their core consisting of interactivity and computation technology, have to be interpreted as a unique medium. – Computer games are different: *There is no magic circle*.

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