MARKUS MONTOLA

On the Edge of the Magic Circle

Understanding Role-Playing and Pervasive Games

ACADEMIC DISSERTATION
To be presented, with the permission of
the board of the School of Information Sciences
of the University of Tampere,
for public discussion in the Auditorium Pinni B 1097,
Kanslerinrinne 1, Tampere, on September 22nd, 2012, at 12 o'clock.

UNIVERSITY OF TAMPERE

UNIVERSITY
OF TAMPERE

ACADEMIC DISSERTATION
University of Tampere
School of Information Sciences
Finland

Distribution
Bookshop TAJU
P.O. Box 617
33014 University of Tampere
Finland

Tel. +358 40 190 9800
Fax +358 3 3551 7685
taju@uta.fi
www.uta.fi/taju
http://granum.uta.fi

Cover design by
Mikko Reinikka

Acta Universitatis Tamperensis 1750
ISBN 978-951-44-8863-4 (print)
ISSN-L 1455-1616
ISSN 1455-1616

Acta Electronica Universitatis Tamperensis 1222
ISBN 978-951-44-8864-1 (pdf)
ISSN 1456-954X
http://acta.uta.fi

Tampereen Yliopistopaino Oy – Juvenes Print
Tampere 2012

For years, I've lived a double life.

In the day, I do my job. I ride the bus, roll up my sleeves with the hoi polloi.
But at night, I live a life of exhilaration, of missed heartbeats and adrenalin.

And, if the truth be known, a life of dubious virtue.
I won't deny it; I've been engaged in violence, even indulged in it.
I've maimed and killed adversaries and not merely in self-defense.
I've exhibited disregard for life, limb and property, and savored every moment.
You may not think it, to look at me, but I have commanded armies and conquered worlds.
And though in achieving these things I've set morality aside, I have no regrets.

For though I've led a double life, at least I can say:
I've lived.

– PlayStation commercial

Table of Contents

Preface 7
Acknowledgements 8
List of Publications 9
1. Introduction 11
1.1 Goals of the Research 12
1.2 Structure of this Work 14
1.3 About the Author 14
2. Towards Constructionist Ludology 17
2.1 Play and Games 20
2.1.1 Play 21
2.1.2 Games 25
2.1.3 Rules 32
2.2 Domains of Play 47
2.2.1 Magic Circle of Play 48
2.2.2 Game World and Diegesis 55
2.3 Ephemeral Games 74
2.3.1 Emergence 75
2.3.2 Coincidence 77
2.4 Games and Creativity 79
2.4.1 Creative Games 81
2.4.2 Play and Narrative 86
2.4.3 Performing for the First Person Audience 89
2.4.4 Fun and Games 94
2.5 Discussion 99
3. Defining Pervasive Games and Role-Playing 101
3.1 Historical Context 102
3.1.1 Roots in Children's Play 102
3.1.2 History of Psychological Role-Playing 105
3.1.3 Origins of Tabletop Role-Playing Games 108

3.1.4 Origins of Larp 109
3.1.5 Origins of Pervasive Games 111
3.2 Defining Role-Playing in Games 113
3.3 Defining Pervasive Games 120
3.4 Pervasive Role-Playing 122
4. Studying Pervasive Role-Play 125
4.1 Ephemeral Prototypes 126
4.2 Evolution of Pervasive Role-Playing Prototypes 133
4.2.1 Beginning: Där vi Föll 134
4.2.2 Scaling Up: Momentum 135
4.2.3 Spinning Off 136
4.3 Central Outcomes 137
5. Introduction to the Included Papers 141
5.1 Methodological Papers 142
5.2 Papers on Role-Playing 142
5.3 Papers on Pervasive Games 143
5.4 Papers on Pervasive Role-Playing 144
Ludography 147
References 151

Preface

In 1983 my dad brought in a Commodore VIC-20 microcomputer, together with a *Radar Rat Race* game module. I do not know why, and he couldn't really explain it either when I asked him 25 years later. It was far too expensive for a toy, but had no utility value either.

However, for whatever reason, he did. *Radar Rat Race* grew old quickly, but it was followed by a number of games painstakingly typed in from computing magazines. Two years later, he upgraded to the legendary Commodore 64, giving us access to classics such as *Wizard of Wor* and *Daley Thompson's* joystick-killing *Decathlon*.

Those two computers got me hooked on computer games from an early age, and gave me a comprehensive education in the history of digital games. However, an even bigger life-changing experience occurred in 1987, when my friend Topi obtained a copy of the tabletop role-playing game *RuneQuest*. We quickly fell in love with its infinite possibilities. I vividly remember the death of my first character as a collateral victim of a status contest between the game master and another player.

Worried about the extensive amounts of time my brother and I spent with the C64, my parents tried to enforce a daily limit of one hour of computer time for each of us. They failed, of course. Topi's mom was hit by one of the religious moral panics against role-playing games, and one day she junked all our *RuneQuest* books. We spent an afternoon going through dumpsters to recover them. The next time she dumped them somewhere far beyond our reach. We pooled our money, bought replacement copies, and played in secret from then on. We still sometimes play the characters we originally created in 1989.

Over the decades, gaming grew from a hobby to a passion to a career. I have been told, repeatedly, that I will stop playing games when I grow up. But until then, I look forward to seeing where the road that started from the VIC-20 goes next.

Acknowledgements

I want to thank my supervisors, professors Frans Mäyrä and Annika Waern. Their work made it possible for this research to be undertaken in the first place, and their support in the process has been invaluable. Professor Mikko S. Lehtonen provided a home for this dissertation in its early years, and professor Steve Benford wrote the kind words that secured the funding of this work for two years.

The scholars who have helped me on the road are too numerous to be named here. Jaakko Stenros has been the best imaginable partner in crime. Our close collaboration has been an essential part of this dissertation process. Satu Heliö commented and encouraged this work during its first years. The discussions, debates and disagreements with J. Tuomas Harviainen, Petri Lankoski, Jussi Holopainen and Staffan Björk have refined my thinking and argumentation. I want to thank my external examiners Christy Dena and Jesper Juul for their comments on the full-length manuscript.

I want to thank all the Finnish and Nordic role-players, larpers and gamesrs who have inspired, informed, questioned and given meaning to this work. Above all, I'm in debt to the creators of the *Prosopopeia* prototypes, such as Martin Ericsson, Staffan Rosenberg, Christopher Sandberg, Adriana Skarped and Daniel Sundström.

I have been able to work on this dissertation in several wonderful research organizations. From 2004 to 2008 I worked in the GameLab research group at University of Tampere, funded by the EU-project IPerG (FP6–004457). In 2008-2009 I spent a year at Nokia Research Center Tampere. For two years between 2008 and 2011 I was funded by a grant from the Finnish Cultural Foundation. This dissertation was printed with the support of the City of Tampere. Without this network of supporters, you would not be reading this work.

I want to thank to my family for the inexplicable decision to purchase the VIC-20 computer. Thank you for allowing me to waste my youth playing all kinds of games.

Finally, I want to thank Sanna, not only for the late night debates on social constructionism, but especially for the love and support on the home stretch.

Helsinki, May 30th, 2012,
Markus Montola

List of Publications

I. **Montola, M.** (2011): Social Constructionism and Ludology: Implications for the Study of Games. In *Simulation & Gaming*. Sage, London. doi:10.1177/1046878111422111

II. **Montola, M.** (2008): The Invisible Rules of Role-Playing: A Structural Framework of Role-Playing Process. In *International Journal of Role-Playing* 1 (1).

III. **Montola, M.** (2009): Games and Pervasive Games. In Montola, M., Stenros, J. & Waern, A. (2009): *Pervasive Games: Theory and Design*. Morgan Kaufmann, Burlington. ISBN:978-0123748539.

IV. **Montola, M.** (2010): A Ludological View on the Pervasive Mixed-Reality Game Research Paradigm. In *Pervasive and Ubiquitous Computing* 15 (1). Springer, Berlin. doi:10.1007/s00779-010-0307-7

V. **Jonsson, S., Montola, M., Waern, A. & Ericsson, M.** (2006): Prosopopeia: Experiences from a Pervasive Larp. In *ACE 2006* conference. doi:10.1145/1178823.1178850

VI. **Montola, M.** (2007): Tangible Pleasures of Pervasive Role-Playing. In Baba, Akira (ed.) (2007): *Proceedings of DiGRA 2007 Situated Play conference* 178-185. September 24.-28. University of Tokyo.

VII. **Waern, A., Montola, M. & Stenros, J.** (2009): The Three-Sixty Illusion. Designing for Immersion in Pervasive Games. In *CHI '09* conference. doi:10.1145/1518701.1518939

Two of the seven papers were jointly authored. Staffan Rosenberg (Jonsson) and Martin Ericsson contributed to Paper V through the design and implementation of the game prototype. The prototype was evaluated together with Annika Waern, and the paper was co-written with her. Annika Waern was the project coordinator, and the author was in charge of the evaluation work.

All authors participated in the writing of Paper VII, based on earlier work. Annika Waern coordinated the work and contributed especially to the sections on *Interference*. The focus of the author's contribution was in the theoretical framework and the sections on *Momentum*. Jaakko Stenros contributed especially to the sections on *Momentum*.

In the remainder of this work, roman numerals are used to refer to the papers.

1. Introduction

In this work I analyze two threads of contemporary western gaming culture: Role-playing and pervasive games. Recreational *role-playing* includes forms such as tabletop role-playing games, larps and online role-playing games, while *pervasive games* range from treasure hunts to alternate reality games. A discussion on *pervasive role-playing* connects these strands together.

Interesting cultural trends often appear at the intersections of earlier cultural phenomena. While this dissertation connects pervasive games and role-playing, both of these forms also exist at intersections: Pervasive games being rooted in mobile technology, network communication, reality fiction, performing arts and urban culture and so forth, and role-playing combining pretend play, improvisational performances, fan fiction, strategy gaming, psychological experiments, historical re-enactment et cetera.

Role-play is "a range of activities characterized by involving participants in 'as-if' or 'simulated' actions and circumstances. For example, someone may be asked to 'imagine' being in a dentist's waiting room anxiously awaiting a painful procedure" (Yardley-Matwiejczuk 1997, 1). Recreational role-playing has three main threads; tabletop role-playing, live-action role-playing and online role-playing.[1] These can be roughly distinguished based on the physical form of the simulation: In tabletop role-playing the players talk and imagine, in larp they act out, and in online role-playing they interact in a virtual environment. In this dissertation, the focus is on *role-play in games* rather than on role-playing games.

Pervasive games are games that are break out of the culturally defined contexts of play. In the contemporary Western culture, there is a tendency to confine games and play to certain spatiotemporal boundaries, such as fields, rinks, courts, boards, matches and rounds. Pervasive games that defy such limits; they are played on the streets and at

[1] Role-play in single-player computer role-playing games (such as *The Witcher* and *Mass Effect*) is not in the focus of this work.

strange times, thus blurring the boundary between play and non-play, making it sometimes difficult to distinguish players from outsiders.

These two descriptions will be revisited in a much more precise and detailed manner; role-playing in Paper II, pervasive gaming in Paper III, and pervasive role-playing in Paper VI.

Role-playing is a special way of gaming; its open-ended nature, lack of clear victory conditions and the deeply involved and influential referee make it clearly different from other games. Pervasive games are also a special case of games, since they break many boundaries traditionally associated with gameplay. This dissertation is an exploration of those two special forms of culture.

These games are scrutinized with the glasses of game studies, described by Frans Mäyrä (2008) as "a multidisciplinary field of study and learning, with games and related phenomena as its subject matter". In practice, digital games have been the typical subject matter of recent game studies, leaving both role-playing and pervasive games in the fringes of the field. Jaakko Stenros and Annika Waern (2011) have argued that this *digital fallacy* has been detrimental to game studies, as it has lead the field to treat games predominantly as systems instead of activities. In order to study role-playing and pervasive games, it has been necessary to revisit some concepts created for digital games.

1.1 Goals of the Research

This dissertation was born in the interplay of several research institutions, projects and work opportunities. As such, it does not answer predetermined research goals, but addresses issues that have been produced in an organic process, which are connected to a considerable corpus of research conducted together with Jaakko Stenros, Annika Waern and others (not included in this dissertation).

The first main goal is *to establish a basic conceptual framework for discussing pervasive games and role-playing in games.*[2] In the following chapters and included

[2] This research goal illustrates the way research goals are constructed retroactively within research projects. After all, the category of "pervasive games" (as used in this work) was largely constructed

papers, these kinds of games will be outlined and a number of theoretical concepts pertaining to them are discussed. These issues are especially discussed in Papers II, III, VI and VII.[3]

The second main goal emerged as the IPerG project produced a number of research prototypes. It is *to understand the significance of pervasive games and, to a lesser extent, the meaning of role-playing in games*. In order to understand the potential of these games, it was also necessary to understand their designs. What can these games express, how do they function, and how should they be designed? These issues are discussed in Papers II-VII.[4]

The third main goal emerged out of necessity. As both pervasive games and role-play were understood as both transient attitudes and intersubjective processes, a discussion on issues such as emergence, internal validation, playful expression and the ephemerality of play arose. Eventually, a methodological approach was needed and the third main research goal emerged: *How to understand and study ephemeral games?* This issue is discussed in Paper I and, to a lesser extent, in Paper IV.

In short, the goals of this dissertation are:

1. To establish a conceptual framework for understanding role-playing in games.
2. To establish a conceptual framework for understanding pervasive games.
3. To explore the expressive potential of pervasive games through prototypes.
4. To establish a theoretical foundation for the study of ephemeral games.

These goals have been approached through prototype evaluation, comparative studies of different games and prototypes, and through theoretical analysis.

---

within the research processes connected to this work (compare Montola 2005b and Montola et al. 2009a with Nieuwdorp 2007).

[3] These issues are also discussed in many papers that are not included in this work (e.g. Loponen & Montola 2004; Montola 2007).

[4] These issues are also discussed in many papers that are not included in this work. The significance and potential of pervasive games is discussed e.g. in Montola et al. (2009a). The significance and potential of role-playing and role-playing games has been discussed e.g. in Montola (2011), Montola & Holopainen (forthcoming), Stenros & Montola (2010) and Montola (2005a). The significance and potential of pervasive role-playing has been discussed e.g. in Jonsson et al. (2007a); Stenros et al. (2007a; 2007b; 2007c); Montola et al. (2009b) and Stenros & Montola (2011a; 2011b).

1.2 Structure of this Work

In Chapter Two, I will propose a framework that combines social constructionism with ludology, to frame the discussion presented in the papers. The framework discusses several central ludological concepts, such as play, games, rules, the magic circle of play, and game world. It then proceeds to consider the qualities of games particularly relevant to this work; ephemerality and expressivity.

In Chapter Three I will revisit the defining works presented in some of the papers that discuss the origins and definitions of pervasive games and role-playing.

Chapter Four looks at the research process leading up to this dissertation, first covering some of the methodological issues and then providing a chronological outline of how this work came to be, and how knowledge was accumulated in the process.

Finally, in Chapter Five, I will introduce the included papers and explain how they are connected to each other.

While I have tried to avoid repeating the contents of the papers in entirety, the reader should be able to follow the introductory discussion without prior reading of the papers.

1.3 About the Author

Game scholars tend to be gamers themselves. Even though the works included in this dissertation do not utilize the author's personal gaming experience as an explicit data source (cf. Bowman 2010; Cover 2010), and while the work is not based on ethnographical or autoethnographical data (cf. Fine 1983; Klastrup 2003; Mortensen 2003; Taylor 2006; Copier 2007; Pearce 2009; Denward 2011), a lifelong exposure to gaming has been an important source of knowledge. Thus, a disclosure of the author's gaming background is necessary.

I believe I played my first computer games in 1983, tabletop role-playing games in 1987, larps in 1992, pervasive larps in 1997 and online role-playing games in 2004. I have never been an "active player" of an alternate reality game, and almost all non-larp pervasive games I have experienced I played more or less in the context of my work. Over the years, I have game mastered hundreds of sessions of different tabletop role-playing games, and been a game master in two-dozen larps. In the beginning of 2011, I

joined the Helsinki-based mobile game studio Grey Area, working as a game designer on location-based games such as *Shadow Cities.*

It is up to reader to decide whether the understanding gained from a lifelong experience outweighs the bias caused by deep involvement with the object of study. As the significance of games and playfulness keeps growing in society, it is becoming impossible to find researchers without long gaming histories.

2. Towards Constructionist Ludology

This dissertation is intended to make a contribution to the field of *game studies*. According to Frans Mäyrä[5] (2008, 6), "game studies is a multidisciplinary field of study and learning, with games and related phenomena as its subject matter". In practice, disciplines ranging from neurology to sociology have been used to understand the transformation that is taking place with the emergence of games into the cultural mainstream.

Game studies is a relatively young field. In the 2001 inaugural issue of the journal *Game Studies*, Espen Aarseth declared the "Year One" of computer game studies. He wrote:

> This year has seen the first international scholarly conference on computer games, in Copenhagen in March, and several others will follow. 01-02 may also be the academic year when regular graduate programs in computer game studies are offered for the first time in universities. And it might be the first time scholars and academics take computer games seriously, as a cultural field whose value is hard to overestimate. (Aarseth 2001.)

Prior to Aarseth's declaration, authors such as Gonzalo Frasca (1999; 2003) and Jesper Juul (1999; 2003; 2005) advocated establishing the discipline of *ludology*, a discipline studying games *as games*. If narratology is used to study games, the crux of the analysis is bound to be the narrative elements of the game (e.g. Aarseth 1997)[6]. Similarly, when sociology is used to understand gaming, the focus is in its societal significance of gaming, and when games are approached mathematically, the focus is in optimal strategies and formal systems.

---

[5] In same year, Björk (2008) dissected "game research" in a research paper, arguing that game research is "a collective name for all research with a basis in and focus on game-related topics". In this dissertation, game studies and game research are considered synonymous.

[6] At least broadly speaking: Authors such as Heliö (2004) and Cover (2010) integrate narratology in their argumentation by talking about narratives as experiences rather than as recounted stories.

For Aki Järvinen, ludology is a name used for game studies approaches that focus on rules and other systemic elements of games:

> The systemic approach has been referred to as 'ludology', even if not always with these exact words. 'Ludology' is a neologism resulting from the combination of the latin word 'ludus' (play) and Greek term 'logos' referring to reason and science. In similar fashion as 'narratology' refers to a set of theories on narratives and narration, ludology is a general term for studies and theories focusing on games […] (Järvinen 2008, 22-23.)

Synthetizing Frasca, Juul, Järvinen, Aarseth and Mäyrä, the relationship of ludology and game studies can be summarized as follows:

Game studies is an interdisciplinary field, studying games and related phenomena as its subject matter.

Ludology is the discipline studying games. Instead of applying pre-existing disciplines on games, it seeks to approach games on their own terms.

From these two statements, it can be deduced that all ludology belongs within game studies, but not all work within game studies is ludological. Also, it can be argued that while game studies is a designation for an interdisciplinary field, the discipline of ludology is interdisciplinary only by necessity. Ludology must be subject to interdisciplinary influences, as the short history of studying games on their own terms has not yet produced all the tools necessary for the researcher.

Even though Aarseth's declared the Year One of *computer* game studies in 2001, game studies as a wider field goes back a long way. If Mäyrä's definition of game studies is used, countless earlier works studying games anthropologically, psychologically, pedagogically, mathematically and philosophically should be included in this field.[7]

As said, this dissertation belongs within the field of game studies. Thus, it is a cross-disciplinary work that employs a pragmatically motivated combination of concepts from social sciences, semiotics, film studies, narratology, psychology, philosophy, anthropology and so forth. Ludology stands in the core of this approach, and the

[7] For instance, the journal *Simulation & Gaming* was inaugurated in March 1970 (see e.g. Bragge et al. 2010). Another example is *The Game Design Reader* edited by Salen & Zimmerman (2005); an anthology of older articles that have become somewhat canonical in the game studies community.

various concepts pertaining to games in particular are central for the discussion. Several of the included papers (I-III) can be seen as purposeful endeavors to contribute to ludological theory.

Game scholars have often had a complicated relationship to essence of games. While it is generally agreed that games are based on rules, they are sometimes described as formal building blocks, sometimes as social practices, and sometimes as computational algorithms.

Ian Bogost (2009; see also 2006, xi-xii, 68) has argued that ludology is a typically formalistic[8] approach, just like narratology is a formalistic approach to study of narratives. In his more recent work, Frasca (2007) has taken a step away from the formalism towards a more social approach. In this introduction I take a further step in the same direction, by taking weak social constructionism as my explicit foundation.

Even though Peter L. Berger & Thomas Luckmann (1966) are sometimes regarded as the founding fathers of social constructionism, this work mostly follows the philosophy of John Searle (1969; 1995; 1998; 2010). This theoretical framework sees games as activities based on the fact that their participants agree on a set of rules, which constitute the social institution of the game.

As discussed in Paper I, the social constructionism of this discussion is of the weak variety: To say that games, rules, game worlds, magic circles and narratives are social constructions does *not* mean that the material reality only exists because it is socially constructed. Authors such as Searle (1998; see also Smith 2003) and Ian Hacking (1999, 25) have argued against antirealism while preserving the important idea that culture and society are socially constructed. In short, material reality exists independently of mankind, but it is *meaningless* without consciousness (see Searle

[8] Myers (2010, 39), who subscribes to formalism himself, describes *rigid formalism* as follows: "A rigid formalism assumes that there are certain formal characteristics of objects—most particularly aesthetic objects—that determine their identity and their consequence, or their essence. Much of geometry and topology, for instance, are formalist fields of study. The "essence" of a square is determined by a formal relationship among its sides and angles; and, likewise, the topological definition of a torus is determined by a set of formal relationships that call our attention to what characteristics are common among all tori and what characteristics are superficial and thus inconsequential to the torus form." However, the examples of ludological formalism cited in this work are not formalistic to that extent; for example Salen & Zimmerman (2004), Juul (2005) and Järvinen (2009) all discuss formal concepts in relation to players.

1998, 83). This ontological position has prompted Hacking (1999, 12; 1997) to even argue that Searle is not a *social* constructionist, that Searle's project is to understand the construction of social reality, not the social construction of reality.[9]

Finally, this is a pragmatically motivated analytic framework. When discussing definitions, it is less interesting to engage in a debate over whether A counts as role-playing or B counts as pervasive gaming, than to consider the genuinely valuable question: "What do we learn about A or B, when we study it as X or Y?"

This same analytical pragmatism also informs my stance on objectivism and subjectivism.[10] Sometimes it is most productive to look at games as if they were objective phenomena: For example, people can achieve a sufficiently identical understanding of the rules and the game world of *chess* to study its strategy from an objectivist point of view. In other cases, such as when trying to make sense of the elusive game worlds of tabletop role-playing games or the ambiguous social frames of pervasive games, objectivist analysis tends to fall apart under subjectivist criticism.

2.1 Play and Games

In his keynote address at DiGRA 2009, Ian Bogost commented that the game *E.T. The Extra Terrestrial* for Atari VCS can be discussed as 8 kilobytes of data, as a software program, as a ROM circuit, as a consumer product, as a system of rules, as an experience, as a unit of intellectual property et cetera. "All of these units of being exist simultaneously with, yet independently from one another. There is no one "real" E.T.,

[9] Searle himself does not take an explicit stance on whether his work should be considered social constructionism – perhaps because of his repeated criticisms of antirealism. Since the weak variety of social constructionism is compatible with realism (Sayer 2000, 90-91), I see no problem using that label.

[10] I use *objectivism* to describe approaches that study games and play as if they were objective phenomena, and *subjectivism* to describe approaches that study games and play as if they were subjective or intersubjective phenomena. Almost all objectivist authors do acknowledge that sometimes perceptions on games are subjective and imperfect – for instance in the famous "Hand of God" case of Diego Maradona's 1986 handball goal. They just tend to categorize such incidents as special cases and bracket subjectivity for the rest of the discussion.

be it the structure, characterization, and events of a narrative, nor the code that produces it, nor anything in between" (Bogost 2009).

When reading a dissertation on games, the first thing to consider is what is meant by the very word *game* itself, and its relations to other neighboring concepts – such as the concept of *play*. Much has been written about these two concepts, and the discussion here owes much to the syntheses of Jesper Juul (2003; 2005) and Katie Salen & Eric Zimmerman (2004).

2.1.1 Play

In an often-quoted passage, Johan Huizinga has defined play as follows:

> … free activity standing quite consciously outside "ordinary" life as being "not serious", but at the same time absorbing the players intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings, which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means. (Huizinga 1938, 13.)

Reading Huizinga's definition, play is an *activity*, a process involving at least one participant[11], which occupies a particular position in our culture. However, Huizinga's view on play is much wider than the everyday language understanding of the concept. He argues that because animals play, play predates culture. Language, myth and religion were all born in play, so the influence of play extends from poetry to warfare and from art to justice systems. Even though play yields no immediate material gain for Huizinga, he argues that it is an elementary part of culture.

Like Huizinga (and most others), Gregory Bateson built his view on play also on a dichotomy; while Huizinga contrasts play with "ordinary life", Bateson merely separated it from non-play. According to him, even animals are capable of distinguishing play through *metacommunication*:

[11] While the focus of his discussion is on social play, he does acknowledge the solitary play as well.

> I saw two young monkeys *playing, i.e.*, engaged in an interactive sequence of which the unit actions of 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".
>
> […]
>
> [T]he statement "This is play" looks something like this: "These actions in which we now engage do not denote what those actions for which they stand would denote." (Bateson 1955, 316-317.)

Bateson also discusses metacommunication in the sense it creates psychological frames that give meaning to communication. Erving Goffman (1961) picked up many of Bateson's ideas, discussing fun in games from similar perspectives.

More recently, Katie Salen and Eric Zimmerman provide an abstract and rather minimalist and abstract definition for play:

> Play is free movement within a more rigid structure. (Salen & Zimmerman 2004, 304.)

Unlike Huizinga and Bateson, the Salen & Zimmerman definition is a systemic description, based on the dictionary meanings of the word "play". Indeed, their definition covers everything from the play of the car's steering wheel to complicated games:

> Think about the use of the word "play" in the sense of the "free play" of a gear or a car's steering wheel. The "play" is the amount of movement that the steering wheel can move on its own within the system, the amount the steering wheel can turn before it begins to turn the tires of the car. The play itself exists only because of the more utilitarian structures of the driving-system: the drive shaft, axles, wheels, and so on. The "rules" created by these elements make the free movement of play possible. Play emerges from the relationships guiding the functioning of the system, occurring in the interstitial spaces between and among its components. Play is an expression of the system, one that takes advantage of the space of possibility created from the system's structure. (Salen & Zimmerman 2004, 304.)

Salen & Zimmerman's definition of play is quite different from Huizinga and Bateson. Huizinga states that play is a free activity, but it exists within spatial and temporal

boundaries and proceeds according to fixed rules. Bateson bases his understanding of play on the way metacommunication establishes a *play frame* that alters the meanings of contained activities. Hence, metacommunication could perhaps be seen as establishing a "rigid structure", allowing free movement within. While Huizinga sees play as a social and cultural process, Bateson frames play through communication, and Salen & Zimmerman take a systemic view on play.

One more angle on play is necessary for this work: Michael Apter looks at play psychologically and phenomenologically, focusing on the player's subjective perception:

> We all know intuitively what is meant by play and what 'being playful' feels like in comparison with 'being serious'. We can note first of all that it has nothing to do with how much pleasure one is experiencing. Thus one can feel playful but also unfortunately be bored and listless, finding no opportunities to express one's need for fun; conversely one can feel serious while deriving enormous satisfaction from working through and completing some important project. What the playful/serious distinction *does* seem to do with, is whether what one is doing links up with the rest of one's life and has implications beyond the present moment. (Apter 1991.)

While Apter (1991; see also 1992, 25-29) also underlines the nature of play as an activity taking place within boundaries, for him the boundaries are more psychological than social in nature – one can engage in *golf* playfully or a seriously. Apter discusses play and seriousness as two *metamotivational states*, psychological states that influence how people feel about emotions. He distinguishes them based on the goal (*telos*) of the activity: People in *paratelic*[12] or playful mindset pursue their activities as ends to themselves, while people in *telic* mindset seek an external goal. Playing *golf* for fun is a paratelic activity, while playing *golf* for profit or improving ones handicap may be a telic activity. Apter's distinction is not only related to games: Fishing, for instance, can be a paratelic leisure activity, or a telic way of earning a livelihood (see also Suits 1978, 92-93).

On a descriptive level, these authors characterize play as a free activity that is largely based on two aspects, a contest for something, and a representation of

[12] "Paratelic" activity is an end to itself, while telic activity aims for an external purpose. Paratelic games are sometimes also called *autotelic games*.

something. Play is creative, constructive and expressive (e.g. Nachmanovitch 1991). It includes elements such as histrionic play, bluff, playful threat, teasing play in response to threat, histrionic threat (Bateson 1955, 317-318) et cetera. Both Bateson and Huizinga associate play closely with ritual; Huizinga (1938, 10) arguing that there is no "formal difference between play and ritual", and Bateson pointing out the formal similarities, and even equating the metacommunicative statements "this is play" and "this is ritual".

In summary, Huizinga sees play as a social activity that is a fundamental part of culture. Bateson sees play as a special kind of behavior that is given meaning from the way it is framed by communicative practices. Salen & Zimmerman see play as a system that may or may not include human agents. Finally, Apter sees play as a subjective mindset, as a psychological phenomenon.

Contrasting the sociological view on play (Bateson and Goffman) with a psychological view on play (for instance Apter) gives us the four-field of activities presented in Figure 1:

Figure 1. Playfulness as a psychological mindset and as a social context (from Montola & al. 2009a, 270).

In the upper left corner is *classic play* that both looks like play and feels like play. In the lower right corner there is *ordinary life*, engaging in serious activities in a serious manner. The contrasting quarters are the interesting ones: In the upper right corner

there is serious, or *instrumental*, play[13]; playful activities engaged in for a purely exogenous goal. Examples of instrumental play include professional sports, professional gambling and gold farming[14]. Instrumental play looks like play from outside, but psychologically it is telic work. Much of this work discusses the things happening in the lower left corner, where play does not appear to be play, even when the participants are in a paratelic mindset. This is the domain of *pervasive play*.

In this work, play is largely discussed as a social activity based on cultural practices. The view on play that is focused on the communicative practices and frames is relevant, as it illuminates how play is situated in culture, and how cultures of play shape the activity of play. The subjective perception of the player cannot be ignored either: As will be discussed later, both pervasive gameplay and role-play are also mindsets applied to other contexts and activities. The systemic view on play allows insight into the structures of play, however it should be emphasized that when systems of play are discussed, they are discussed as *social* structures.

2.1.2 Games

The relationship of games and play can be characterized in different ways. According to Katie Salen & Eric Zimmerman (2004, 72), *games can be seen as a subset of play*. In this view, there are many playful activities, but only some of them are games – games are formal forms of play. On the other hand, they say, *play is a component of games*: not all games are necessarily playful.

Gonzalo Frasca (2007, 39-41) argues that this contradiction is based on the fact that the word "game" has a dual meaning. When games are seen as a subset of play, the word "game" means an activity ("I just participated in a game"), but when play is seen as a component of games, games are seen as objects or systems ("Dad bought me a new game").

---

[13] Also known as *allotelic play*, as opposed to *autotelic play.* According to Klabbers (2006, 23), autotelic play is "an activity valued for itself", while allotelic play is "functional to a goal outside the immediate sphere of play". According to Klabbers, allotelic play is largely a product of the industrial age.

[14] Gathering and selling virtual currency for conventional money in virtual worlds. See e.g. Castronova (2005, 149-151) and Steinkuehler (2006, 203-205).

Roger Caillois divides the various forms of play into two general, complementary categories; free play, *paidia*, and structured play, *ludus*, as follows:

> At one extreme an almost indivisible principle, common to diversion, turbulence, free improvisation, and carefree gaiety is dominant. It manifests a kind of uncontrolled fantasy that can be designated by the term *paidia*. At the opposite extreme, this frolicsome and impulsive exuberance is almost entirely absorbed or disciplined by a complementary, and in some respects inverse, tendency to its anarchic and capricious nature: there is a growing tendency to bind it with arbitrary, imperative, and purposely tedious conventions, to oppose it still more by ceaselessly practicing the most embarrassing chicanery upon it, in order to make it more uncertain or attaining its desired effect. This latter principle is completely impractical, even though it requires an ever greater amount of effort, patience, skill, or ingenuity. I call this second component *ludus*. (Caillois 1958, 13.)

Like Caillois, this dissertation sees games as structured forms of play discussed as ludus. Caillois, of course, presents a continuum and not a dichotomy, and the balance of ludus and paidia varies from game to game: Professional sports tend to be very much entangled in ludus, while role-playing games tend to reside somewhere in the middle, combining game rules and implicit rules with the relative freedom of improvised expression (see Paper II; Hitchens & Drachen 2008).

The relationship of children's play and established games often follows Caillois' (1958) continuum from paidia to ludus. For example the spontaneous back yard running competition is closely related to the IAAF-sanctioned sport of the *100m* dash. Both games are about running faster than the other players; while one lasts for a moment and is then forgotten, the other is enacted in an extremely formal and ritualistic manner. Still, even though one has almost no structures and the other includes systems such as doping testing, world records and the measurement of acceptable running conditions, the game is fundamentally the same – the faster runner wins. Between the extremes, a schoolyard dash might have a referee but no written rules, and a regional competition might have detailed rules but no doping testing.

Numerous definitions for the concept of "game" have been proposed by authors such as Costikyan (1994; 2002), Avedon & Sutton-Smith (1971), Crawford (1981), Kelley (1988, 50), Suits (1978), Abt (1970), Goffman (1961, 35), Frasca (2007, 70), Myers (2009), McGonigal (2011) and so on. In two particularly notable efforts, Salen & Zimmerman (2004) and Juul (2003; 2005) have undertaken syntheses and

comparative analyses of such definitions, coming up with a definition each. For example, Salen & Zimmerman analyze the properties of games presented in various definitions, as is shown in Figure 2.

Elements of a game definition	Parlett	Abt	Huizinga	Caillois	Suits	Crawford	Costikyan	Avedon | Sutton-Smith
Proceeds according to rules that limit players	√	√	√	√	√	√		√
Conflict or contest	√					√		√
Goal-oriented/outcome-oriented	√	√			√		√	√
Activity, process, or event		√			√			√
Involves decision-making		√				√	√	
Not serious and absorbing			√					
Never associated with material gain			√	√				
Artificial/Safe/Outside ordinary life			√	√		√		
Creates special social groups			√					
Voluntary				√	√			√
Uncertain				√				
Make-believe/Representational				√		√		
Inefficient					√			
System of parts/Resources and tokens						√	√	
A form of art							√	

Figure 2. Elements of game definitions, quoted from Salen & Zimmerman (2004, 79).

Based on their comparative analysis, Salen & Zimmerman (2004, 80) build a definition with the intention to include "all kinds of games, from computer and video games to parlor games and sports".

> Game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.
>
> […]
>
> Players: A game is something that one or more participants actively play. Players interact with the system of a game in order to experience the play of the game.
>
> Artificial: Games maintain a boundary from so-called "real life" in both time and space. Although games obviously occur within the real world, artificiality is one of their defining features.
>
> Conflict: All games embody a contest of powers. The contest can take many forms, from cooperation to competition, from solo conflict with a game system to multiplayer social conflict. Conflict is central to games.

> Rules: We concur with the authors that rules are a crucial part of games. Rules provide the structure out of which play emerges, by delimiting what the player can and cannot do.
>
> Quantifiable outcome: Games have a quantifiable goal or outcome. At the conclusion of a game, a player has either won or lost or received some kind of numerical score. A quantifiable outcome is what usually distinguishes a game from less formal play activities. (Salen & Zimmerman 2004, 80.)

Based on a similar comparative analysis, Juul settles for a definition of a *classic game*.

> A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are and negotiable. (Juul 2005, 36.)

With his definition classic game, Juul is able to both roughly define the field of games, and classify them as being more or less "classic". Pervasive games and role-playing fall into what he calls "borderline cases", not satisfying all the criteria of being classic. His definition is illustrated in Figure 3.

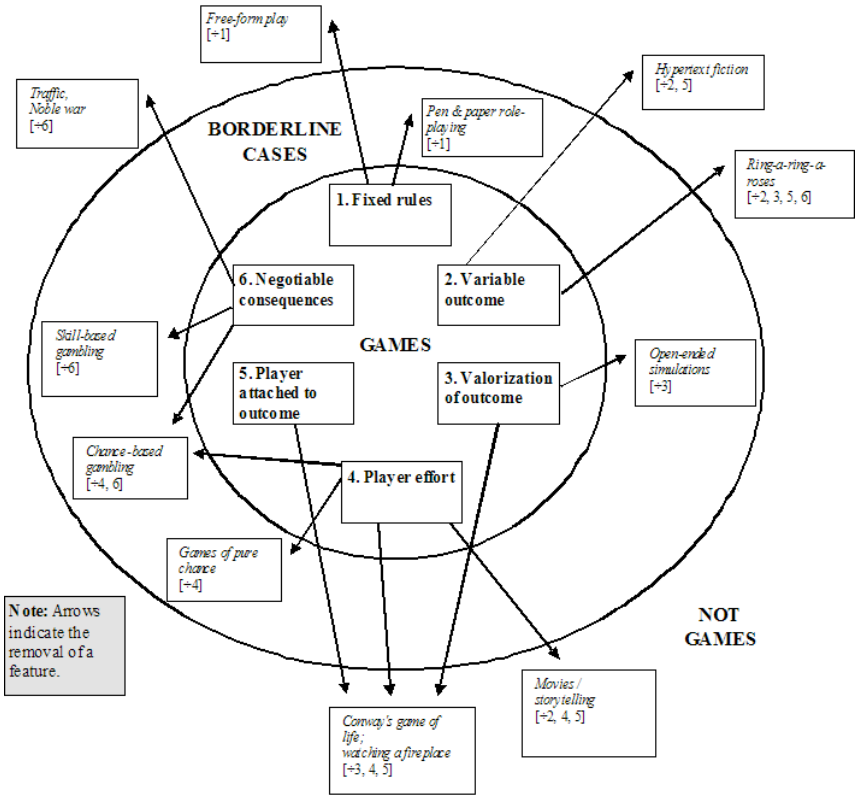


Figure 3. An illustration of the definition of *classic game* by Jesper Juul (2003, 38). Quoted from www.jesperjuul.net.

Both Juul and Salen & Zimmerman define games first and foremost as *systems* (also Järvinen 2008, 50), even though neither of those definitions is purely formal, as the both definitions also require players, Juul implicitly and Salen & Zimmerman explicitly. David Myers (2009) has taken the formalism to an extreme, creating an entirely player-free definition, only requiring *rules*, *goals*, *opposition* and *representation* from a game.

This dissertation discusses games that have a complicated relationship to the definitions of Juul and Salen & Zimmerman – both role-playing and pervasive games are somehow on the borderline of games according to these definitions.

In an interesting contrast, Bernard Suits (1978, 48-49) defines games as activities; that "to play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permissible by rules, where the rules prohibit more efficient in favour of less efficient means, and where such rules are accepted because they make possible such activity". Perhaps surprisingly, Suits (1978, 119-127) decisively argues that games of make-believe are included in his definition. Even though Caillois's (1958) mimicry is not sufficient for something to be a game for Suits, he argues that maintaining the make-believe with sensible dialogue without resorting to a script counts as less efficient means to bring about a specific state of affairs. For him, make-believe is a challenge comparable to maintaining a maximally long game of *table tennis*. Suits also clearly includes pervasive games in his definition, citing numerous examples that break the typical spatiotemporal boundaries of play, including many activities that would be classified as pervasive role-playing games in this work.

Gonzalo Frasca and Jan H. G. Klabbers have also produced more inclusive definitions for games, again based on earlier work. The important thing in these definitions is that they define games as *forms of play*.

> A game is a *form of play*. It is an activity involving one or more players who assume roles while trying to achieve a goal. Rules determine what the players are permitted to do, or define constraints on allowable actions, which impact on the available resources, and therefore influence the state of the game space. Games deal with well-defined subject matter (content and context). (Klabbers 2006, 20.)

> A game is a form of play where players agree on a system of rules that assigns social status to their quantified performance. (Frasca 2007, 70.)

Suits, Frasca and Klabbers focus on games as activities and processes, which proceed according to systems of rules. This makes these definitions the most relevant for this work.

Greg Costikyan (2002, 21-24; compare with Searle 1995, 66 and Suits 1978) has argued that games are structures of *endogenous meaning*.[15] Games create meaning that is only relevant within the system of the game. Costikyan uses the example of *Monopoly* money: It only has value when one is engaged in a game of *Monopoly*, but if someone hands you a *Monopoly* bill on the street, it is practically worthless. When players invest time, effort and other resources in gameplay, they produce endogenous meaning. This is the motivating force behind Juul's criterion of attachment to outcome, as well Salen & Zimmerman's criteria of artificialness and conflict. In playing *Monopoly*, we form an implicit social contract to pretend that *Monopoly* money is worth something. And because we have a contract to act as if *Monopoly* money is worth something to us, then it *is* worth something to us – for a while.

Costikyan's notion of endogenous meaning can be seen as the flipside Bateson's (1955, 317) idea that in play, "These actions in which we now engage do not denote what those actions for which they stand would denote". When a player goes bankrupt in *Monopoly*, the bankruptcy is only endogenously meaningful. Bateson's metacommunication is based on the fact that the outside society understands that the bankruptcy meaningful only within the game.

The systemic definitions of Salen & Zimmerman and Juul, resonate with the way John Searle (1995, 27-28, 66-71; 1969, 33-35) discusses games as *social institutions*. For him, all social institutions are systems of *constitutive rules* that do not only regulate activities, but also make them possible. The core of most (if not all) constitutive rules is the form "X counts as Y in context C"; for example, "Bills issued by the Bureau of Engraving and Printing(X) count as money(Y) in the United States" (Searle 1995, 28). Constitutive rules are about assigning *status* to objects, and establishing them as *institutional facts*: A given piece of wood counts as a white king in the game of *chess*. By counting as a king, the piece of wood is given deontic

[15] It is important to note that Costikyan's notion does not preclude the relevance of exogenous meaning in gameplay as well. I would argue that even though gameplay is motivated and influenced by exogenous meaning, it is *based* on endogenous meaning.

properties (permissions and obligations) within the context of the game (see Searle 2010, 23-24): It now has the power to move one step in any direction as well as the obligation to step out of harm's way.

In the context of Searle's philosophy, Costikyan's endogenous meaning includes all social reality that has no deontic properties outside the context of the game. As the game ends, the piece of wood loses its deontic powers. Some residue remains after the game, though: We may still recognize the piece of wood as a cultural artifact sometimes used to as a white king in a game of *chess*.[16] We also retain our memories and narrativizations of the game.

The rules constituting the game of *chess* do not only restrict the ways of moving a rook, but they make the whole idea of rook possible, making it sensible and meaningful to "move" a "rook". Institutions allow us to construct further social reality: The institution of *chess* does not only provide the rook to with the deontic power of moving in straight lines, but it also makes it possible for constructions such as "Queen's Gambit" to exist.

In conclusion, in this dissertation games are seen as social institutions constituted by their rules, which produce endogenous meaning and operate based on it. They typically display endogenously meaningful properties, such as conflict, goals, outcomes, status, that have been discussed in more detail by authors such as Juul, Salen & Zimmerman, Suits, Järvinen, Myers and Frasca.[17] However, as this is a dissertation on ephemeral games, the systems of constitutive rules are studied in the context of the activity of play.

---

[16] Games such as *Magic: The Gathering* play with this. The cards have monetary value, because the availability of cultural artifacts that can legally represent the game objects is limited. The card has meaning in the context of the cultural phenomenon of *Magic*, because has a *potential* to produce certain specific meanings in the social context of an individual game.

[17] The catalogue of game design patterns by Björk & Holopainen (2005) is particularly impressive in this regard.

2.1.3 Rules

According to David Myers (2009), rules are the most frequent and central element of game definitions. A common perception of rules is that they are unchanging and inviolable formal structures, and that play proceeds according to them. For a formalist, the *essential form* of a game stays the same, if the board and tokens of a game are changed, but the formal content of rules remains unchanged. For instance, for Myers[18], there can be a game that is formally identical to *tic-tac-toe* but that does not have a board:

> Imagine, for instance, another game (let's call it T3) consisting of nine tiles, labeled a1, a2, a3, b1, b2, b3, c1, c2, and c3. In the game of T3, two players alternate picking tiles, each attempting to select tiles that will create an a-b-c sequence, a 1-2-3 sequence, or both. Further imagine a set of rules for T3 that would eliminate from selection any sequences in T3 (e.g., "a1-c2-b3" or "a3-b1-c1") that would not conform to the winning conditions of TTT [tic-tac-toe]. At this point, the game of T3, without a crosshatch playing field and without any Xs or Os, is formally identical to TTT. We might, at this point, say that the rules of TTT are more easily understood or, perhaps, more "elegant" than the rules of T3, but both sets of rules point or refer to the same essential form. (Myers 2010, 32.)[19]

In the study of expressive and ephemeral games, it turns out that this assumption of rules is misleading, and a much looser understanding of rules is useful. In this chapter,

---

[18] Compare with e.g. Juul (2003), Järvinen (2008) and Björk & Holopainen (2005) who also work in a quite formal manner, even though they do not exclude the player from their work like Myers. Järvinen and Björk & Holopainen actually utilize formalism with the explicit functional goal of designing play activity.

[19] Myers's formalistic take on rules is largely identical with what Salen & Zimmerman (2004, 130-135) call *constituative rules*. However, Salen & Zimmerman also recognize implicit and social rules as game rules, and stress the importance of *operational rules*. For them, operational rules are the explicit rules of games that describe the procedures of play to the players. Ultimately, they reject the formalism, arguing that "The constituative and operational rules of a game work in concert to generate the formal "meaning" of a game. There is no "essence" of a game wrapped up in its logical, constituative core". Other have pitched in to the debate as well, for example Malaby (2007, 103), who argues that since games are grounded in human practice, they cannot be reduced to their rules at all.

I revisit game rules, following Searle's constructionist perspective, looking far beyond the formal conception of rules.

Neil Dansey et al. (2009) have discussed the *definition* and *validation* of rules as *internal* and *external* processes. When the player defines a rule herself, or determines whether she successfully followed it, she engages in *internal definition* and *internal validation*. When a game system, referee, other players or an audience define a rule or determine whether it was successfully followed, the game features *external definition* and *external validation*. When a child plays alone, she can both define and validate rules internally, while all competitive sports are based on external definition and validation – it would be a practical impossibility to let players define and validate their own rules in a competitive sport.[20]

As touched upon in Paper II, internal defining is an essential process in role-playing, one that further contributes to their ephemeral nature. As players decide their own goals, and as it is within their creative power to determine what is good role-acting, it is hard for an outsider to determine the psychological reality of what precisely happens in a given situation. If a role-playing character flees from a fight she would have been likely to win, an external observer cannot tell whether that was "good" or "bad" role-playing. Perhaps the player had previously determined that her character was a coward, establishing a rule of conduct for herself – or perhaps she felt that such a random dramatic move would spice up the boring gameplay.

In pervasive games, internal validation often plays a central part. In games such as *Killer: The Game of Assassination* (see Montola & al. 2009a, 3-6; Paper III), there is often no-one else around when important things happen in the game, and thus the game falls within the province of internal validation. For example, in the Figure 4 the player is "killed" by a booby-trapped blender. If there is no-one else to witness the springing of the trap, the game must rely on the good sportsmanship and the internal validation of the victim.

[20] The game of *Calvinball*, proposed in Bill Wattersson's *Calvin and Hobbes* comics, illustrates the problems of disorganized competitive sports.

Figure 4. A booby-trapped blender has just exploded in a game of *Killer: The Game of Assassination*. It is up to the player to be honest and report his death to a referee. Cited from Jackson (1981), also discussed in Paper III.

Sometimes internal validation can be a murky affair. Dansey et al. (2009) present a game with the following rules:

- Your score starts at 50 points.
- The theme is "conflict" – every time you perceive some form of "conflict", you lose 1 point.
- When you lose a point, you have one minute of immunity before you can lose another point.
- If your score reaches zero before 48 hours have passed, you lose the game. Otherwise, you win.

In this game, the internal validation of the scoring conditions is not merely a matter of sportsmanship and honesty, but a matter of interpretation. You and I might disagree on what is "conflict", and thus an outsider could not accurately keep track of the score, even when provided with a perfect and complete audiovisual documentation of the game instance. Internal validation is an illustrative example of ephemerality of play, because it shows that gameplay does not necessarily take place in a logical structure determined by explicit rules.

Internal and external definition and validation also relate to Caillois's axis of ludus and paidia. On the ludus end of the spectrum, in activities such as competitive sports, rules are always external. On the paideic end, in activities such as make-believe, rules are often internally defined.

While Dansey discusses the internal definition and validation of rules, Karl Bergström (2010a) has studied the implicit social rules of board game play, listing numerous implicit social conventions, many of them very ambiguous. While different players and groups have different rules, Bergström's interviewees held social rules stipulating that, for example, players were expected to strive towards game goals even in a hopeless situation, to play the game to the end, to not avenge the events of earlier games in the present game, and to not whine excessively about their position in the game or the quality of the rules. Transgressions lead to sanctions ranging from verbal rebukes to termination of the play session.

Interestingly, Bergström's study also showed that in fact the social rules were not always implicit at all, and the informants were explicitly aware of many of them. Indeed, the ambiguity of the social rules is a key reason to their implicitness: It is difficult to formalize the social practices that produce an enjoyable play session. Competitive games nevertheless repeatedly do so out of necessity, producing ambiguous rules of good sportsmanship that are interpreted by referees. Myers (2008; 2010; see also Mortensen 2003, 45, 90-92) provides an interesting case study into the contradictions of social and formal rules in *City of Heroes*, where he managed to transgress numerous social rules by abiding to formal rules, and his transgressions were repeatedly rebuked by the player community.

Searle (1969, 33-34; also 1995, 27-28) makes a distinction between constitutive and regulative[21] rules. While regulative rules "regulate antecedently existing activities", constitutive rules "constitute (and also regulate) an activity the existence of which is logically dependent on the rules". Since constitutive create the very possibility of activities such as games, the discussion on purely regulative game rules is somewhat complicated. Games tend to be constituted by rules that restrict activities, as Bernard Suits (1978, 54-55) has pointed out:

[21] Salen & Zimmerman (2004, 129-130) use the term "constituative" in a different sense, and Klabbers (2006, 44) uses the term "regulative rules" in a different sense.

> To play a game is to attempt to achieve a specific state of affairs [prelusory goal] using only means permitted by rules [lusory means], where the rules prohibit use of more efficient in favour of less efficient means [constitutive rules], and where the rules are accepted just because they make possible such activity [lusory attitude]. I also offer the following simpler and, so to speak, more portable version of the above: playing a game is the voluntary attempt to overcome unnecessary obstacles. (Suits 1978, 54-55, bracketed texts in original.)

Thus, following Searle and Suits[22], it is not purely regulative, but rather constitutive, that *soccer* players may not touch the ball with their hands: Handling the ball counts as a foul in the game of *soccer*.[23] The game of *soccer* does not exist antecedently of that rule.

The social rules of play identified by Bergström (2010a) above are examples of regulative rules of play. Even though often implicit, the social rules regulate the antecedently existing practices of board game play. The institution of *Monopoly* remains the same regardless of whether the players issue social sanctions on whining or quitting the game early.

Perhaps paradoxically, it is somewhat difficult (but by no means impossible) to establish explicit regulative rules for games, especially in written game rule sets. If we see games are social institutions constituted by their explicit rules, where restricting the activity through is central (as Suits claims), explicit regulation tends to become constitutive for the game institution.

As an example, we can look at the sport of *100m* dash. In professional sports and other games with high stakes the importance of implicit rules tends to decline, while the importance of explicit rules is highlighted. The Rule 163.3 of the *IAAF Competition Rules* stipulates the following about running in lanes:

> (a) In all races run in lanes, each athlete shall keep within his allocated lane from start to finish. This shall also apply to any portion of a race run in lanes.
> […]

[22] See Roversi (2010) for a more nuanced discussion.

[23] *Laws of the Game 2011/2012* by FIFA. In www.fifa.com, ref. November 19th, 2011.

> Except as stated in Rule 163.4, if the Referee is satisfied, on the report of a Judge or Umpire or otherwise, that an athlete has violated this Rule, he shall be disqualified.[24]

In one sense, it can be argued that this rule is constitutive for the dash, since it is essential for the sport (as we know it) that runners stay in their lanes. Even though running exists antecedently of the IAAF rules codifying it as the sport of *100m*, the act of running becomes an institution of *100m* only through its constitutive rules.

If we accept the above Rule 163.3 as a constitutive rule for the dash, it is difficult to argue that the following Rule 35.17, printed in the same book, was not constitutive as well:

> Each Athlete in the Registered Testing Pool shall be required to submit Whereabouts Filings in accordance with the Anti-Doping Regulations. The ultimate responsibility for submitting a Whereabouts Filing rests with each Athlete. Members shall, however, upon the request of the IAAF or other relevant Testing Authority, use their best efforts to assist in the collection of current and accurate whereabouts information for their Athletes and shall make specific provision in their rules or regulations for such purpose. Whereabouts information provided by an Athlete pursuant to this Rule shall be shared with WADA and any other body having competent authority to test the Athlete in accordance with the Anti-Doping Regulations on the strict condition that it be used for Doping Control purposes only.[25]

To some extent it is a matter of taste and perception on whether doping rules are seen regulative or constitutive (cf. Suits 1978, 51-52). An argument for the former is that track and field sports *do* exist antecedently of doping control. That argument would not necessarily convince a theorist subscribing to formalism (or essentialism), who could argue that the *100m* dash, as it is known today, only exists as a system because the Rule 35.17 is in the rulebook (compare with Myers 2010, 30-31; also Järvinen 2008, 49).

Before doping regulation was introduced, there existed a different game, which was also called the *100m*. If you change one rule of a formal system, a new system

---

[24] *IAAF Competition Rules 2010-2011*, Rule 163.3. In www.iaaf.org, ref. September 26th, 2011.

[25] *IAAF Competition Rules 2010-2011*, Rule 35.17. In www.iaaf.org, ref. September 26th, 2011.

emerges.[26] One way of distinguishing regulative rules from constitutive rules is that regulative rules tend to have a normative dimension to them – it is morally, legally or socially unacceptable to break regulative rules. Terms of service, as in the above example, tend to fall in this category. For Suits (1978, 52), taking a penalty in *ice-hockey* can be a tactically correct decision, even though it incurs a penalty dictated through constitutive rules.

In a strict understanding of rules, only formal rules[27] (and game goals defined through formal rules) are to be understood as game rules. However, in order to understand the practices of play, the inclusion of non-formal rules becomes necessary, as the explicit formal rules of a game are no longer the only standpoint directing the activity of a player. Social conventions, norms and legislation become a part of the play, as gameplay is not free of external regulation (see Castronova 2005, 156-157; Lastowka 2009; also Consalvo 2009; Montola et al. 2009a, 197-213). Even external norms have influence on play. Although such influences are filtered and transformed when they enter the so-called magic circle of gameplay (discussed below), they remain an important part of the regulation of play.

Sometimes the creators of the game cannot avoid external regulation even if they wanted to (e.g. in the case of gambling), and sometimes they draw upon external regulatory structures to control their players using a tool more powerful than constitutive game rules (e.g. in the case of the MMORPG terms of service). Sometimes games include complete legislations within their rule structures, through constitutive rules that declare that illegal actions count as breaking game rules. For example, "Players who break local laws in the course of play will be disqualified".

Digital game researchers typically also discuss game algorithms as game rules (e.g. Myers 2010, 16-17; Juul 2003, 50). Interestingly, that equation usually only applies to

---

[26] Mosca (2011) uses Searle's concepts to build a typology of games. *Regulative games* are games based on regulating antecedently existing activities – like *100m* regulates the activity of running. *Constitutive games* use rules to constitute activities that did not exist before the game. *Deregulative games* are based on a transgressive attitude, and they are based on disobeying antecedently existing rules. Finally, *deconstitutive games* deconstruct social institutions. In my interpretation, Mosca's regulative, deregulative and deconstitutive games are social institutions constructed through constitutive rules – Mosca's labels only discuss the way those games interact with external regulative and constitutive rules.

[27] Shorthand for codified constitutive rules.

a tiny fraction of the source code called the "game system", and the majority of the code from graphics rendering to telecommunication protocols is excluded. This happens even though the graphics rendering might directly interact with the "game system", for instance when the deciding whether two objects collide or not. This occurrs even though the choice of telecommunication protocol might impact the gameplay much more than tweaking the amount of health points given for each character level.

Algorithmic rules are not social contracts. In the process where a rule is encoded into an algorithm and compiled into a computer program, it becomes a brute fact, e.g. it is a man-made brute fact for all *Pac-Man* arcade machines that after Pac-Man collides with a power pill, the ghosts change color and flee away from him. In terms of Aki Järvinen (2008, 31), the rule is embodied into a tangible materialization.

Similarly, in the domain of digital gaming, one of the key selling points of the classic *Arkanoid* arcade machine was its special spinner controller. The spinning knob controller was a considerably better peripheral for the game than a typical joystick or pad controller. We can argue that it was constitutive for *Arkanoid* arcade machine to be played with the spinning controller, and the algorithmic rules of the arcade machine were designed to take the spinner into account. *Arkanoid* was quite different when played with a joystick, for instance on Commodore 64, and quite a bit harder as well.[28]

Once we start to include algorithms and peripherals into the definition of "rules", it is not trivial to draw a theoretical line to exclude the material realities of play: Algorithms running on a computer are brute facts, not social facts. Even though games are social institutions in Searle's (2010; Paper I) sense, and social institutions are constituted by social facts instead of brute facts, institutions have to, by necessity, take prevailing brute facts into account in their constitution.[29]

---

[28] For Myers (2010, 31-32), the essence of the game can be reduced to the relationships of the game objects, often expressed as rules. "While objects and their representations may vary widely, the relationship between objects and their representations has a particular and constant set of forms, which I wish to emphasize here." His stance on peripherals is ambiguous, but I would argue that the *Arkanoid* controller is, in Myers's sense, a "fundamental property" of the arcade game.

[29] Earth's gravity is only implicit in *basketball* rules, but a requirement for its presence would be quickly codified if alternatives were possible. After all, a given ball counts as a legal playing implement in the context of women's *basketball*, only because it weighs the stipulated 510-567g. The constitutive rules

The fact that the gravity is necessary for the institution of *basketball* can be seen from the rules of *basketball*, for example when the mass of the ball is discussed:

> For all women's competitions in all categories, the circumference of the ball shall be no less than 724 mm and no more than 737 mm (size 6) and the ball shall weigh no less than 510 g and no more than 567 g.[30]

In this rule example, there are two noteworthy things. First, gravity is implicitly but clearly present. Gravity is a brute fact, not a constitutive rule, but the rules of *basketball* imply that the game it is to be played in an environment where Earth's gravity prevails. Second, it illustrates how the ball of *basketball* is a materially encoded representation of formal rules. The ball used in the women's competition weighs precisely 510-567 grams, because it was crafted according to this rule. The ball is not a constitutive rule, but due to the constitutive rule cited above, it counts as a ball in the game of women's *basketball*. Like the social process of *Pac-Man* play relies on the brute fact that eating a power pill reverses the roles of Pac-Man and the ghosts, the social process of *basketball* play relies on the brute fact of gravity.

Dakar Rally is an example of an inverse process. It is an off-road race that takes place in a desert environment, so the racers have to deal with mud, dunes and many other off-road challenges. The route is not a product of a materially encoded rule, but it is a brute element that gives meaning to the game. The explicit constitutive rules of the rally ensure that the racers will encounter challenging environments.

---

determine which brute and social facts count as social facts in the context of the game. If we had the possibility to play in other gravities, the appropriate gravity would be quickly included in the constitutive rules, just like track and field sports have rules for appropriate wind velocity. For this reason, I consider *basketball* to have an implicit constitutive rule requiring our local laws of nature. Even though this is a fundamental question, it bears little relevance for the present discussion.

[30] *Official Basketball Rules 2010: Basketball Equipment* by International Basketball Federation. In www.fiba.com, ref. September 24th, 2011.

Based on this analysis, we can sketch the following rough typology, starting from the subjective psychological reality, passing through the institutional reality and ending up in the brute reality: [31]

[31] This classification could and should be refined further, but this version is sufficient for the present discussion. The lists under the headings are just examples. This list lacks the *diegetic rules* discussed in Paper I that become relevant when a role-playing mindset (Heliö 2004) is applied to gameplay. They replicate the classes of non-diegetic rules: If you role-play a knight of the round table, you might have a diegetic internal rule to uphold knightly virtues, a diegetic social rule to be polite towards fair maids, a diegetic set of formal rules when attending a diegetic jousting tournament and so forth.

1. **Internal Rules**
    - Ambiguous Internally Defined Rules

      "I'll strive for ethically acceptable decisions while playing The Witcher."[32]
    - Simple Internally Defined Rules

      "I will try to collect all the possible points from this level before proceeding to the next one."[33]
2. **Social Rules**
    - Regulative Social Rules

      "You must not wave arms or mock the player in turn to distract her."[34]

      "You must not stall the game by playing too slowly."
    - Constitutive Social Rules

      "Let's just play the first six holes of this golf course."
3. **Formal Rules**
    - Ambiguous Codified Rules

      "The players shall take no action that will bring the game of chess into disrepute."[35]

      "You lose a point every time you perceive some sort of conflict."[36]
    - Logical Formal Rules

      "The game is won by the player whose opponent declares he resigns. This immediately ends the game."[37]

---

[32] *The Witcher* is a computer game, where the player portraits the monster hunter Geralt of Rivia. It is up to the player to decide how Geralt behaves in many situations, and the game passes no ethical judgement on player. Many players decide to play the game "as a good guy" or "as a bad guy", applying some kind of a role-playing mindset (Heliö 2004) on the game. However, some of the ethical decisions in *The Witcher* are far from trivial, and navigating within ethical acceptability is a highly ambiguous task.

[33] In *Pac-Man*, that means collecting all the fruit, and all the four ghosts with all the four power pills.

[34] *Hopscotch*, derived from from Flanagan (2009, 8-9): "[T]his type of activity would not be explicitly forbidden by the rules and would thus fall into the realm of peer sanctioned or accepted play".

[35] Rule 5.1 b, *Laws of Chess*. Ref. September 21st, 2011. www.fide.com

[36] This rule is an externally defined rule – even though it is internally validated.

[37] Rule 12.1, *Laws of Chess*. Ref. September 21th, 2011. www.fide.com

4. **External Regulation**
    - Terms of Service

      "Don't sexually harrass other players. We don't accept excuses based on your character being a sick pervert whom you are trying to roleplay. This is a deleteable offence."[38]
    - Legislation

      In many countries, it is illegal to purposely inflict a serious injury in an *ice-hockey* match.
5. **Materially Embodied Rules**
    - Algorithms of Digital Games

      Health = Level * 50 + Endurance * 10.[39]
    - Physically Implemented Rules

      The physical ball used in *basketball*. (Not the rules defining it.)[40]
6. **Brute Circumstances**
    - Environmental Circumstances

      The physical environment of *Dakar Rally*.
    - Biological Reality

      You can only engage in *boxing* as long as you remain conscious.
    - Laws of Nature

      Earth's gravity implicit in the rules of *basketball*.

Internal rules are psychological facts, not social facts. Social rules can be constitutive or regulative for the gameplay, depending on the case.

---

[38] *DragonRealms* MUD, cited from Mortensen 2003, 115-116.

[39] From *Shadow Cities*, in fall 2011. The actual rule was of course first encoded into an algorithm and then compiled into bits and pieces of game code, which are both distributed to game clients and replicated in server processes. Due to a mistake, the game client in some point told players that their Health would increase by 100 points when they gained a level. Despite the contrary speech act, the brute algorithms gave them only 50 Health per level.

[40] Citing the game designer Will Wright, Greg Costikyan (2002) has argued that a ball is a toy with many interesting behaviors that can be used in games such as *soccer* or *basketball*, but that the game is not intrinsic in the toy itself. The argument of Wright and Costikyan differs from the present discussion: Here I mean a ball that has been specifically created to embody the rules of *basketball*.

Even though rules are often thought to be static structures, many of these rule categories tend to be in a state of constant change in contemporary games. Internal rules, of course, change at the whim of the player. Myers's (2008) example demonstrates how social rules change and evolve, sometimes coming to directly oppose formal rules.

Even though formal rules usually aim for logical clarity, they cannot always be interpreted without taking the cultural context of the game instance into account. One example of such a connection can be found from the Rule 12.1 of the *Laws of Chess*, which stipulates that "The players shall take no action that will bring the game of chess into disrepute". Even if the wording of that rule had stayed precisely the same for the last two centuries, its implications would have changed significantly. 150 years ago the mere participation of an African American player might have "brought the game into disrepute", while today a racist remark during an important game might do the same. The interpretation of ambiguous rules has little to do with logical operations, and much more to do with the understanding of cultural context, presumed intent, long-term consequences, earlier precedents, principles that are thought to prevail elsewhere in the rules, and so on. Thus, Rule 12.1 should perhaps rather be studied and interpreted with a jurisprudential apparatus (e.g. Dworkin 1986) than by means of formal logic or computer science.[41] Indeed, as is stated in the preface of *Laws of Chess*:

> The Laws of Chess cannot cover all possible situations that may arise during a game, nor can they regulate all administrative questions. Where cases are not precisely regulated by an Article of the Laws, it should be possible to reach a correct decision by studying analogous situations which are discussed in the Laws. The Laws assume that arbiters have the necessary competence, sound judgement and absolute objectivity. Too detailed a rule might deprive the arbiter of his

[41] Once this can of worms is open, its influence tends to spreads to supposedly unambiguous rules as well. As an example, the Rule 4.1 states that "Each move must be made with one hand only". It is rather obvious that it is in the spirit of the rules that double hand amputees are also allowed to play (perhaps with the help of prosthetics or facilitators), even though it is clearly against the letter the whole Article 4 of *Laws of Chess*. The spirit of the rules is conveyed both implicitly through other rules (such as the FIDE rules for the visually handicapped players), and explicitly in statements such as the preface to the *Laws of Chess*.

> freedom of judgement and thus prevent him from finding the solution to a problem dictated by fairness, logic and special factors.[42]

While materially embodied rules rarely cause problems of interpretation, they are not necessarily any more stable than social and formal rules. In game genres such as Facebook games, MMORPGs and mobile phone games, where the "perpetual beta stage" (see e.g. Jacobs & Sihvonen 2011) is becoming a norm, embodied rules change frequently and in secret. In fact, such game companies even impose different algorithmic rules on different players in order to conduct multivariate A/B testing or metrics-based user segmentation. Resultantly, rules that are usually seen as the stable framework of gameplay turn out to be subject to cultural interpretation and constant change.

Physical artifacts used in play that are not attached to systems of constitutive game rules, are generally called *toys*, or *gaming implements* when they are artifacts used in one or more games. In addition to convention, there are two likely reasons why the *Pac-Man* and *Arkanoid* arcade machines are nevertheless generally called games. The first is that they operate based on algorithmic rule sets: Perhaps those materially embodied brute facts count as rules in general parlance, even though they are not social rules. The second is that they are surrounded by an implicit set of rudimentary constitutive rules known to most members of our culture, such as "Pushing the start button counts as beginning of a game". Without such a system of rudimentary rules, some actions could not count as cheating, and it is possible to cheat in many games that are almost exclusively based on materially embodied rules.[43]

For a social constructionist, it would appear that a multifaceted reading of rules is necessary for making sense of many play situations: After all, different people in the stadium perceive the *100m* differently. Referees and coaches have a full understanding

---

[42] Preface, *Laws of Chess*. Ref. September 21th, 2011. www.fide.com

[43] The game of *SimCity* takes place almost entirely within the domain of brute facts, but it is still possible to take brute actions that count as cheating in the context of the game, ranging from hex editing to cheat codes. Even though the cheat code "FUND" is made possible by the algorithms of *SimCity*, it is usually considered cheating in the constitutive rules surrounding the use of the game program. (The use of cheat code cannot break Searle's (1995, 27-28) regulative rules, because the game does not exist antecedently of the code.)

of the nuances, including the Rule 35.17, but for majority of the audience, the dash itself is the game. For a scholar interested in pervasive games it is revealed that the public performance displayed to the audience is only the tip of the iceberg: All track and field sports are pervasive games in the sense that their rule-governed processes extend far beyond the stadium. The anti-doping protocols expand the magic circle of play spatially, temporally, and socially (Paper III), and thus the social institution of the *100m* dash pervades the whole life of a professional athlete.

For the same reason, the difference between social and formal rules is hazy as well. If two people agree to play six holes of a *golf* course, they can be seen either applying a social rule on the codified formal system of *golf*, or they can be seen as creating a formal system of *six-hole-golf*. The reason behind this difficulty is the fact that in the constructionist paradigm of this work, all "formal" game rules are social facts. They are social facts belonging to our cultural category of "game rules".

Since institutions are constructed on top of each other, the question is also about where the lines of games are drawn. Traditional *chess* is a well-known institution with clear rules. Tournament *chess* includes all the rules of traditional *chess*, but competition rules are added to them.[44] These rules significantly alter the gameplay: Timing is perhaps the most prominent change, but the competition rules also add many more ways for the player to lose the game besides checkmate – such as taking an action that brings the game of *chess* into disrepute. The question is: Is competitive FIDE *chess* the same game as traditional *chess*? Rather than forcing an artificial solution to the dilemma, I believe that a scholar must be aware of their similarities and differences in order to discuss them validly, generally, and in context.

Related to this discussion, I have presented some notes on rule classification in Paper II, pertaining to formal, social and internal rules. The process of co-creative diegesis construction (see below; Paper II) largely operates within the domain of internal rules. The invisible rules of role-playing are artificial in the sense that role-players do not use them to shape their activity. Rather, they are an attempt to make an

[44] Taylor (2009) has observed the play of *Starcraft* in a cybersport tournament, where a similar process is done to the game of *Starcraft*. A professional tournament requires the construction of an entire rule system around the algorithms of the digital game, dictating issues ranging from acceptable hardware to deciding whether certain possible play moves were considered legal parts of play or unacceptable exploits of software bugs. Even the professionals who need referees to arbitrate rules interpretations.

invisible structure visible by means of codification – or turning tacit knowledge of role-playing into explicit knowledge of role-playing.[45] While the *endogenous rules* discussed in Paper II belong in the category of formal rules, and *exogenous rules* usually belong in the category of social rules, *diegetic rules* mirror the other rule categories within the domain of game fiction.

This analysis of the ambiguity of rules undermines the perceived simplicity of game systems, and highlights the value of understanding them as complex ephemeral processes in a social constructionist manner (Paper I). In Paper III (also Montola et al. 2009a, 197-198) and Paper I, I have touched upon how systems such as legislation and the laws of nature influence play.

Those are just some examples of how rules governing games are more complex than our first intuition, but they explain why ephemerality and a social constructionist approach are particularly appropriate for the study of pervasive games and games featuring role-playing.

2.2 Domains of Play

Play takes place in its special sociopsychological environment. Before proceeding to the discussion on role-playing and pervasive games, it is necessary to discuss the domains of play in two different senses.

When the domains of pervasive role-play are studied sociologically from "outside" and psychologically from "inside", two social constructions can be distinguished. Looking at gameplay from the outside, the external domain of play is in the center of attention. That domain is understood through the concept of the *magic circle of play*. When looking at gameplay from the inside, the internal domain of play is central; it is understood through the concepts of *game world* and *diegesis*.

An in-depth understanding of the magic circle of play is essential for understanding pervasive gaming, whilst an in-depth understanding of diegesis is essential for the understanding of role-play.

[45] See e.g. Nonaka & Takeuchi (1995) for the concepts of tacit and explicit knowledge.

2.2.1 Magic Circle of Play

In the recent years, the *magic circle of play* has become one of the most discussed concepts in game studies. Even though interpretations of the concept have faced criticism (Copier 2005; Pargman & Jakobsson 2006; Malaby 2007; Woodford 2008; Consalvo 2009)[46], the idea that play is somehow differentiated from the rest of our social existence seems intuitively necessary for the study of play. By example, there is a need to understand the reasons why we culturally consider a punch delivered in a boxing match very differently to a punch delivered on the street (see Lastowka 2009; Castronova 2005, 156-157; see also Montola et al. 2009a, 197-213).

The concept of the magic circle has evolved gradually, beginning from Huizinga who wrote about the spatiotemporal separation of play and ordinary life:

> 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 1938, 10.)

Similarly, Peter L. Berger and Thomas Luckmann discuss how special zones can be socially constructed within the "reality of everyday life", using the example of the theater:

> The transition between realities is marked by the rising and falling of the curtain. As the curtain rises, the spectator is "transported into another world" with its own meanings and an order that may or may not have much to do with the order of everyday life. As the curtain falls, the spectator returns to reality. (Berger & Luckmann 1966, 25.)

As already discussed, Gregory Bateson (1955) discussed how *metacommunication* frames the way playful interactions are interpreted. When animals play, they

[46] As Juul (2008) and Zimmerman (2012) argue, these criticisms tend to be aimed at straw man versions of the concept.

metacommunicate the playfulness of their technically aggressive actions, indicating that the playful fight is not about real aggression. As was discussed earlier, the metacommunication is based on the fact that games are systems of endogenous meaning; i.e. the animal aggression is not real aggression, but only aggression within the framework of play.

Michael J. Apter (1991; 1992, 25-29) has discussed how the framework of game protects the players from physical and psychological harm. A part of the thrill of the game may come from a perceived risk, when the players *know* that they are shielded from it:

> In play, we seem to create a small and manageable private world which we may, of course, share with others; and this world is one in which, temporarily at least, nothing outside has any significance, and into which the outside world of real problems cannot properly impinge. If the 'real world' does enter in some way, it is transformed and sterilised in the process so that it is no longer truly itself, and can do no harm. (Apter 1991.)

Erving Goffman discussed play as something surrounded by an *interaction membrane* (1961, 65), which is very close to the way most game scholars use the term "magic circle".[47] As Eva Nieuwdorp (2005) discusses, Goffman discusses three specific boundary-maintaining mechanisms: *rules of irrelevance*, *realized resources* and *transformation rules.*[48]

Rules of irrelevance mean that for the duration of play, the players forswear "any apparent interest in the esthetic, sentimental, or monetary value of the equipment employed" (Goffman 1961, 19). The token in *chess* is treated just as a token, whether it is made from gold or from wood.

Games are carved out of realized resources; "the material for realizing the full range of events and roles of these worlds is locally available to all participants" (Goffman

---

[47] Much closer than anything that Huizinga's take, actually. For Huizinga, the "magic circle" was not a boundary, but one of many examples of ritualistic spaces formally indistinguishable from play. (See also Copier 2005.)

[48] Discussing in the context of larp, Harviainen (2006) discusses the rules of irrelevance with the term *eidetic reduction* and the transformation rules as *semiotic re-signification*; see also Loponen & Montola (2004) for discussion on the semiotics of larp.

1961, 28-29). This means that for Goffman, games are (to some extent) closed systems. Everything from tokens to the roles that are needed for playing the game are present at hand, and players seek to disregard external matters by way of rules of irrelevance. Even though Goffman's main focus is in games as social (face-to-face) gatherings, this notion resembles Costikyan's (2002) idea of games being systems of endogenous meaning: Players know what is relevant for the game that is being played, and they focus on the relevant meanings while seeking to disregard the rest of the world.

Transformation rules handle information that enters the magic circle, as "an external pattern of properties is given expression in the encounter" (Goffman 1961, 33; cf. Castronova 2005, 147). The transformation rules decide what endogenous meanings are given to exogenous meanings entering the magic circle. Kendall L. Walton (see also Ryan 2001a, 105-107) provides an excellent example on the rules of transformation:

> "Let's say that stumps are bears," Eric proposes. Gregory agrees, and a game of make-believe is begun, one in which stumps – all stumps, not just one or a specified few – "count as" bears. Coming upon a stump in the forest, Eric and Gregory imagine a bear. Part of what they imagine is that there is a bear at a certain spot – the spot actually occupied by the stump. (Walton 1990, 37)

In this instance of paidia, there is a rule transforming tree stumps to bears. However, for Goffman the three mechanisms of rules of irrelevance, rules of transformation and realized resources do not suffice to separate a gaming encounter from the wider world. Instead, he deepens this to the organic metaphor of a living cell surrounded by an *interaction membrane*:

> It should now be evident that the concept of transformation rules does not cover all the facts. When the wider world passes through the boundary of an encounter and is worked into the interaction activity, more than a re-ordering or transformation pattern occurs.
>
> […]
>
> A living cell usually has a cell wall, a membrane, which cuts the cell off from components in its external milieu, ensuring a selective relation between them and the internal composition of the cell. The resilience and health of the cell is expressed in the capacity of its membrane to maintain a particular selective function. But unlike a set of transformation rules, a membrane does the actual work of filtering and does not merely designate that a selection from the external milieu is being maintained. Further, the membrane is subject to many threats, for it can

> sustain its function over only a small range of changes in the external system. (Goffman 1961, 65-66.)

In my reading[49] of Goffman, the rules of transformation and the rules of irrelevance *are not enough* to contain the realized resources within the sphere of play. While those structures are somewhat active rules (like the decision that tree stumps are bears), which need to be consciously understood by the players, the interaction membrane is a more passive and a more fundamental cultural structure. Players invoke it intuitively while playing, and it becomes obvious whenever they try to continue playing despite external disturbances.

If we combine Goffman's elements of interaction membrane, rules of irrelevance, realized resources and transformation rules, and translate them to the language of contemporary game studies, it would appear that for him, the magic circle is a social and cultural structure that contains endogenous meaning within. The circle is not impenetrable: It selectively filters and transforms exogenous meaning to endogenous meaning. Sometimes the magic circle comes under excessive pressure, in which case the game is interrupted or terminated. This interpretation of Goffman resonates strongly with most of the contemporary uses of the concept of magic circle that was coined, established and popularized by Salen & Zimmerman (2004, 94).

Magic circles of different cultural activities present themselves differently. Sometimes the magic circle is brief and momentary, invoked implicitly like a Goffman's (1974; also Fine 1983) interaction frames. When two people face off in a round of *rock-paper-scissors* they invoke a magic circle that lasts for a few seconds and includes no physical artifacts.

Sometimes the magic circle is a long-standing cultural geographical area, similar to a *region* as discussed by Goffman (1956, 106), deeply ingrained in culture and

---

[49] Nieuwdorp (2005) reads Goffman's slightly ambiguous essay differently – for her, these three mechanisms are the elements of the interaction membrane or magic circle. Goffman (1961, 79-80) also supports my reading, saying that "There is a set of transformation rules that officially lays down what sorts of properties are to be given what kind of influence in the allocation of locally realized resources". I would argue that it is a transformation rule that gamblers transform their real money to poker chips, but a function of the interaction membrane that the game proceeds even though participants are talking about everyday affairs in the table.

persistently visible. When a person enters a *basketball* court, the remnants of a magic circle are easy to detect even when there is no game going on.[50]

And sometimes the magic circle can be a very strict and powerful boundary that creates a very tangible microcosm within (see e.g. Harviainen 2012; Harviainen & Lieberoth 2011).[51] For example, larps sometimes seek both physical and semiotic isolation from the ordinary world, trying to minimize outside disturbances (e.g. Koljonen 2007; Hopeametsä 2008; Paper VII; Koljonen 2010).

David Myers relates to the idea of the magic circle, in a way that echoes Costikyan's (2002) notion of games as structures of endogenous meaning:

> When we play with objects, for instance, those objects are not what they are; when we play with others, those others are, for the moment, not others. And when we play with self, that self is something other than what it is: anti-self. The so-called magic circle of play attempts to distinguish between what lies on either side of this anti-form: the real and the make-believe, the necessary and the frivolous. However the contents of play – those objects and forms that are played with – are, again, less characteristic of the play experience than are the formal properties of the boundary condition itself. This boundary condition results from negation, or not-ness, or from what I will call here an anti-form. (Myers 2010, 33.)

Thus, Myers focuses on the transformative quality of the magic circle; it transforms the things within into something of an anti-form. The metacommunication signifies that the player is not herself during play, which also explains the protective quality of magic circle. The important part a about the protective and separating quality of the magic circle is that is not about *isolation*, but about *transformation*.[52]

---

[50] Steffen P. Walz's (2010) archaeology of ludic spaces illustrates this point in great detail.

[51] Authors such as Harviainen (2012) argue that this effect is powerful enough to constitute a *liminal space*, at least in some games.

[52] This distinction addresses much of the criticism of the magic circle (e.g. Pargman & Jakobson 2006; Taylor 2006, 151-152; Copier 2007, 26; Woodford 2008; Consalvo 2009), where the magic circle is perceived as a strict isolating structure. Actually, seems to be impossible to find a scholar arguing *for* such a point: Bateson (1955), Goffman (1961), Salen & Zimmerman (2004, 96-97), Castronova (2005), Nieuwdorp (2005), Taylor (2006, 151-154), Järvinen (2008, 87-89), Juul (2008), Lastowka (2009), Myers (2010, 33), Denward (2011), Harviainen & Lieberoth (2011), Glas (2011), Zimmerman (2012) and this dissertation are examples of works that see the boundary of play and non-play in terms of transformation or filtering rather than in terms of isolation. The *normative* proponents of isolation

Even though Searle (1969; 1995) does not discuss games as being surrounded by a boundary or requiring a particular spatial configuration, Searle's idea of constitutive rules nails down the idea of the magic circle as a transformative boundary that produces endogenous meaning. It was mentioned above that Searle's constitutive rules are of the form "X counts as Y in context C". In the context of games, it can be expressed as follows: "X has the endogenous meaning Y in the context of the magic circle". The original X does not vanish in context C, and thus everything in the magic circle carries one additional layer of meaning – termed endogenous meaning. Of course, players usually adhere to the rules of irrelevance and disregard X, focusing on Y instead.

In this work, the magic circle is treated largely as a *contract* (Paper III) that is a central constitutive rule for the game institution that serves as the context of gameplay in Searle's sense. That contract is usually metacommunicated through use of structures such as Goffman's frames and regions, which in turn reproduces those structures. The metacommunication of a boxing match is about an implicit agreement that the participants are now allowed to hit each other in the face, but only with their gloves and until the round ends.

The magic circle is always a socio-cultural construction, only possible within the larger structure of the outside society. It always has *some* kind of spatial and temporal dimensions, but in games such as single-player computer games, those dimensions can be minimalistic and blurry.

All games need some kind of a magic circle contract as a constitutive rule, in order to be to be considered as games. This distinction becomes very important in the context of pervasive games: If we assume a citywide combat game based on water guns, the participants implicitly or explicitly agree that they may get wet. Outsiders, however, are not a part of the contract (see Montola et al. 2009a, 211-212).

The transformative qualities of the magic circle explain how it shields players from harm as discussed by Apter (1991; 1992). However it is misleading to characterize the magic circle as a protective shield. Rather, it is an illusion, making players think that they play with something dangerous, even though they really only play on a layer of

(Castronova 2005; Nachmanovitch 1990, 74-77; Klabbers 2006, 54-57; and perhaps also Huizinga 1938; Flanagan 2009) of course also implicitly acknowledge that the magic circle is precarious, penetrable and connected to the larger society.

meaning constituted on the idea of danger. When characters suffer tragedies and players are "shielded" from harm (see e.g. Montola & Holopainen forthcoming), they are only shielded in the sense of never having been in the harm's way in the first place.

Toni Sihvonen (1997) has proposed that in role-playing games there exists (or should exist) an implicit *role-playing contract*, an agreement making it forbidden to make assumptions regarding players based on their characters and vice versa. For instance, if the player portrays a character that is a misogynous racist, it is forbidden to label the player a racist. Even though the role-playing contract is an important implicit ideal that, to some extent makes pretend play possible, it is frequently overlooked and far from universal. The *DragonRealms* sexual harassment rule mentioned earlier, is an example of how some themes are sometimes considered inappropriate subjects for role-playing.

Another illusionary power of the magic circle is that it can serve as a social alibi for doing strange and unacceptable things (see Poremba 2007; Paper III; Paper VI), and this power is derived from the same origins. In the game of *Twister*, it is acceptable to get within intimate distance[53] with other players, because in the context of the game, you have to take the legal game move of stepping on the red circle. The players can conveniently pretend that the fact that making the best possible game move (Y) counts as entering someone's intimate space (X) in the context of ordinary is just a coincidence – while in fact it is the point of the game.

This analysis also underlines the fact that the magic circle of play is in no way a unique sociocultural boundary. Metacommunication, communication frames, regions, social institutions, constitutive rules and layered meanings are present in all human interaction. Our social reality is full of all kinds of layered meanings, and play and gaming are based on adding additional layers. Thus, when game scholars contrast play with "ordinary life", it should not to be read to mean that there are only two types of activity in human life, and that game scholars study one half of it. Rather, "ordinary life" is shorthand for all cultural contexts that are not flagged as playful. Goffman's

[53] See Hall (1966, 116-124) for detailed account on intimate, personal, social and public distances. We get rarely within intimate distance with strangers, where we are able to sense each other's body heat, body odor, hear breathing et cetera. That of course is the thrill of the game of *Twister*.

(1956) studies of presentation of self in everyday life examine some sociocultural boundaries that have nothing to do with play.

2.2.2 Game World and Diegesis

While the magic circle is the central domain for understanding pervasive games, the concepts of game world and diegesis describe the central domain for understanding role-play. This chapter begins from the objectivist concept of *game world* and proceeds toward a subjectivist *diegesis* model, where every player is considered to have a subjective and internal understanding of the game.

Game world is typically used as a theoretical construction where the core activity of gameplay takes place. Jesper Juul (2005, 122-130) categorizes games based on their fictional worlds as *abstract games*, *iconic games*, *incoherent world games*, *coherent world games* and *staged games*, arguing that abstract (such as *Tetris*) and iconic games (such as card games) do not project fictional worlds, while the world of *Donkey Kong* is incoherent and contradictory, for reasons such as Mario's unexplained three lives.

In this work, I opt for a wider idea of the concept of game world: All games have elements that are socially produced in play, elements that do not belong in the realm of brute facts but in the realms of social facts and/or imagination. In the simplest cases, like in the game of *Yahtzee*; a game world may resemble a computational state machine where only a few numbers exist, while the worlds of massively multi-player online games can be as complicated as our everyday social reality. In the game world of *Donkey Kong*, the protagonist indeed has three lives, and when he dies, he has to start the level over. The spatiality of that world is organized around levels, and its temporality has properties such as starting over after dying.[54]

---

[54] Juul (2005) mentions that he did an informal survey of *Donkey Kong* players, in which "all players explained the three lives by appealing *to the rules of the game*" instead the presumed nature of the *Donkey Kong* world. My use of concepts differs from Juul's: In the objectivist, system-centric (Paper I) sense of game world, there is little room for interpretations on whether magical reincarnation exists in the world of *Donkey Kong*. Such speculation requires subjective interpretation of the game world, which is covered later, under the concept of diegesis. As Searle (1975) points out: "[T]here is no universal criterion for coherence: what counts as coherence in a work of science fiction will not count as

Like games themselves, game worlds are social institutions. They are constituted through the rules of the game. For instance, the starting position of a *chess* game world is constituted by rules declaring the properties of the board and the relationships of the pieces, and stating the initial positions of each piece. Because game worlds are constructs of endogenous meaning, they are invariably surrounded by some kind of contractual magic circle.

Just like the ordinary world, game worlds can only exist (as game worlds) in the present. Historical facts about a given game world are often narrativized, but the game world as a construction is always perceived, interpreted and manipulated through its present state.[55] It is essential for the idea of game world that it is a construction ready to be explored or altered: The point of gameness is that the players reconfigure and work on the fictional world (see Eskelinen 2001; Aarseth 1997, 1-2; Bogost 2006, xii). Even though game worlds always exist in the present, their temporal properties can differ from the temporality of the real world. For instance, the world of traditional *chess* is turn-based, so unless the game is over, it is always someone's turn in the world of *chess*.

In physical games, such as *golf*, or *chess* played on a chessboard, brute facts directly represent parts of the state of the game world. The constitutive rules of *chess* declare how the physical pieces must be set up in order for their arrangement to count as the opening position in the context of the game. Moving a token counts as a *game move* in the context of the game.[56] Swinging a club in a certain fashion counts as one stroke in *golf*. Rolling dice in *Yahtzee*, moving pieces in *chess* and swinging the club in *golf* all enact changes in their respective game worlds. If someone trips on the chessboard, scattering the pieces, it does not effect change in the game world – the pieces are

---

coherence in a work of naturalism. What counts as coherence will be in part a function of the contract between author and reader about the horizontal conventions."

[55] Due to save games, the game worlds of digital games can exist in many copies with differing temporalities.

[56] See "Article 4: The act of moving the pieces" in *Laws of Chess* for the detailed constitutive rules that determine the ways in which different physical actions count as game moves in tournament *chess* – including the speech act of declaring "j'adoube" for moving a piece without it counting as a move. *Laws of Chess*. Ref. September 21st, 2011. www.fide.com

rearranged before the game continues.[57] Many pervasive games (like the *Prosopopeia* prototypes) use our everyday social reality as their game world, just adding additional layers on top of it.

Yahtzee, *chess* and *golf* are comparatively simple cases of game worlds, cases where the very concept is almost unnecessary. Only in exceptional cases we notice that the physical setup of the *chess* pieces and the state of the ongoing game are two different things, but it is obvious when we rearrange the scattered pieces. The social reality of *Yahtzee* is so simple and mathematical that the only reason to call it a "game world" is its functional resemblance to more complicated game worlds. The role of material reality in the construction of the game world of *golf* is so dominant that things exist in the game world of *golf* even when no conscious actor is aware of them, ranging from air currents to properties of the ground and even animal life. The relationship of swinging the club and impacting the ball can be characterized as *indexical*, but the act also carries the symbolic weight of being counted as one stroke in the scoring of the game (see Paper III for indexical, iconic and symbolic representation of game world).

Such games can usually be studied with objectivist conceptions of the game world. However, this dissertation is about role-playing, which is imaginative pretend play, and pervasive games, which are often transmedial and based on creating a fictional layer on top of the everyday world. Such games require a subjectivist understanding of game world is required.

To start the journey from *golf* to role-playing games, we have to start from the fact that role-play is fundamentally *pretend play*, or *make-believe*. Angeline S. Lillard lists the following five components that are necessary and sufficient for pretense:

> 5. A pretender.
> 6. A reality (obviously omnipresent)
> 7. A mental representation that is different from reality
> 8. A layering of the representation over the reality, such that they exist within the same space and time
> 9. Awareness on the part of the pretender of components 2, 3 and 4.
>
> (Lillard 1993.)

[57] This is done informally in traditional *chess*. In tournament *chess* governed by the *Laws of Chess*, tripping over a chessboard does not count as an act of moving a piece (as in Article 4), but as an irregularity, as in Article 7. *Laws of Chess*. Ref. September 21st, 2011. www.fide.com

The central takeaway from Lillard's analysis is the way it supports the notion of layering additional meaning on top of the pre-existing social and brute reality. Kendall L. Walton describes *social imagining* as follows:

> Fantasizing is sometimes a social event. There are collaborative daydreams as well as private reveries.
>
> We sometimes make agreements with one another about what to imaging: "Let's imagine traveling on a spaceship headed for Pluto." "OK, and let's say that while passing Saturn we are attacked by a band of space pirates." Joint fantasizing allows people to pool their imaginative resources. Together they may be able to think of more exciting things to imagine than they could come up with separately, or more interesting or satisfying ones. And participants in a joint fantasy can share their experiences with one another. They can discuss what they imagine and compare their reactions to it.
>
> The social activity I call collective imagining involves more than mere correspondence in what is being imagined. Not only do the various participants imagine many of the same things; each of them realizes that the others are imagining what he is, and each realizes that the others realize this. Moreover, steps are taken to see that the correspondence obtains. And each participant has reasonable expectations and can make justified predictions about what others will imagine, given certain turns of events. (Walton 1990, 18.)

Walton calls this kind of process *deliberate* imagining, where people actively seek to imagine things that others are describing, and states that what is lost in this process is the vivacity of spontaneous imagining. Tabletop role-playing in particular is a process of deliberate imagining, but the element of deliberate imagining is essential for all role-play.

To discuss the element of this deliberate imagining, the concept of *diegesis* has been adopted to role-playing research through film studies.[58] While diegesis was originally used to mean "telling" or "recounting", in contrast with the "showing" of *mimesis*, in this work the term is used to address fictional worlds in a way that has been used in film studies. Diegeses are imaginary worlds constructed in play processes.

---

[58] See the Nordic larp theory pieces such as Pohjola (2000), Hakkarainen & Stenros (2002), Andreasen (2003) and Montola (2003). Aristotle uses the term quite differently in *Poetics* [1920]. According to Bordwell & Thompson, the precise meaning of "diegesis" is "recounted story". Based on the original meaning of the word, Timplalexi (2011) has argued against the use of the term in role-playing theory.

David Bordwell & Kristin Thompson provide the following glossary definition for diegesis:

> In a narrative film, the world of the film's story. The diegesis includes events that are presumed to have occurred and actions and spaces not shown onscreen. (Bordwell & Thompson 1986, 502.)

Thus, it can be said that film music is *diegetic* if it is read to be a part of the story world: If a film character plays violin, or goes into a ball where orchestra is playing, she can hear the diegetic sound also represented to the movie audience. However, if she sneaks into an empty house, and violins are used to create tension, the music is *nondiegetic* or *extradiegetic*, it does not exist in the world portrayed in the movie. No character in the story can hear extradiegetic music.

Bordwell & Thompson use an example from a movie to clarify:

> In the opening of *North by Northwest*, the traffic, streets, skyscrapers, and people we see, as well as the traffic, streets, skyscrapers, and people we assume to be offscreen, are all diegetic because they are assumed to exist in the world that the film depicts. (Bordwell & Thompson 1986, 70-71.)

As every viewer has different personal experience, history and knowledge, every viewer constructs a separate and different diegesis based on the art piece: If a movie is set in New York City, a viewer familiar with the place constructs a very different image than someone who has never been to New York. The meanings of individual buildings are different. A long gone building might trigger nostalgia, while the place of a car crash might trigger a bad memory. In the context of games, the way the player constructs her diegesis while playing *Mass Effect 2* depends on whether she played *Mass Effect*, not only because the decisions of the first game carry on to the second game, but also because she simply has more information about the galaxy portrayed in the game series.

Figure 5. Un dimanche après-midi à l'Île de la Grande Jatte by Georges-Pierre Seurat. According to Walton (1990, 60), it does not portray hippopotamuses wallowing in a mud hole. (Source: Art Institute of Chicago.)

Walton argues that the function of a representational art is to serve as propositions for games of imagination. The painting invokes the world of the painting in the viewer's mind through representation.

According to Walton, however, the world created by the viewer and the world of the artwork are different, and must be conceptually separated. Using *La Grande Jatte* (Figure 5) as an example, he writes:

> But we must insist on distinguishing between the two worlds. If work worlds are not distinct from game worlds in which the works are props, how are we to decide which of the worlds of the various games that different appreciators or appreciators on different occasions play with *La Grande Jatte* is to be identified with the world of *La Grande Jatte*? If this cannot be decided nonarbitrarily, we are forced to regard the world of the painting as a world over and above those of appreciators' games.
>
> […]
>
> People can play any sort of game they wish with a given work. We could arbitrarily decide to adopt a principle of generation whereby, because of the patterns of paint sported by *La Grande Jatte*, we are to imagine a pair of hippopotamuses wallowing in a mud hole rather than a couple strolling in a park. This would make the former proposition fictional in our game and the latter not.

> But it would not change the world of the painting. It would not then be *La Grande Jatte* -fictional that hippos are wallowing in a mud hole, not even if all viewers of the painting should for some reason choose to play games in which this is fictional. And it would still be *La Grande Jatte* –fictional that a couple is strolling in a park.
>
> Our notion of function comes into play here. It is *La Grande Jatte's* function, its purpose, to serve as a prop in certain sorts of games – games involving a principle of generation which results in the fictionality (in those games) of the proposition that a couple is strolling in a park. It is not the function of *La Grande Jatte* to be a prop in games in which fictionally hippos are wallowing in a mud hole, no matter what games people actually play with it. The hippopotamus game is inappropriate for the painting, *unauthorized* (in the sense defined earlier); to play it is to misuse the work. This is why it is not *La Grande Jatte* –fictional that hippos are wallowing in a mud hole. (Walton 1990, 59-60.)

While Walton's view of artworks as proposals that prompt the viewer to play games of imagination is very fruitful and appropriate for the discussion on game worlds in this work, the social constructionist approach of this work (Paper I) must question the idea of "authorized" and "unauthorized" games played with works of art. Even though the intentional fallacy (Wimsatt & Beardsley 1946), the death of the author (Barthes 1967), and the subjectivity of interpretations in general have been thoroughly discussed in the field of literary theory, game studies in general subscribe to objectivism better suited for the study of *chess* and *Super Mario Bros* than for the study of role-playing and pervasive gaming. Thus, we must again ask: Who is the party to authorize readings of *La Grande Jatte*?

Many works that are created in dynamic and networked collaboration have no singular authority to decide what is authorized and what is not. For example, sometimes films are created to intentionally mislead the viewer, purposefully guiding the watcher to construct a diegesis, that is later on revealed to be "incorrect": For example, in David Fincher's 1999 movie *Fight Club* the watcher is mislead about one of the main protagonists, Tyler Durden, to the very end, where the character is revealed to not exist physically in the world of *Fight Club*, only as a delusion in the narrator-protagonist's mind (Figure 6).

Figure 6. Despite the seemingly explicit audiovisual evidence, Brad Pitt's character (left) perhaps does not exist as a person within the world of *Fight Club*. A case of a lying narrator illustrates the problems of authorized readings. (Source: *Fight Club*.)

There are authors like David Chase, who persistently refuse to explain the diegetic events concluding the final episode of *The Sopranos*, leaving the audience confused on the intended reading.[59] Damon Lindelof, on the other hand, misrepresented the authorized reading of *Lost*, in order to make it harder to predict the future events of the series.[60] Are we to interpret that Chase authorizes us to read whatever we wish into the ending of *The Sopranos*, and that Lindelof did not authorize the "correct" reading of

[59] The episode, *Made in America* ends in a surprise cut to black in the middle of a family dinner. One interpretation is that the protagonist Tony Soprano is killed and never knows what hit him (and thus the audience is cut off just like him), while another interpretation is that the series just portrayed a period of time in the life of the family, and the end of the series is just as arbitrary as the beginning. For this argumentation, it is sufficient to understand that the ending is vague, and that the authors of the episode refuse to explain it.

[60] According to SCI FI Wire, Lindelof commented in 2005 that "There isn't any time travel" in the series. After the interview, and before the series ended, it was made explicit that there had been time travel. See www.scifi.com/scifiwire/handheld/30246.html, ref. December 2009 via the Internet Archive.

Lost? Role-playing games frequently utilize larger story worlds, such as the *Star Wars* universe, that are represented in numerous works with varying levels of authority (see Butler 2011).

Such questions are perhaps of little consequence for the study of a 19th century painting. All Western adults in a good mental health see people, not hippopotamuses, in *La Grande Jatte*. Our belief in this fact is so strong that if we can indeed confirm that if someone truly sees hippopotamuses in the painting, we are more likely to question their status as a healthy adult than the contents of the painting.[61] However, the games under scrutiny in the included papers are based on ambiguous and complex expression, where authority is very difficult to locate. Pervasive games feature distributed narratives, fabrication and vague authorship (see Paper III; also Montola et al. 2009a), and role-playing is all about co-creation and intersubjective interpretations (see Paper II; Paper I; Loponen & Montola 2004; Montola 2003; Mortensen 2003).[62]

The joint fantasizing of role-play is based on the process where every participant makes statements about the state of the fictional world on their turn. In speech act theory these statements are considered *illocutionary* acts; by uttering something, the participants make changes to the social reality. Like there are contexts in our society where an official can declare a marriage to exist between two people, tabletop role-playing games are contexts where the game master may declare a fictional dragon to exist, and a player may declare her character to swing a sword at the dragon. For the

---

[61] Psychology of perception is the discipline digging into the nature of universal representation. That discussion is beyond the scope of this dissertation, so I'll just note that Searle (1998, 1-37) has made an interesting realist argument. However, in his discussion on *epistemically objective social reality* created by ontologically subjective attitudes, he avoids ambiguous and complicated examples of social constructions (1998, 111-134). Thus, the objectivism of his argumentation is not entirely applicable for study of ephemeral games.

[62] To Walton's benefit it must be mentioned that later on in his book he softens his stance in the context of, for instance, classical music. He writes: "In the case of painting we recognize both worlds of works and worlds of appreciators' games of make-believe. A picture generates the fictional truth of the picture world, and it combines with the activities and experiences of the observer to generate the fictional truths of the world of his game. If in listening to music one engages in a game in which fictionally one experiences certain feelings or sensations, there is a game world. But it is not evident that we must recognize a work world as well. Are any fictional truths generated by the music alone, apart form anyone's listening to it." (Walton 1990, 336.)

game to proceed smoothly, this is done according to a known power structure (Paper II).

According to Searle (1998, 146-150), there are five types of illocutionary acts: *assertives* (statements representing a state of affairs), *directives* (commands and requests trying to make the hearer behave in some way), *commissives* (promises and expressions of commitment), *expressives* (apologies, thanks, congratulations) and *declarations* (speech acts that bring about changes in the social world). All utterances altering the state of the game world (in the present tense) are micro-scale declarations in the sense that they make something to happen or exist in the game world – by virtue of the declaration itself. Like an official declaring a marriage, the game participant needs appropriate authority for the declaration to be valid. If the utterances are representations of fictional dialogue, they can also have further illocutionary meanings in the game world.

When the players discuss the established history of the game world, they also use directives and assertives in the negotiation process. A role-playing discussion might proceed as follows:

1. Game master: The apartment looks like it was raided by the police. On the table, there's all sorts of junk from clothes to cutlery. The windows are boarded shut, but bright rays of sunlight sift through, clearly visible in the air. [declaration]
2. Player: I walk next to the table to have a closer look. [declaration]
3. GM: Sure, you walk closer [assertive] leaving footprints in the dust. [declaration]
4. P: Anything interesting the table? [directive]
5. GM: You start going through it? [directive]
6. P: Yeah. [declaration] My character has always been meticulous when it comes to this kind of stuff. [assertive]
7. GM: It's a bit too dark to make sense of it, but there's all kinds of everyday items, mostly broken and very old. Some old newspapers but it's too dark to read them. [declaration]
8. P: I thought there was light coming through the windows. [assertive]
9. GM: Well, yeah you're right, it's not that dark in there if you get right next to the windows. [assertive] Holding them up to the light you see that they are more than ten years old. [declaration]

As this dialogue illustrates, both the player and the game master *do* things through declarations. They occasionally request more information with directives. They refer to

previously established parts of the game world through assertions. In this case, the game master is improvising and coming up with more details as she goes. If she was running a game based on a written role-playing scenario, and she was checking details from there, statements 1, 7 and 9 could be also seen as assertives.[63]

As a further complication, all the declarations concerning the state of the fictional world also have an implicit function as directives: The utterance 2 is shorthand for "*Let's imagine* that my character walks next to the table to have a closer look". The utterance changes the state of the fictional world by the way of requesting or commanding the listeners to change what they imagine about the game world.[64]

The illocutionary value of statements follows Gary Alan Fine's (1983, 186; Paper II) frame analysis of tabletop role-playing: An utterance that is a declaration in the context of Fine's secondary (game) framework is not an illocutionary act in the context of Fine's primary framework (ordinary life). And if the utterance declares a speech act to happen in the game world, it can also be an assertive, directive, commissive, expressive or another declaration within the tertiary (diegetic) framework.

Scrutinizing the above example reveals why objectivism is less suitable for the study of game world in tabletop role-playing games than it is in *chess*. There is no way

---

[63] I disagree with Searle's (1975) position here: For him, fiction is created by pretended illocution. I find it unintuitive to theorize that an author of fiction would be writing *as if* the world of fiction was truth (1975, 324-325), and more natural that the author is intentionally building fiction by declaring things to be true in the fiction. Also, the idea of pretended illocution is theoretically unwieldy, because it is to argue that a significant category of assertives does not even intend to fit pre-existing reality. Searle (2010, 20-21) brings up the immaterial example of the game of *blindfold chess*, pointing out that social reality does not need to be based on physical artifacts. Making a role-playing character walk next to a table is technically identical to moving a piece on an imaginary chessboard – and my point is that the pieces of *blindfold chess* can only be moved through declarations, because assertives, directives, commissives and expressives cannot directly effect change in social reality. Following authors such as Castronova (2005), game worlds are real parts of social reality, even though the contract of magic circle is an important part of their constitutive rules.

[64] It appears to me that Searle's declarations are a special case of directives. "By the power vested in me, I now pronounce you husband and wife" is shorthand for "By the power vested in me, I now *order you to be treated as* husband and wife". Like directives, declarations need to be followed to be satisfied, and whether they are followed or not, depends on context, status functions et cetera. Declarations are special directives, because they can indirectly address society in general, while directives tend to only target only their recipients.

to access the social reality of whether the light declared in utterance 1 is bright enough for reading an old newspaper – except through its representations. Differences in interpretations tend to create conflicts that need to be arbitrated based on conflicting subjectivities. In the utterances 8 and 9 above, the participants negotiate the differences of their imaginings; perhaps the player had imagined the room as being shadowy, while for the game master it was almost pitch black. It is impossible to say whether the utterance 9 is about the game master offering a compromise, as is frequent in such negotiations, or whether he clarifies to player what he already had imagined. In the former case, the entire utterance would declare another change in the diegesis; while in the latter case, the utterance begins with an assertion in the way marked in the example.

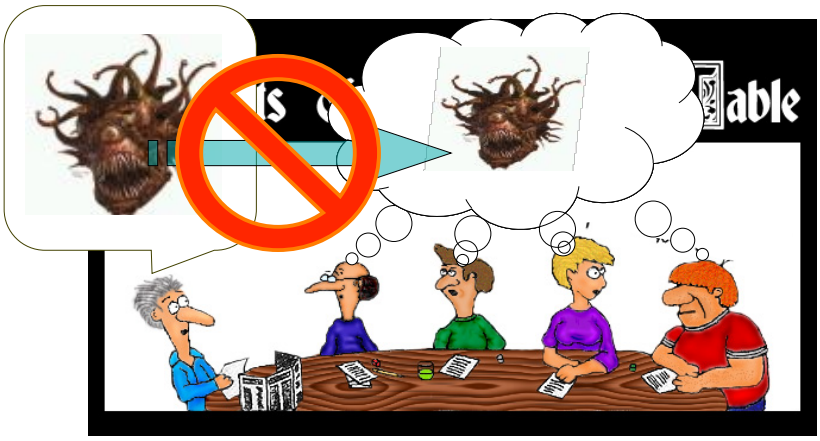


Figure 7. Wrong – the game master on the left is unable to transmit precise ideas to players without the process of semiosis. (Andreas Lieberoth, 2006, based on a strip from Jolly R. Blackburn's comic *Knights of the Dinner Table*.)

Figure 8. Right – every player has to decode the signs encoded by the game master on the left, and thus they imagine different things. (Andreas Lieberoth, 2006, based on a strip from Jolly R. Blackburn's comic *Knights of the Dinner Table*.)

The Figures 7 and 8 illustrate the subjectivity of diegeses. Figure 7 shows a (modernist) "common sense" understanding of a role-playing similar to Walton's example about space pirates: One player describes things, and others imagine things that he describes, constructing a world in a textual process. Figure 8 illustrates a more complicated (and in some sense postmodernist) version of the role-playing semiosis: The beholder is a classic monster from *Dungeons & Dragons*, but players have very different ideas on what a beholder should look like.[65] As is discussed in Paper II, the players are never able to reach an identical understanding about what is true in the diegesis. The best possible situation is that the diegeses are *equifinal*: they lead to indistinguishable consequences, and thus no contradictions can be detected.

For this reason, I have opted for Henry Bacon's (2000) subjectivist view on the concept of diegesis:

> A film offers the viewer only parts of the story and the imaginary world, but based on this material, and through using her knowledge on real world and various conventions of storytelling, the viewer constructs a story world, or a diegesis, with its stories and characters. (Bacon 2000, 47.)[66]

In Bacon's view it is central that every viewer constructs their own diegesis based on the materials provided and conventions used. In the context of cinema, where the art experience consists mostly of reception and semiotic decoding, this difference of diegeses usually stays invisible,[67] but in the praxis of tabletop role-play it is glaringly obvious.

---

[65] Searle (1998, 21) has criticized the perspectivism of antirealist postmodern authors who argue that "no one ever views reality directly as it is in itself; rather, they approach it from their own slant with their own assumptions and preconceptions." Such criticism is inapplicable when discussing the verbal fiction of role-playing, which is literally unreal in the sense that it only exists in representations, and can never be viewed directly "as it is in itself".

[66] Translated by the author from Finnish: "Elokuva tarjoaa katsojalle vain osia tarinasta ja kuvitteellisesta maailmasta, mutta todellista maailmaa sekä erilaisia kerronnallisia konventioita koskevan tietojensa (sic) avulla katsoja konstruoi mielessään tämän materiaalin pohjalta tarinamaailman eli diegesiksen henkilöineen ja tarinoineen."

[67] In the context of literature, the most typical experience of fundamental subjectivity occurs when the cover image or filmatization of the book is in conflict with one's subjective experience.

In order to deal with the intersubjectivity of role-playing expression, players use numeric rules, implicit and explicit genre statements and playing aids including maps, props and illustrations.

> Genre, style and rules are often overlooked but very essential elements in a diegesis; they decide whether charging a hundred orcs is [a] sensible choice for the toughest paladin in the kingdom. Player's diegesis almost always includes information his character doesn't know, and almost always it includes information the player doesn't realize he knows. Both gamemasters and players construct their diegeses from the same elements. (Montola 2003.)

Sometimes the signs of used in nonlinguistic declarations about the diegesis can be metaphoric or ambiguous. For example, non-diegetic background music can have a significant influence on the mood of the game, even when it does not have an intended denotation on how players should construct their diegeses. One Finnish game master serves extravagant dinners with vintage wines and single malt Scotch to convey the atmosphere of luxury in his fantasy role-playing game set in the J.R.R. Tolkien's Middle-Earth – even though Scotch probably does not exist in most interpretations of Middle-Earth.[68]

Considering the intersubjective nature of role-play, and the fact that equifinality is not easy to achieve even when the participants deliberately strive for it, and that they nevertheless use metaphoric and ambiguous methods of establishing truths about the diegesis, it would appear that tabletop role-playing is impossibly difficult. None of these properties make it impossible however, for several reasons.

First, tabletop role-playing games usually take place in one room with all the participants present, and the game master typically serves as an active arbitrator of what exists in the diegesis. This makes it possible to get around equifinality conflicts quickly after they become evident (see Paper II). Second, since the participants reiterate their understanding of the diegesis rapidly and continuously, over time they actually manage to establish a somewhat coherent understanding on what is true in the diegesis. Equifinality conflicts do happen regularly, but they can be arbitrated.

[68] At least, the people of Middle-Earth do not enjoy Scotch made in Scotland.

In other forms of role-playing, such as larp and online role-playing, this may not be the case. One of the *DragonRealms* players interviewed by Torill Mortensen illustrated this:

> OK, I'll use the mer-folk as an example. They are a great example from *Dragon Realms*: The mer-folk were about 7 races, because they were given a paragraph of information. They were never defined in that paragraph, physically. Ever. They breathe water, they breathe air, that's all we know. We don't know what colour they are, we don't know what their skin looks like, we don't know what their eyes look like, we don't even know if they have a basic humanoid structure. We assume they do, because in fantasy races everybody looks basically like people. And this was taken with a wild amount of diversity. There were people who came on that had – they had tails always, and legs. They were basically people with tails. There were people who came on and said they didn't have tails because it didn't matter, they looked like fish. They had gills, they had big bulbous eyes, and they had blue skin, the whole nine yards. (…) There were the other classes of people who said they look just like people and act like people. Then there was another group of people who said that they looked just like on Disney's Splash. They have legs on ground and tails in the water. It's amazing that a game can go on for a year and a half without this sort of things being defined. (…) Because there were descriptions of serpent-folk in the game with legs and there were descriptions of them without. That was – you know - it was very confusing. It was rather important. (Mortensen 2003, 206.)

This is where role-play in MUDs (such as *DragonRealms*) other online environments and larps differ from tabletop role-play: Even though differences in diegeses can persist for a long time in a tabletop role-playing game, they usually cannot persist after the participants have recognized them. In MUDs and larps, there is usually no authority present to act as a gatekeeper of the diegesis, and so players take on some of the game master's traditional responsibilities and deal with them in a decentralized manner.

Thus, we can summarize that in tabletop role-playing equifinality is possible because conflicts are discovered fast and the process of making declarations about fictional reality is iterative and rapidly self-correcting. Role-play in a MUD might lack these properties, but since the problems are local and dispersed, they do not endanger the whole process of diegesis construction even when they appear. In that sense, online role-playing is much more robust towards equifinality conflicts.

In the context of pervasive games, the importance of subjectivism is highlighted when the games are long, distributed and based on a complicated interplay of different

social contexts. In an extreme case, two players can play the same game, without ever visiting any of the same locations, meeting each other or communicating in any way. Because a *limited perception of the game world* is in some ways a desirable design aesthetic, such experiences are extreme, but not necessarily rare (see Paper VI; Paper IV).

Based on Bacon, I propose the term "game world" to be used as a denotation of an objectivist perception of the internal reality of game, while "diegesis" denotes the subjectivist construction of an individual player. As discussed earlier, game world can be seen as a social institution in Searle's sense. Diegesis, on the other hand, is an incommunicable piece of psychological reality that is used as a basis in the processual construction of game world.

The concepts of game world and diegesis are inherently contradictory, as the subjectivist view precludes the possibility of objectivist game world. In pragmatic terms, however, this difference is often unimportant for the study of games. For instance Mary Flanagan (2009, 63-64) uses the concept of *perfect information* from game theory when discussing *chess*: "all the information constituting the system of the game is visible on the game board at all times". Indeed, in a typical game of *chess* the players do not engage in deliberate imagining, and thus it is justified to use a systemic view on the game (Paper I). It is rare that two players are in genuine disagreement regarding the state of their *chess* game. Nevertheless, deliberate imagining in *chess* is *possible* (cf. Heliö 2004); for example, a player might identify with his king and seek revenge against the particular bishop that captured his queen.[69] In such cases, subjectivism is a necessary viewpoint. For the purposes of practical gameplay, the challenge of intersubjectivity is usually solved through adopting a *referee-centric view* of the game (see Paper I), in essence deciding that the referee's subjectivity determines the truth about the game world.

The concept of diegesis is related to Matthew Hills's (2002, 104) notion of *hyperdiegesis*, "a vast and detailed narrative space, only a fraction of which is ever directly seen or encountered within the text". Especially in role-playing games, the

[69] The social rules might forbid such imagining implicitly or explicitly, and require players to play "seriously" or play "to win" instead (compare with Bergström 2010a). However, combining board gaming with deliberate imagining can be a very successful game design strategy, as has been demonstrated by the miniature strategy games of Games Workshop, such as *Warhammer 40,000*.

books do not only contain rules about characters and playing the game; they also imply and directly describe broader worlds such as Games Workshop's Warhammer 40,000 world, Greg Stafford's Glorantha, J.R.R. Tolkien's Middle-Earth, or George Lucas's Star Wars Universe.

Daniel Mackay proposes the same construction, under the label of *imaginary-entertainment environment*:

> Today, the paperback, computer game, comic book, role-playing game, film and CD-ROM markets are all inundated by what I call *imaginary-entertainment environments*: fictional settings that change over time as if they were real places *and* that are published in a variety of mediums (e.g., novels, films, role-playing games, etcetera), each of them in communication with the others as they contribute toward the growth, history and status of the setting. Because they appear in so many mediums, imaginary-entertainment environments are always collaborative. In fact, often a brand name becomes more important than the author, director, or game designer of the latest manifestation of that milieu; this can be seen in the prominence of *Star Wars*, *Star Trek*, *Babylon 5*, *The Forgotten Realms*, *Dragonlance*, *Thieves' World*, and *The World of Darkness* – all of which take precedence over the name of the latest contributor. (Mackay 2001, 29.)

For most tabletop role-playing game campaigns, a previously existing and commercially published hyperdiegesis is a central foundation. The situation is different in larp, at least in the Nordic Countries, as most larps are created without use of such pre-created worlds (see. e.g. Stenros & Montola 2010).

While the temporality of game worlds and diegeses is always dominated by the present, hyperdiegeses are characteristically structured around timelines and histories. Even though hyperdiegeses usually include long fictional histories, the play follows a constructed "now" moving along the timeline. Players' actions in the now can, and are sometimes expected to change the future, while the game master is tasked by portraying the now while understanding the wider hyperdiegetic context.

In the context of pervasive gaming, Henrik Örnebring (2007) discusses how alternate reality games use hyperdiegeses for similarly narrative-oriented gameplay. According to Örnebring, both the fan-created and the official alternate reality games of the television show *Alias* occupy the "syntagmatic gaps" left by the series itself, although the two official games were much more intertwined with the series.

The importance of the concept of hyperdiegesis for our discussion on the game worlds is to underline that game worlds are layered structures. Even though directly

presented texts are the most important source for diegesis construction, co-creative play requires a common background to serve as a foundation, which is used as additional material in the diegesis construction. But the question of whether those elements are parts of the "game world" before they are brought to play by some participant is more convoluted.

Many contemporary Hollywood movies use the contemporary reality on planet Earth as their *de facto* hyperdiegesis (treating the reality of everyday life as a text, in a sense). Does Barack Obama exist in the diegeses of those movies, if there is no sign of him on the film? If yes, then do *I*, a Finnish game researcher, also exist in the diegeses of those films? In the social conventions of a typical tabletop role-playing game played in a contemporary setting, Barack Obama perhaps begins to exist when he is first mentioned or imagined.

In Paper II I argue that in order to maintain cohesion, the process of diegesis construction in role-play requires a power structure.[70] A similar need for a hierarchy of authorship applies to the construction of hyperdiegeses, whether they are constructed through film, literature, digital games or a combination of different media. In order to make sense of the convoluted structure of the *Star Wars* hyperdiegesis, Nathan P. Butler uses 10 layers of "canon", largely based on individual and corporate status.

> G-Canon (or George Canon) is what is *definitely* part of the saga […]. Much like how in religion, canon is the religion's major holy text, you can look at this as the "sacred" part of *Star Wars*. This is the stuff that supersedes all else, that which is part of Lucas' vision or a direct adaptation thereof. Based on conflict resolution decisions made over the years, we can further subdivide this (at least in practice if not in name) into five sublevels, which are not official by any means, but can at least help us keep in mind how far various incarnations of the films deviate from Lucas' definitive vision.
>
> The first of these sub-levels within G-Canon consists of the final versions of George Lucas's six-film *Star Wars* saga.
>
> […]
>
> The third of these sub-levels would include yet another, even earlier version of the films (an earlier version of Lucas' "definitive" film vision). This level includes the *original* versions of the *Classic Trilogy*. This level can usually only be overpowered by either of the two sub-levels above, meaning that, since in the

[70] Or a system of *cognitive authority* (Harviainen & Lieberoth 2011).

> *Special Edition* of [A New Hope], Greedo shoots first, Han did *not* shoot first as the *original* would have us believe. (Butler 2011, Appendix A, 5.)

Interpretation and construction of a hyperdiegetic canon is always a normative decision, where the "receiver" also wields agency. For instance Butler, above, argues that Greedo shot first in the famous fight in Mos Eisley. In *Star Wars: Episode IV – A New Hope* (1977) Han Solo shoots first, while in the 2004 version of the same movie Greedo shoots first. Butler takes the view that George Lucas, as the "creator" of *Star Wars*, is allowed to change the hyperdiegetic events retroactively, but it would be equally valid to argue that the original film is correct, and the special edition misrepresents diegetic history. It is up to the watcher to decide whether Lucas's changed version of the movie is a false assertion or a hyperdiegesis-changing declaration about what transpired in Mos Eisley.

Role-players are typically able to navigate the normative landscape of hyperdiegetic readings with little difficulty: As role-playing groups are small, they usually share the values needed for this process. Typically, role-players agree that the game master is the arbitrator of hyperdiegetic conflicts, just like she arbitrates diegetic conflicts. Whilst changing the played diegetic history is usually considered as distasteful or even rules-breaking, the game master can usually be liberal with her interpretations of hyperdiegetic background materials. For instance, tabletop role-playing games frequently grant the game master an explicit license to change the game world to her liking.

One of the most interesting normative properties of the role-playing culture pertains to the convention on how to read diegetic material. There seems to be a strong implicit agreement that players should try to strive towards what they genuinely believe is the game master's interpretation of the game world. While some *Star Wars* fans vocally refuse to accept the diegetic assertion that Greedo shot first, a role-playing game cannot continue unless there is an equifinal understanding of the game world. Only after the participants agree on who shot first can the game proceed, and that requires participants to come into an agreement with each other.

The problems arising from differing interpretations of diegeses is further discussed in Paper II, and more generally in Paper I.

2.3 Ephemeral Games

All play is *ephemeral*. If a child builds something out of Lego bricks, the result is a permanent artifact, but the play is the process of building that artifact – a process that most likely involves as much breaking as building. Play is transient and vanishing; after play concludes, it is impossible to access it, except through witness reports, photographs and artifacts produced and used in play.

The ephemeral nature of play is sometimes obscured by the perception of games as formal systems of rules. Even though it is true that typical game rules can be expressed as formal and algorithmic statements, the practical reality of play is different – again, in ways that are particularly relevant for pervasive games and games involving role-play.

Even though we can document a game of *chess* fairly well with video cameras, marking down the moves and so forth, after the game concludes, it becomes impossible to access as a whole. For instance, Anatoly Karpov and Garry Kasparov played 48 games of *chess* in a prolonged match in order to resolve the 1984 World Chess Championship. The match lasted from September 1984 to February 1985 – it was terminated and declared a draw by the World Chess Federation, claiming that the contestants' health was endangered by the effort. While the moves of all those games have been recorded, the material reality of the players' game experiences can no longer be accessed. We can never know how it *felt* to play those games.

It was mentioned earlier that *chess* can usually be understood as a game of perfect information (systemic view, see Paper I), but this take becomes problematic when the players engage in deliberate imagining, which falls within the domain of the player-centric view. The 1984 World Chess Championship questions the perfect information from the perspective of the materialistic view. Even though the materialistic view is fundamentally objectivist, no-one could obtain perfect information on the game system on the material level: We will never be able to know whether the contestants' health really required the termination of the match, as the material reality containing the full state of the match no longer exists. As is discussed in Paper I, this contradiction is largely a matter of perception.

Even though all play activity can be considered ephemeral, this dissertation analyzes forms of play where the problems created by ephemerality are particularly relevant. As I wrote in Paper I:

> Some games are more difficult to study as objects than others: Games that are only played once (alternate reality games, larps), that are distributed in space (location-based games), that blur the boundary between ordinary life and play (pervasive games), that feature emergent structures rising from player communities (MMORPGs such as EVE ONLINE [2003]), or that are performative and qualitative in nature (freeform roleplaying games), are especially hard to define, codify, preserve, delimit, or analyze. While *play* is always an ephemeral process, in some of these cases, even the very *games* can be considered ephemeral, as they emerge from changing contexts and are shaped by the spontaneous play, being impossible to reproduce as such. (Paper I.)

In Paper I (see also Stenros et al. 2011b; Stenros & Montola 2011) I further discuss the challenges of studying ephemeral forms of play, and the solutions to those challenges.

2.3.1 Emergence

Emergence is one of the properties of gameplay that contributes to the ephemeral nature of play. Jesper Juul discusses emergence as follows:

> *Emergence* is the primordial game structure where a game is specified as a small number of rules that combine and yield a large game tree, that is, a large number of game variations, that the players deal with by designing strategies. […] Games of emergence exhibit a *basic asymmetry* between the relative simplicity of the game rules and the relative complexity of the actual playing of the game. To give a non-electronic example, the rules of chess can be described on a sheet of paper, but a well stocked bookstore carries shelf after shelf of books on specific openings, gambits, endgames and so on; there is more to playing such games than simply memorizing the rules. (Juul 2005, 73.)

Juul uses the concept loosely, in order to discuss games that are designed to be played in unpredictable ways (Juul 2005, 76). Joris Dormans (2011) has commented the idea of emergent gameplay from the perspective of the sciences of complexity, where "it refers to behavior of a system that cannot be derived (directly) from its constituent parts […] the whole is more than the sum of its parts." Klabbers (2006, 86-88) argues similarly that emergence is a property of all organizations, because organizations are more than the sum of their parts: In games, all participants interact as a part of a social system formed by the game.

To some extent, emergence is a matter of subjective perception; it depends on the perceiver whether it is possible to "directly" derive a behavior from its constituent parts. *Tic-tac-toe* is a very simple game, where the optimal strategy is widely known and easy to discover, and the theoretical number of different games is limited enough for players to commonly discover the optimal strategy. It can be argued that there is no emergence within the formal system of *tic-tac-toe*, because all possible games are known, and it is well known that the game always ends in a tie if both players play sufficiently well.

As a game, *checkers* is pretty similar to *tic-tac-toe,* but since is it played with 24 pieces on a bigger grid and because the play can proceed back and forth, it is much more complex. Even so, after years of computation, Schaeffer et al. (2007) solved *checkers*, showing that if neither player makes a mistake, the game always ends in a draw. They also improved the algorithms of the *checkers*-playing computer program *Chinook* to the extent where it is mathematically impossible for *Chinook* to lose.[71]

In one sense, this means that *checkers* no longer has room for the emergence of winning strategies: The never-losing strategy is known, and no surprise within the limited possibility space can divert the game from its course. On the other hand, the everyday practice of *checkers* is full of emergence, as no human player can understand the system of 500 billion billion positions, even though its constituent parts are deceivingly simple. For the human player, *checkers* appears to produce emergent play, even though *Chinook* remains unable to lose.

While Juul's take on emergence is based on a small number of rules creating a large number of variations, emergence can also be seen as patterns emerging from a large number of actors – the typical example being the anthill that emerges from the leaderless behavior of a large group of ants. Looking at this kind of emergence in games, the examples of *tic-tac-toe* and *checkers* are very simple compared to that of *EVE Online*, which is one of the most complicated game systems in existence in terms of the number of players, gameplay data and game rules.

[71] *Chinook* is not the absolutely best possible *checkers* program. Even though it can never lose, it does not win the game from every possible winnable position.

The main server of the game, *Tranquility*, currently has over 350,000 players[72], who play traders, miners, industrialists, pirates, mercenaries, explorers et cetera in a vast galaxy. There are more players in *EVE* than citizens in Iceland, where the game developer CCP is based. As there are as many players in *EVE* as there are in a small nation-state, and because the game encourages a certain amount of task division, all sorts of social systems emerge: Banking, media, politics, espionage, diplomacy, logistics et cetera, much of which is handled outside the game client in web forums, Excel sheets and Skype discussions. Thus, even though *EVE Online* consists of algorithms that define a strict, brute game system, it is also a massive social process that evolves and changes over time. (See also Castronova 2005, 100-125.)

No computer in existence can even start to understand the emergence happening in *EVE Online*. Even if ideal algorithms were perfected, and computers were able to predict human behavior, long-term predictions would grow impossibly complex in a way similar to long-term weather forecasting is impossibly complex. As is discussed further in Paper I, it is impossible to understand *EVE Online* by only looking at its algorithms and rules. *EVE Online* is an extremely complicated system because it has a huge number of actors, but also because the behavior of those constituent actors is impossibly difficult to model.

2.3.2 Coincidence

Similar to emergence, *coincidence* is another property of games contributing to the ephemerality of games; one that is particularly relevant for pervasive games. Pervasive games are open-ended by nature, as they allow the outside world to generate endogenous meaning.

In Paper IV, I proposed the following classification (developed based on Reid 2008) of coincidences that is relevant for pervasive games:

[72] **"**CCP and Nexon Announce Strategic Partnership for EVE Online in Japan". A 2011 Press release at www.eveonline.com/pressreleases/default.asp?pressReleaseID=72, ref. August 30th, 2011.

- *Actual coincidences:* players of [*Prosopopeia Bardo 1: Där vi föll*] encountered a random outsider on the graveyard and had a game discussion that turned out to be one of the most appreciated parts of the game (see Montola & Jonsson 2006).
- *Calculated coincidences:* in one mission of *Prisoner Escape from the Tower*, the player has to look for a virtual tower guard from the area where tower guards usually patrol. Success does not require seeing an actual guard, but it is quite likely that the players do see them in the course of the mission (see Reid 2008). Similarly, *Uncle Roy All Around You* told the player to follow the blackhaired woman, counting on the likelihood that one is always in vicinity (see Benford et al. 2006).
- *Fabricated coincidences:* in *Go Game*, the players complete tasks around the town, which often involve outsiders. Sometimes, however, the people pretending to be outsiders are actually informed actors, who ''coincidentally'' happen to have a helpful stance toward the players (McGonigal 2003b). Such fabricated coincidences also increase the likelihood of actual coincidences, as players start to assume that some outsiders are pretenders.

Pervasive games *always* have a potential for unforeseen actual coincidences, as they interact with the outside world. This uncontrollability is both a desired property and a practical necessity.

As an example, we can compare three forms of *golf*. *Minigolf* takes place within a rather isolated and well-controlled magic circle of a specifically built course. It is both desirable and practically feasible to minimize outside disruptions that might affect the play.

Regular *golf* is not a pervasive game – it takes place within a course during a particularly determined time, and does not involve outsiders. Even so, the game can be influenced by external conditions ranging from weather conditions to animal life.[73] Controlling the entire outdoors course requires a lot of work, but judging by the effort

[73] According to the club's own history, The Richmond Golf Course near London had to introduce temporary rules in 1940 to deal with World War II. For instance, "while bombs are falling, players may take cover without penalty for ceasing play", and a "ball moved by enemy action may be replaced, or if lost or destroyed, a ball may be dropped not nearer the hole without penalty". Such rules remind us of the fact that the contract of magic circle requires the approval of the outside society to be effective. Bomber planes do not care about sports competitions, and contemporary societies do not allow deadly gladiator fights. (http://therichmondgolfclub.com/history.html, ref. 30 August 2011).

spent in manicuring *golf* courses, it appears that golfers typically seek to minimize environmental influences.

Finally, there is the pervasive street version of *golf*, *Manhattan MegaPUTT* (Paper III), played in New York in the middle of traffic. The players seek to navigate sidewalks, traffic lights and intersections with a minimal count of strokes. *Manhattan MegaPUTT* is characterized by a great number of expected but surprising coincidences. The game organizers can never be sure how outsiders will react to players, or whether the ball will drop through manhole grating, or what happens if a car drives over a ball. But one thing is certain: *Some* interesting coincidences will happen.

Emergence and coincidence contribute to the ephemeral nature of pervasive games and games involving role-playing, because both of those properties make it problematic to replay, recreate and archive instances of play. They also blur the boundaries of play: It is difficult to separate the impact of the culture that has emerged on the *Tranquility* server from the player experience produced by playing *EVE Online* – especially because the game is designed in a way that strongly encourages task division and collaboration. Playing *EVE Online* alone in the galaxy would not be representative of the experiences the game is intended to produce, or of the experiences the game actually does produce. Coincidence has the same power: Several players commented that the best part of *Där vi föll* was a discussion in a graveyard with a complete outsider (Montola & Jonsson 2006). If the game was to be replayed, should the organizers fabricate that coincidence in order to replicate the play experiences, or just stick to restaging the formal parts of the production, hoping for new valuable coincidences to occur?

2.4 Games and Creativity

Numerous authors have discussed the connection of creativity and play (e.g. Huizinga 1938; Caillois 1958; Nachmanovitch 1990; Sutton-Smith 1997). As Norman Douglas put it in his book *London Street Games*:

> [If] you want to see what children can do, you must stop giving them things. Because of course they only invent games when they have none ready-made for them, like richer folks have – when, in other words, they've nothing in their hands. As Mr. Perkins said: 'You can't play a ball-game, if you haven't got a ball',

> meaning that if you want to play, and have nothing to play with, you must play at something that doesn't need anything. Give them bats and balls, and they soon forget their CHINESE ORDERS, and there's an end of SHOWING NO IVORY, and nobody thinks of PULLING our FATHER'S RHUBARB, and OLD DEVIL may go to – well, where he came from. That's what keeps them alive and 'imaginative' (as Aunt Eliza would say) – having nothing to play with. That's what makes them use up all they can find – clay and kerb-stones and nuts and winkle-shells and clothes and empty condensed-milk tins and walls and caps and stones and window-sills and buttons and doorsteps and lamp-posts and rags and anything else that comes handy. And that's how they come to play any number of games and to discover new ones every day, while better-class lads get into grooves and go on with their frowsy old cricket and one or two more all the time, always the same, year after year. (Douglas 1916, 156-157.)

In his description, Douglas nails down one central, but surprisingly often ignored difference of play and games, of paidia and ludus: While free play is inherently creative, structured games are rarely so.

The previous chapter discussed ephemerality, a property, which is characteristic for play but noteworthy in contemporary games. This chapter performs a similar analysis on the expressive, imaginative and creative potential of games – a property, which also is characteristic for play but noteworthy in games. In part, this discussion is needed, because role-playing especially has a strong element of paidia or free play, which takes place within ludic structures.[74] In fact, Douglas (1916, 157-160) concludes his book in an argument against games such as *cricket*, "which saves you the trouble of inventing those other games".

As it would be a long digression, I have omitted the discussion on creativity surrounding gameplay, in activities such as designing and modding[75] games (see e.g. Flanagan 2009; Sihvonen 2009; Sotamaa 2009 for such discussions), and focused just on the creative gameplay.

---

[74] Klabbers (2006, 18) distinguishes rule-based, principle-based and free-form games. Rule-based games strictly follow their rules, principle-based games give some leeway in how players interpret the rules, and free-form games are barely bound by rules at all. Different groups playing *Dungeons & Dragons* can use the rule set differently, producing rule-based, principle-based or free-form gameplay.

[75] Modding refers to the fan practice of creating unofficial modifications of computer games, with or without permission.

2.4.1 Creative Games

Pervasive gaming and especially role-playing are forms of play that allow particularly expressive and imaginative play. In her discussion on pervasive games, Jane McGonigal (2006, 67-81) uses the concept of *affordances* (as per Norman 1988, 9); "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used […] A chair affords ("is for") support and, therefore, affords sitting".[76] According to McGonigal, one reason why pervasive games are a special form of games is that they afford an unlimited number of possible game moves at any given time.[77] The same applies to games involving role-playing.

Because of unlimited affordances, performativity and co-creativity, we can discuss pervasive games and games involving role-playing as *creative games*[78] – games that are not entirely based on repetition, imitation, learning motoric and mental tasks, or achieving technical virtuosity, but games that require imaginative, inventive, expressive or unique play instead.[79]

---

[76] There has been some controversy over whether affordances are natural, learned or cultural. Later, Norman (2007) revised his stance (2007), rephrasing that affordances are about the communication between a designer and a user and about relationships of agents and objects. He has recently adopted the concept of signifier in order to take the semiotics of design much better into account (Norman 2011, 89-90). In this work, I will stick to the concept of affordance, in part because it was used by McGonigal, and in part because it is used in the included papers already.

[77] Goffman (1961, 35) argues that in games, "[E]ach move must be selected from a small number of possibilities, these being largely determined by the previous move of the opposing team, just as each move largely determines the possibilities next open to the opponent". Goffman's statement is typically true for classic games, but not pervasive games or role-playing activities.

[78] They are not the only forms of creative games. First, paideic play is usually very creative, for the sole reason that it is not guided by elements of ludus: The child engaging in paidia must come up with the specifics of her play herself. Second, there are many individual games with elements of creativity, ranging from trivia games such as *Pictionary* to storytelling games such as *Once Upon a Time* to professional sports such as *ice dancing*. Games providing players with external level creation tools, such as *Lode Runner*, or players modding games that do not provide such tools do not count as creative games in the sense of the present discussion.

[79] Judging whether something is creative or not tends to carry the weight of normative valuation.

Creative games *depend* on creative play. The practical implication is that the game designer or game master has difficulties predicting the possible directions of the game. Pervasive gamers traveling between places can use vehicles, take shortcuts, get lost or stop for a coffee. Role-players aiming at an ambitious performance can introduce entirely new elements to play, stop for hours to have a diegetic discussion, or turn the course of the game entirely around through changing their goals. In creative games, the players may create unexpected new content into the game world, or appropriate it from outside the game.

While some kind of creativity is possible in most games, some games depend on it more than others: *Chess* always consists of up to 32 pieces, 64 squares and two players, but when a novel combination of acceptable moves contributes to a bigger, innovative picture. For example, it would be possible to stage a dance performance in *Super Mario Bros*, by timing jumps and moves according to a piece of music.[80] Creative play can sometimes contribute to player's success in the game, like an innovative strategy in *chess*, or be detrimental to it, like in the *Super Mario Bros* example.

In *chess* and *basketball* most of the relevant meanings are implied in the constitutive game rules; the rules-given function of the ball is to be dribbled, passed and thrown into the basket. Even though some meanings are established in the rules of creative games, using unlimited affordances encourage constant meaning-making. Consider the following, tabletop role-playing game transcript cited from Sean Q. Hendricks (2006, 49):

1. Mark: As I enter?
2. GM: Mm-hmm
3. Mark: I'll look for ( ) first
4. GM: Ok
5. Mark: He sitting around in here anywhere?
6. GM: You don't see him anywhere in there
7. Mark: Just uh (.) to minimize you know to minimize the (.) impact of my entry to these places,
8. Mark: I Figure (.) uh dude travels (.) with (.) some kind of lampblack (.) on his face like yo you know (?) smear

[80] For Suits (1978, 57-60) such a trifler would not be playing *chess* at all, and for Roversi (2010), a game played against a trifler it would not even be a game of *chess*.

In utterances 7 and 8 Mark suggests an entirely new element to be included in the game world. He declares that his character ("dude") has the habit of smearing his face with lampblack, in order to increase his chances of successfully hiding in shadows. In tabletop role-playing such an addition is accepted by the consensus of players or by the authority of the game master. In *chess*, *basketball*, or any game fitting Juul's definition of classic games, such an unforeseen creative contribution would be unthinkable.

Whether it is acceptable to invoke lampblack or not in a tabletop role-playing game depends on the genre decisions, rules, playing culture and hyperdiegesis of the game (see Paper II). Invoking an automobile is usually not acceptable within the hyperdiegesis of Middle-Earth.

Internal creativity is sometimes connected with the idea of internal definition and validation of game rules. Only Mark knows whether he has imagined his character carrying lampblack all the time. It is up to his conscience and sportsmanship to not fall under opportunism, constantly declaring that his character is carrying around whatever is needed at the moment. When Mark establishes lampblack in statement 8, he brings his decision of having been carrying lampblack into the sphere of external validation, where the game master and other players need to confirm it (cf. Paper II).[81]

Based on 25 player interviews, Karl Bergström (forthcoming) has identified different "flavors" of creativity that are present in tabletop role-playing games. The six most important are *acting creativity*, *narrative creativity, gaming creativity*, *problem-solving creativity*, *game-world creativity* and *system creativity*. The creativity in role-playing gamers runs through the entire process of play, ranging from performing characters to enacting narratives, creating the hyperdiegesis and even customizing game rules. According to Bergström, rules play an important role in enabling and fostering creativity in role-playing.

[81] There are cultural variations here. One way of playing requires players to be always explicit about the things their characters carry around. A second way is to allow some leeway, finding it acceptable to bring forth objects that the player internally had decided to carry, but had not mentioned aloud. A third way is to figure that a seasoned thief would have brought lampblack with him, even if the player genuinely did not have the foresight to do so. A fourth way is to accept all spontaneous creative input, opting for story construction instead of realism or challenge. This argument on internal validation is most relevant for the second way.

In pervasive games the players operate in the environment of ordinary life. Depending on the spatial, temporal and social configuration of the game, play assigns new meanings on places, events and people. If a *Killer* player attends a lecture, the player carries the endogenous meanings of play to the event, turning it into an opportunity for a playful murder. Compared to the 20 opening moves of *chess*, a *Killer* player has to constantly navigate the infinite affordances of ordinary life that are interlaced with play; she can conduct almost any activity at any given time, with a connection to the game.

Likewise, in relatively open-ended role-playing, the participants have an unlimited number of game moves at most times; an Agatha Christie –style detective character is probably expected to spend most of her time solving crimes, but the player can choose to conduct any activities she desires. Players sometimes abuse (in some sense) such freedom, and play may require implicit or explicit arbitration to proceed in smooth collaboration with the game master (see also Jonsson & Waern 2008; Jonsson et al. 2007b). The creative nature of these games makes them particularly unpredictable.

Even though the winner of a *chess* or a *basketball* match can never be predicted with certainty, there is a qualitative difference in the level of unpredictability – *chess* takes place in a world of 64 squares where only 32 objects can simultaneously exist.[82] *Basketball* is on a much higher level of complexity: It is not possible to accurately describe the entire state of the *basketball* game world. This difference comes, to some extent, from the fact that it is easy for us to reduce *chess* into a system of 32 pieces, a board and a set of rules, but in order to understand *basketball*, we must look at the ten players on the court on material and biological level as well. Sometimes it is warranted to study *chess* as a biological and material system, but it is always impossible to study *basketball* accurately as a formal system (see Paper I).

Because the players of creative games can introduce new elements to play and redefine their goals, the creative element takes the unpredictability to the third level. While *chess* can usually be played successfully without an arbiter, and competitive *basketball* is unplayable without a referee, creative games require game masters (or

[82] Thus, the ludological formalism sometimes discusses games and game worlds using the concepts of state machine and game state, derived from computing sciences (Juul 2005, 55-56; Björk & Holopainen, 2005; Järvinen 2008, 50-51).

puppet masters) to deal with and respond to the unpredictable input. As Jonsson & Waern (2008) have argued, game mastering allows the gameplay to react to player improvisation, to produce richer and more coherent narrative, and to adapt gameplay to the needs of the players. In a sense, many creative games require creative referees to function.

For this reason, if we exclude multi-player games, very few digital games can allow unlimited affordances.[83] *Façade* by Michael Mateas & Andrew Stern is a dedicated attempt at creating a program that role-plays with the player with sufficient intelligence. In *Façade* the player pays a social call to two computer-played avatars that react somewhat sensibly to player input. The result is an impressive illusion of coherent dialogue. However the façade breaks down easily if the player decides to put Grace and Trip through a Turing test: As the characters operate in their narrow semantic sandbox, they are unable to react sensibly to when the player insists on choosing the topic of discussion. After all, *Façade* is very limited computer program that pretends to provide the player with unbounded freedom, but the illusion only works for a benevolent player.

It is in the extremely constrained nature of competitive and professional sports that they tend to actively resist everything that is not made explicitly possible through constitutive rules. One famous example of creative play in sports is the invention of the V-style in *ski jumping*, which allowed jumpers to improve their jumps considerably, at the expense of style points awarded by judges.

To be precise, there exists a special case of *basketball* player that operates mostly in the domain of unlimited affordances and creative gaming: *The coaches*. Even though *basketball* is usually seen as a team game where players run on the court dribbling and passing the ball, trying to shoot it into a basket, the same activity can alternatively (or complementarily) be viewed as a game of two or more coaches trying to manipulate their sentient, biological game tokens into playing more effectively than the other team. According to most game definitions presented above, *basketball* coaches are players of

[83] Different kinds of building games feature another example of creative games. In those games, the creative potential is not in the unlimited affordances of the system, but rather in the emergence that gives rise to a great number of limited interactions.

the ongoing game, even though the rules provide them with few affordances that are not about communicating with their players.[84]

2.4.2 Play and Narrative

It is often debated whether role-playing constitutes storytelling or not and whether there is a narrative in a role-played game. This discussion is connected to the larger discussion on whether narratology is an appropriate tool for studying games, and if so, how should it be used (see e.g. Aarseth 1997; Frasca 1999; 2003; Juul 1999; Murray 1997; Ryan 2001a; Eskelinen 2001).

The problem with much of the debate has been that the word "narrative" has several meanings, and also that games, even video games, differ in ways that are relevant to the discussion. Jesper Juul (2003, 139) has analyzed six different meanings of narrative, and summarized their relevance for the study of video games as follows (Figure 9):

[84] In fact, even the members of a live *basketball* audience are "players" in the sense of game definitions, at least if they support one of the teams over the other. They are people who are partial to the endogenous meanings of the game (cf. Costikyan 2002) and engage in artificial conflict defined by rules in order to achieve a quantifiable outcome (cf. Salen & Zimmerman 2004, 80). In this, they exert effort in order to influence the outcome of the game, feel attached to it and bear no non-negotiable consequences from the activity (cf. Juul 2005).

	Novels/movies/general storytelling	Video games
1. Narrative as the presentation of events (story-*telling* / narration)	Yes	No: Games as activities and rules - games are not presentations of events, they *are* events. Yes: Games as fictional worlds.
2. Narrative as a fixed and predetermined sequence of events (*story*)	Yes	Generally: no Yes: In progression games as the predetermined sequence that the player has to perform to complete the game, but not as all the failed attempts of the player.
3. Narrative as a specific type of sequence of events (story)	Yes	Generally: no Yes: Progression games can contain this.
4. Narrative as a specific type of theme (human or anthropomorphic actors)	Yes	Depends on the fictional world of a game.
5. Narrative as any kind of general setting or fictional world	Yes	No: Games as activities and rules. Yes: Games as fictional worlds, with the caveat that games uniquely tend to present incoherent worlds.
6. Narrative as the way we make sense of the world	Yes, like everything else in the world.	Yes, like everything else in the world.

Figure 9. Applicability of the different meanings of narrative for the study of videogames. Quoted from Jesper Juul (2003, 139).

As pervasive games resemble video games in terms of narrative, this discussion mostly concerns role-playing games.

When we examine narrative as the presentation of events, it is clear that the participants of tabletop role-playing games produce short snippets[85] of narration ("I smear lampblack on my face and then sneak into the house"), which contribute to the progress of game.[86] Because the snippets are sometimes very short, it is a matter of definition whether many of them constitute narratives on their own. "It's raining" hardly counts as a narrative.

When it comes to role-playing games as pre-determined narratives, the answer is twofold. While role-players often express dislike towards predetermined games, predetermination is frequently used both in pre-written adventures and in larps. For

[85] *Textons*, using Aarseth's (1997, 62) terminology.

[86] Larp participants rarely do this, unless their characters are relating events *on the diegetic level*.

example the larp *Hamlet* (Bergström 2010b; Koljonen 2004) can be seen as a reinterpretation or re-enactment of an existing narrative known to all players beforehand.

Role-player communities are aware of the techniques that determine how strictly the play follows a predetermined narrative. As the players' perceived agency is opposed to the game master's narrative aspirations, debates on the extent of desirable predetermination[87] are frequent in role-playing cultures (see e.g. Bøckman 2003; Montola 2004; Westlund 2004; Fatland 2005; Hook 2007). Indeed, it appears that the relevance of the concept of narrative varies greatly depending on the play style and design goals. Sometimes games are organized to convey a story to the participants, while at other times, a story is produced in play, just like an instance of the competitive sport of *100m* dash produces stories.

When it comes to Juul's final meaning of narrative, Satu Heliö (2004), Michael Hitchens & Anders Drachen (2008, 15-16) and Jennifer Grouling Cover (2010, 174-175) have all suggested that narrative is a relevant concept for tabletop role-playing, but one that should be used in a particular sense. They all make the same argument, with Heliö most eloquently stating:

> In role-playing games the narrator and the narratee are both quite lacking; there is no one for whom the story is told to, and neither is there a storyteller. We can of course assume that the game master and the players reconstruct the story by playing the game – which is even partially true. Still, we must note that there is no actual story in the game of the role-playing game, though there are events, characters and structures of narrativity giving the players the basis for interpreting it as a narrative. We have many partially open structures that we may fulfil with our imagination during the course of the game – within its limitations. We also have the ability to follow different kinds of narrative premises and structures as well as imitate them for ourselves to create more authentic and suitable narrative experiences. [...] Role-playing game is a specific type of game with strong narrative aspirations, which implicate telling stories and creating narrative experiences out of games. So in a sense, role-playing games constitute a type of narrative games, but the theoretical standpoint is different from the ones where most games and story-like experiences are considered alike. (Heliö 2004.)

[87] In the practice of play, the importance of predetermination is based on subjective experience, not on whether the game was truly predetermined or not.

Even though Heliö, Hitchens & Drachen and Cover all agree that role-playing games produce narrative experiences, they all conclude that role-playing is not storytelling in the traditional sense, and that the layman concept of narrative is not very applicable for analyzing them. This can, perhaps, be seen as a compromise in the so-called "clash between narrative and game" (see e.g. Juul 1999; Frasca 1999).[88]

2.4.3 Performing for the First Person Audience

Several authors have discussed games and play as forms of *performances*. Typically, in the context of expression, performance is used in two senses: In the sense of explicit artistic performance in the performing arts, and more generally as a perspective on social behavior. Richard Schechner (2002, 38-40) has termed the former *is-performance* and the latter *as-performance*.[89]

For example, a marriage ceremony or a game *is* a performance, but scholars such as Erving Goffman (1956) have studied all social behavior *as* performances, some of which are more sincere than others.

Schechner's (1988, 6-11) take on explicit performances is pretty broad, it is an umbrella concept for activities that feature a special ordering of *time*, a special value attached to *objects*, *non-productivity* in terms of goods and *rules*. In addition, special non-ordinary places are often set aside or constructed for performing these activities. His analysis focuses on seven forms of performance that share many similarities: Play, games, sports, theater, music, dance and ritual.[90]

For Schechner (1988, 13), the central property that separates rituals from other performances is that rituals are not *self-assertive*, but they are *self-transcendent*: While the individual cannot assert the rules of her own performance, it expresses something

---

[88] If there ever was a true conflict. Bogost (2009) has argued that the debate was merely between two types of formalism, narratology and ludology.

[89] Performing arts belong within the larger umbrella of is-performance, but not all is-performance is artistic in nature.

[90] Schechner readily admits that his categorization cannot be generalized for every single form of play, games, sports, theater and ritual, mentioning Allan Kaprow's (1966) Happenings as an example of theater that formally resembles play instead.

larger or other than the participant. Play, on the other hand, is a free activity where the participant makes her own rules. According to Schechner, games, sports and theater balance between the *reality principle* of ritual and the *pleasure principle* of play – an argument that resonates with the constructionist position that games are real, even when they are demarcated as something other than ordinary life.

In the context of this work, the most interesting question about games and performance is the question of audience. Jaakko Stenros (see also e.g. Harviainen 2008; 2010; Gerge 2012) has written about the relationship between larp, theatre and performance art. He writes:

> Larp is created by the players for the players. This should be taken very literally: Larp is not only performed, but created and experienced first hand. The participation is not limited to the way any performance needs to adjust to its audience, nor to participants making a few controlled or curated contributions as is often the case in theatre. Instead in larp each participant, each player, has control over his own narrative and a tangible possibility to influence not just her little corner of the story, but often the general direction of the whole piece.
>
> To truly appreciate a larp without taking part in it is impossible. Aesthetics of action and participation are completely different from the aesthetics of spectating and distance. In the context of larp the whole concept of audience needs to be rethought. According to Daniel Mackay (2001) in larp the audience and performer positions are internalized in the same person: "The participant playing a character is the performer, while the player after the fact, or even during the event within a down-keyed frame, is his spectator." (Stenros 2010, 301.)

The audience of a role-playing performance is the role-player herself. Much of what happens during a role-playing session happens only in the minds of the players. The characters' intentions, plans and regrets are diegetic for the player of that character, but also internal, and as such they are not necessarily ever voiced to other participants. This makes role-playing, daydreaming, make-believe and pretend play somewhat unique forms of expression: There is a part of the performance where the creator is the only audience, and that part just skips the entire semiotic process of coding and

decoding. Players are the primary audience of their own game[91] – play is aimed at a *first person audience*.[92]

The photo (Figure 10) from *The Executive Game* (see Montola 2010) illustrates the point: The players are playing a larp portraying a high-stakes mafia poker game inspired by the television series *The Sopranos*. They must hide their emotions (in order to succeed in the game), while playing out and pretending that the play money in the table has real value. *The Executive Game* was an explicitly immersion-oriented game. Quoting the play instructions of the larp:

> To set the mood of the game, it needs to be stressed that the chips are to be treated as real money. Simply put, $50,000 is one shitload of money. [...] Some of the more prosperous participants have lost more than a hundred grand in a game, but few people can afford to do that without sweat and anxiety. This shouldn't be considered play money. It's your children's college fund, the yacht you crave for, the car loan and the home mortgage.[93]

The only genuine audience of the pretence-performance is the player herself. If the player successfully portrays a stone-faced card shark, it is impossible for an external observer to know whether she is successfully pretending according to the instructions of the game. The question of being faithful to one's character falls within the domain of internal rules and internal validation.

---

[91] Exceptions do exist; for instance game shows, reality television competitions and spectator sports are often designed to be satisfying for the audience. But in the case of almost all role-playing games and the majority of pervasive games, players are the primary audience of play.

[92] Ryan (2001b) and Sandberg (2004) have discussed the first person perspective of games earlier. More recently, the concept of first person audience has been further developed in Stenros (2010), Montola (2011), and Montola & Holopainen (forthcoming).

[93] Translation by the author. The original play instruction by Mikko Rautalahti, the creator of *The Executive Game*.

Figure 10. Performing for the first person audience in *The Executive Game*. The photo was restaged after play. (Photograph by Kalle Kaivola, quoted from Stenros & Montola 2010, 118.)

The idea of first-person audience is key to the question of how games can generate narratives even though gameplay is not about telling stories, and it is also one of the important properties of games that prompted the subjectivist approach of this work.

Torill Mortensen encountered the same problem in her study of role-play in MUDs:

> Role-play is something very different from theatre. The play happens for the sake of the players, rather than the spectators. To observe without participating provides considerably less than observing a drama performed on a stage. To observe traditional theatre as a member of the audience means to study it from the angle from which it is supposed to be viewed. But analyzing a role-play game from the position of a spectator permits, at best, description of the event without understanding. It becomes very difficult to know what the player's words and actions entail. (Mortensen 2002; see also 2003, 76-78.)

To Mortensen, the issue of a first person audience was first and foremost a methodological challenge, solved through participatory observation, but it is also as a challenge of understanding the play in the first place.

While the concept of a first person audience originates in the role-playing community, it can, at least to some extent, be applied to games in general. The thrilling

aesthetic of *poker* is experienced in the first person. Only when it's your money, your high score or your space ship, only then you can really access the thrill of play.[94]

Both role-playing games and pervasive games have been and can be studied as performance arts. Jaakko Stenros concludes his essay on larp and performance art as follows (see also Harviainen 2010):

> Larps are like improvisational theatre without an audience that is (not) performed for its own sake, rather than performed for an audience. Larps are Situations and Happenings that have been largely disconnected from the canons and traditions of art, set in internally relatively consistent story worlds that feature characters enacted by the participants. Larps are games set in simulated social worlds that do not necessarily have a winner – and even if they do, the players may still prefer to lose.
>
> It is possible to situate larp in the fields of theatre, performance art and games, and to create larps that also fit under those labels, but larp in general cannot be reduced to any of those three categories. Illuminating though these approaches can be they all reduce larps to a framework that is ultimately ill-fitting. (Stenros 2010, 313.)

Stenros's discussion on larp can also be transferred to indicate that other forms of role-playing have potential for artistic expression similar to that of larp. As not all film and not all theater is art, not all larp is art either.

The artistic status of pervasive gaming has been explored by artists such as Matt Adams, Martin Ericsson and Frank Lantz (2009). Adams, for instance, argues on behalf of the artistic potential of pervasive gaming, while agreeing with Stenros's notion of disconnectedness from artistic canons.

> There is a widespread recognition that certain games may be considered art works, but it is more debatable whether games intrinsically are an art form. In the same way that film and video have been used by artists for many decades without usurping the broader commercial stream of cinematic production, artistic games will probably remain distinguished from the mainstream by a focus on aesthetics,

[94] It is an interesting property for in our culture that music and dance performances are clearly classified and demarcated as *for-audience* and *for-self*. One good indicator of the classification is to analyze whether a performance has been rehearsed in private before. For-self theater exists, but it is often indistinguishable from role-play. The primary role of the audience in rituals is to witness, not to get aesthetical enjoyment; thus, an audience is often desirable but not necessary for rituals.

> hybridity, and intellectual and emotional subtlety. However, one of the artistic and commercial strengths of cinema has been its readiness to maintain a dialogue between artistic or experimental work and the mainstream through festivals such as Sundance and independent cinemas with bold programs. Despite efforts by, for example, The Independent Games Developers Association, this exchange is still pretty rudimentary in games. (Matt Adams in Adams, Ericsson & Lantz 2009, 236.)

The significance of Stenros's and Adams's statements is that they both agree that external non-player audience is not necessary for something to be considered "art" – even though pervasive games often take their players into entirely solitary moments, and even though the diegetic pretend play of role-playing is entirely internal, the players of games can constitute the sufficient public audience for the artworks. And conversely, players can be the true audience of a game-shaped artwork, leaving external observers unable to understand the piece.

2.4.4 Fun and Games

It has sometimes been stated, even by game scholars, that fun is an essential component of recreational[95] games. However, as the games discussed in this work have potential for creative expression, it would be a gross simplification to claim that all paratelic activities need to be "fun" or to produce positive experiences.[96] I have argued against this stance, based on interviews of participants of two freeform role-playing games featuring rape and cannibalism (Montola 2011; also Montola & Holopainen forthcoming), and based on Heidi Hopeametsä's (2008; see also Virtanen 2010) study of a larp about a nuclear holocaust.

When discussing players' motivations to play, role-playing activities are particularly interesting case. As discussed in Paper II, the players' goals can be contradictory with their characters' goals. In a role-playing game following Shakespeare's themes, the

[95] The critical, serious and political games have been the exception to the rule, in part because their meaning is often derive from an external goal – or in Apter's (1991) terms, they are telic, not paratelic. See e.g. Flanagan (2009) and Bogost (2007) for discussion on artistically and politically motivated games.

[96] See Ryan (2001b), Juul (2003, 142) and Castronova (2005, 170-180) for examples of such arguments. Juul (2010) has changed his stance on the question.

player's goal may be to play out an emotionally touching tragedy, while the character's goals are entirely different. In her account from the larp *Hamlet*, Johanna Koljonen describes how her character's goals changed from trying to win a war against revolutionaries, to resignation in the face of inevitable defeat, and then committing suicide in order to avoid execution. She describes her experience of role-played suicide as follows:

> And now I'm dead. I could not do it again, could not give another order when my entire house has committed high treason. I am innocent, but I will be executed, surely; I cannot wait for it a moment longer in that bunker, will not. I get out a big and beautifully inlaid silver snuffbox and take more drugs than I ever have. I overdose gorgeously at the desk, drooling on my letter of resignation, my apology for the failure and especially for the Junior Brigades. They're dead now, most of them. They were really just boy scouts. I'm so sorry. Good-bye.
>
> And I'm carted out, and here I am, in a control room, with coffee and fast food and GM-operators (looking almost as bad as I do) working the phones. I have to be silent. Do I want to hang around or go outside? The others are outside, just up the stairs. Take a bottle of champagne with you! Take some bread, they might be hungry. A blanket. Is it cold? They laugh. No, to sit on.
>
> Outside are a street and cars and people wearing J Lindeberg and H&M looking at me strangely over strollers and ice cream. I climb the stairs into the park. The lawn is gorgeous, hilly: there's a church on top, and the bell tolls all the time it seems, for us. The sky is very blue. We're wearing torn fur, dirty flapper dresses, black tie with shirts gone yellow with sweat and grime. We laugh and cry a lot and drink champagne. We look like we've been to a three-week party and every once in a while another one walks up that hill into this heaven. People stare. (Koljonen 2004.)

Perhaps the earliest mainstream example of appreciation of tragedy in role-playing games comes from the Sandy Petersen's game *Call of Cthulhu*. Published in the 1981, the game is loyal to H.P. Lovecraft's works: It is an unfair and hopeless horror game, where characters regularly die or go insane. Even though the game provides full game mechanics for fighting the godlike monsters, they are often impossible to defeat.

In her study of player debriefs from the larp *Ground Zero* (see Virtanen 2010), Heidi Hopeametsä (2008) looks into a larp that was sad and horrific right from the start, and was clearly destined to end in tragedy. *Ground Zero* was a larp organized in Finland that portrayed a 24-hour period in a 1962 cold war nuclear shelter, in an alternative history setting where the Cuban missile crisis actually did trigger a nuclear

war. Hopeametsä cites the game organizer Jami Jokinen describing the game as follows:

> The door closes.
>
> The only contact with the outside world is the radio, and from newscasts it becomes clear, bit by bit, that this is not a drill but a real crisis.
>
> The horrible events of the world fill the bomb shelter. Different people react differently, the situation aggravates and undoes old social problems and creates new ones. Many things are seen in a different proportion.
>
> Finally, the electricity fails and the shockwave [from a hit by a nuclear warhead on the city] creates an apocalyptic mood. The city above the shelter is gone. The radio is silent, the characters are enclosed in the shelter. It has become their salvation, prison or grave. (Hopeametsä 2008, 192-193.)

The passages from written player debriefs cited by Hopeametsä (2008, 194, 196) illustrate the power of what she calls a "positive negative experience":

> Let me say right away that I have never felt as strongly a terrible need for human closeness and a bottomlessly deep loneliness than I did at times as Stephanie during the game. (Debrief 2)

> I can't say that it was "fun", as that would be corny considering the topic of the game and so on. But I'm very pleased that I could be there. The experience was _really_ huge. A large part of the game took place inside my head and it was an incredibly great experience that I wouldn't exchange for anything. The warnings from the game organisers about the intensity and oppressiveness of the game were not in vain. (Debrief 1)

> And I wouldn't exchange the experience for anything. I am extremely pleased and grateful to have had it and the thoughts it has brought. (Debrief 8)

Hopeametsä's example is just one among many. Recreational role-playing games created in the Nordic tradition have involved such themes as refugee centers (Gräslund 2010), totalitarianism (Gotthard & Zlatohlávek 2010), military occupation (Fatland 2010), mental illness (Pedersen 2010) and gang rape (Wrigstad 2010).

While it falls beyond the scope of this dissertation to study the reasons behind the pleasures of tragedy and horror in great detail, it should be underlined that role-playing

games about tragedy (e.g. Koljonen 2004; Bergström 2010; Virtanen 2010; Hopeametsä 2008; Montola 2011)[97] can be intense and deeply rewarding experiences.

One of the games taking this angle furthest to the extreme is the freeform role-playing game *Gang Rape*. Nordic freeform combines improvisational theatre, larp and tabletop role-playing: costumes are not used, play occurs in one room with a game master, and the players are the only audience of the performance (see Wrigstad 2008). While freeform generally adheres to the *invisible rules of role-playing* (Paper II), the specific formal elements are customized for each game. Such *scenarios* are often written down, and thus can be replayed with ease.

Gang Rape is a freeform role-playing game about gang rape. It is intended to be an ugly, disgusting and naturalistic portrayal of horrible acts. One player – usually a female player – portrays the rape victim, and the rest of the players are rapists. The game is *not* a larp: the act of rape is not acted out, but only talked through in a manner similar to tabletop role-playing.

As I have reported in a player study (Montola 2011), games like *Gang Rape* can be designed to be extremely stressful and intentionally harsh for the players, but even so there exists a small, select audience that seeks such games and consider them worthwhile experiences. As one interviewee commented:

> I started playing [games with] focus on the emotional intensity and telling stories, which can be very dark and in which you can explore these darker sides of human nature and relationships, and for me it's similar to reading fiction or watching movies that bring up those same themes. (From Montola 2011.)

The players reported that they felt a number of physiological responses to the game: They were literally sweating, shaking, nauseous and crying because of the game. On the other hand, going through the difficult experience made them form close bonds with each other (both between rapists and the victim and rapists), also offering experiences of insight and beating a challenge.

Concluding that study, I wrote:

---

[97] The concept of *catharsis* is intentionally omitted from this discussion, because of reasons described by Smuts (2007, 75) as follows: "I have chosen to omit any consideration of theories of catharsis. Since the concept has two nearly opposite meanings (purgation and purification), and the mechanism behind either is equally ambiguous, it would be difficult to do the literature justice in this context."

> As a cultural form, this kind of role-playing is not unlike the unpleasant but rewarding movies such as *Schindler's List* and *The Passion of the Christ*. The expressive power of horror, disgust and guilt is used in a fashion not unlike splatter movies or *Fear Factor*. These games simulate extreme experiences that can elicit physiological stress responses in an enjoyable manner. Like extreme sports, they can promote fellowship among participants. (Montola 2011.)

This kind of gameplay pushes the boundaries of the magic circle in a way quite different compared to the expansions typical to pervasive games (Paper III) – these games rather push the boundary of the magic circle as a protective frame. The transformative qualities of the magic circle are obviously limited, and some of the emotional impact seeps through it – just like the death of Bambi's mother or an episode of the *Fear Factor* impact the watcher.

The case of fun and games ultimately boils down to the more general issues of *paradox of painful art* discussed by Aaron Smuts (2007). The paradox is based on three statements: People do not seek out painful experiences, they can have painful emotions in response to art, and they nevertheless seek out painful art. Smuts solves the paradox with a *rich experience theory*, arguing that art allows us to have rich experiences without the drawbacks of risking our life or health or going to jail. Even though watching sad, horrible or disgusting movies might appear seemingly unpleasant, people do value rich experiences.

If the rich experience theory applies to cinema, it would be an unthinkable simplification to reduce the recreational uses of any form of media, performance or expression exclusively to light-hearted entertainment and enjoyment. Judging from the examples of *Call of Cthulhu*, *Ground Zero*, *Hamlet* and *Gang Rape*, it is obvious that the very traditional notion of "fun" is not necessary for gameplay.

The non-necessity of fun pervades the entire scope of play and games from the paideic children's games to highly ludic professional sports. Or, as Lev Vygotsky discusses the pleasurability of play for children:

> To define play as an activity that gives pleasure to the child is inaccurate for two reasons. First, many activities give the child much keener experiences of pleasure than play, for example, sucking a pacifier, even though the child is not being satiated. And second, there are games in which the activity itself is not pleasurable, for example, games that give pleasure only if the child finds the result interesting. Sporting games (not only athletic sports but other games that can be won or lost)

> are very often accompanied by displeasure when the outcome is unfavorable to the child. (Vygotsky [1978], 199.)

Following Vygotsky, the inherent displeasure of play cannot be reduced to seeing games as tragedies. In theory, every professional *basketball* match could be seen as tragedy for the losing team and its supporters, but feelings of disappointment, anxiety and even pain are a constant part of play, not merely consequences of its unhappy ending. Indeed, it has been frequently stated that play is not mere frivolity, but an essential developmental activity (e.g. Piaget 1962; Vygotsky [1978]; Yardley-Matwiejczuk 1997; Sutton-Smith 1997, 38-40).[98]

"Non-fun" gameplay elements and a full palette of emotions going beyond light-hearted fun have been used in other forms of games (see e.g. Wilson & Sicart 2010), such as *The Train*[99], *Desert Bus*, *PainStation*, *Dark Room Sex Game*, *Shadow of the Colossus* and *Heavy Rain*. Rich emotional expression is not an exclusive property of role-playing, even though such intentions are more typical for role-play than for board games or digital games.

2.5 Discussion

In this theoretical chapter, I have spent a lot of effort in a pragmatically motivated deconstruction of the core concepts of ludology, using weak social constructionism as the philosophical approach. The need for deconstruction comes from the fact that ludology and game studies have mostly focused on digital games, which has lead the field to develop a conceptual framework more appropriate for studying digital artifacts than ephemeral performances (Stenros & Waern 2011). Studying ephemeral games made it a practical necessity to reframe the core of ludology by interrogating it with social constructionism.

---

[98] Walton (1990, 12) mentions an example of children playing a game that is probably not fun at all, citing a game called *going to the gas chamber*, played by children in the Auschwitz concentration camp in order to come to grips with their terrible situation. (He cites Iona and Peter Opie's unavailable *Children's Games in Street and Playground*, published by Oxford University Press in 1969.)

[99] See also Logas (2011).

This constructionist reframing is not intended to claim that constructionist ludology is better than – or even opposed to – ludological formalism or structuralism. These paradigms complement each other, and their value depends on the object of study.

Vivien Burr (1995, 2-4) summarizes four central tenets of constructionism as follows:

1. A critical stance towards taken-for-granted knowledge.
2. Historical and cultural specificity.
3. Understanding that knowledge is sustained by social processes.
4. The idea that knowledge and social action go together.

Even though Searle's take on constructionism is very different from Burr's, this reframing of ludological concepts has followed Burr's tenets to some extent.

First, using a critical stance towards taken-for-granted knowledge I have sought to deconstruct many of the central simplicities of games studies. While I have not ventured into studies of player communities and cultures of play, I have steered away from historical or cross-cultural generalizations. I have underlined the nature of knowledge as a social process, especially in the way I have focused on games as intersubjective experiences where the participants' subjective experiences form the only truth about the game. Even though no strong political agenda has emerged from this approach, awareness of the ephemerality and intersubjectivity of play makes it necessary to give voice to players and to take individual perceptions on play into account.

The included papers do not all strictly adhere to this social constructionist take on ludological concepts. Towards the end of this dissertation process, I have been able to expend much more effort on the topic of constructionism than could be afforded in the papers. As such, the foundations of this work were last to be built, because the prior process of research was necessary in order to develop an understanding of what kind of foundation was needed.

3. Defining Pervasive Games and Role-Playing

The theoretical papers on pervasive gaming (Paper III) and role-playing (Paper II) were originally written in 2005, and their first versions were published a few years later (Montola 2005b; 2007). After publication, numerous authors have commented on them.

In this chapter, I first provide some cultural and historical context for these types of games, and then revisit the discussions on those definitions. Finally, I provide a note on pervasive role-playing, to complement the discussion presented in Paper VI.

It has become almost a cliché that game studies dissertations spend a lot of effort defining concepts such as game and play, and then passionately debate the merits of the definitions. Before proceeding to the definitions themselves, two points need to be made on definitions.

First, definitions are *normative*. As Frasca (2007, 76-77) has said, "[d]efinitions are not just created for heuristic purposes but they also serve to ideologically frame the object of study". In this dissertation, one central aspect of ideological framing has been to make the argument that role-playing activities and pervasive games belong to the category of "games". This framing is historical, as the both forms have been significantly influenced by classic games, but it also justifies using the theoretical apparatus of game studies in their study.

Second, the value of definitions lies less in their ability of clearly distinguishing X from Y, and more in their power to allow us to compare X with Y. It is less valuable to know whether role-playing or pervasive games are games, and much more valuable to understand how role-play relates to play and games, and what kind of games pervasive games are. Therefore, the only way to find out whether *FarmVille* and *EVE Online* should be studied as pervasive games is to attempt it and find out whether it produces valuable findings.

3.1 Historical Context

Both role-playing and pervasive gaming are relatively new terms. However, both forms of play can easily trace their roots all the way back to the beginning of written history and beyond. Thus, this contextualizing discussion could be very long if needed.

As the histories of psychological (e.g. Yardley-Matwiejczuk 1997; Bowman 2010) and aesthetical (e.g. Mackay 2001; Mason 2004; Pettersson 2005; Copier 2007; Morton 2007; Bowman 2010; Tresca 2011) role-playing have been covered thoroughly elsewhere, I have kept these sections brief. Similarly, I have already contributed to one history of pervasive games, and the short version given here is a summary of the more extended chapter in *Pervasive Games: Theory and Design* (Montola et al. 2009a, 53-70).

3.1.1 Roots in Children's Play

Like the most forms of non-digital games, both pervasive games and role-playing have strong roots in children's play, and several designers have intentionally looked to childhood games for inspiration.[100]

To start with role-play, several authors have drawn direct parallels from childhood make-believe to role-playing activities (e.g. Bowman 2010; Lieberoth 2008). In order to make a comparison, Krysia M. Yardley-Matwiejczuk describes children's make-believe play as follows:

> Children explore their worlds with play, they posit 'as-if' conditions: they exercise and practise powers and aspects of their identities, in both bizarre and banal make-believe settings. They 'research' each other's reactions, powers, knowledge and identities when joining in make-believe play with other children. (Yardley-Matwiejczuk 1997, 2.)

[100] See Lassila (2008) for a larp example, and the Area/Code manifesto (http://areacodeinc.com/about, ref. November 18th 2011) for a pervasive game example. Harviainen & Lieberoth (2011) also argue that the both forms are adult pretend play.

Psychologically speaking, pretend play is a basic ability for children: It was never invented and it does not need to be taught. Pretense and imitation are basic, even instinctual mechanisms of learning.

Vivian Gussin Paley (1990) has documented and studied children's play for decades in kindergartens and classrooms. She describes kindergarteners' self-defined fantasy play as short-lived, chaotic, erratic and spontaneous play. Even though some of the Heliö's (2004) role-playing mindset is essential for such play, Andreas Lieberoth (2008) argues that there is a major difference when comparing spontaneous play with the long-lasting practices of role-play:

> While children bumble along, then change things and then lose interest, adults remain committed to the same game, sometimes for days on end, and expect it to somehow come to fruition; to reach a meaningful conclusion that can be milled over and repeatedly reconstructed afterward. We have a culturally inherited way of structuring our stories, and as we rehearse such patterns over and over, we come to expect that life itself conforms to such patterns, and the games we play doubly so. Organizers cater to that need, and make sure that everyone gets to take the product home. Here lies a major difference, since modern self-conscious consumers of social commodities expect time spent role-playing and preparing for said game to yield some kind of discreet result – usually a good memory or story to tell. For children, this is not so. They play spontaneously and should have nothing better to do, while adults consciously make a choice to role-play. Perhaps this is why many role-playing games conceived before the free-form era have built-in goals and rewards. Not because players are all greasy gotta-win-gamists at heart, but because goals, rewards and meaningful conclusions conform to the way contemporary western adults see the world in general. (Lieberoth 2008.)

Furthermore, Lieberoth comments that adult role-players prefer to play based on explicit and somehow visible social contracts in order to deal with ambiguity and prevent the bickering that is often present in Paley's descriptions.

Just like the sport of *100m* and a spontaneous backyard dash, kindergarten play and *Dungeons & Dragons* can be placed on the Caillois's axis of paidia and ludus. Kindergarten play is placed at one end, with formal and complex rule systems at the other. The few global tabletop role-playing and larp campaigns (such as *Living Greyhawk* and *Camarilla*) have perhaps been the most extreme examples of ludus-like role-playing. These organizations have featured extremely complex rule systems; in addition to the basic practices of play and the mathematical task resolution rule

systems, these organizations have included, for example, detailed punishment systems for rule infractions. For example, cheating is discussed as follows, in the *RPGA General Rules*, used in *Living Greyhawk* campaigns:

> Cheating is not tolerated. The Senior GM reviews all cheating allegations, and if he or she determines that a player cheated, the Senior GM will issue the appropriate penalty based on the RPGA Penalty Guidelines. He or she also reports all incidents to RPGA HQ within eight (8) days by way of the appropriate reporting forms. All warnings or ejections (see RPGA Penalty Guidelines) are subject to later RPGA review and further penalties may be assessed.
>
> Cheating includes, but is not limited to, the following intentional activities:
>
> * Manipulation of dice rolls and deliberate miscommunication of die rolls.
>
> * False communication of character-based information or deliberate miscalculation of hit point tracking, charges, or other resource management portent to an individual's character.
>
> * Deliberate use of false in-game documents including item and character certificates and other RPGA-issued special documents for use by a character.[101]

Cheating rules such as these tend to only emerge far in the ludic end of the spectrum, in games such as *Living Greyhawk*, *EVE Online* and professional sports. While the role-playing mindset is common to children's play and *Living Greyhawk*, the social and cultural structures surrounding that activity are very different. Just like the "core gameplay" activity of the *100m* sprint and a spontaneous backyard dash is the same.

Pervasive games are often contrasted with children's play as well. It is no accident that the festivals where pervasive games are presented have names such as *Come Out & Play*[102] and *Hide&Seek*[103]. However, when pervasive games are contrasted with child's play, the equation becomes slightly more complicated compared to role-playing. Children's highly paideic play is very pervasive: As Paley discusses, children often engage in spontaneous and erratic play regardless of whether a given situation is supposed to be serious or playful. At least in Western contemporary society, children's lives are pervaded by play of various kinds.

---

[101] Article 3 of *RPGA General Rules,* 2003.

[102] www.comeoutandplay.org, ref. November 18th, 2011.

[103] www.hideandseek.net, ref. November 18th, 2011.

Even so, the characteristics of pervasive gaming that are discussed in this dissertation may not be entirely relevant and appropriate when discussing child's play. In *Pervasive Games* (Montola et al. 2009a, 53), we restricted our historical perspective to the era beginning from industrialization and urbanization, because the definition of pervasive gaming (Paper III) relies on concepts that were different or irrelevant in pre-urban society (see also Malaby 2007, 97-98). A similar caveat applies to children's play: The aesthetics, ethics, design considerations, consequences and social significance of pervasive games are derived from the fact that they break the magic circle of play.

Only because our culture has the tendency to cloister playfulness in marked spaces, can pervasive games be understood in the way they are presented in this work. When young children engage in a spontaneous impromptu version of *tag* in the middle of a class, they do not bend a magic circle in the same way as adults would. So even though they are engaged in what formally appears to be a pervasive game, the meaning of that pervasive game is quite different than the meaning of the same activity when undertaken by young adults.

Like running and role-play that have forms ranging from the paideic end of the spectrum all the way to the ludic end, there are also extremely ludic forms of pervasive gaming. An example is the reality television game show *The Amazing Race* (see Montola et al. 2009a, 251-255).[104]

3.1.2 History of Psychological Role-Playing

While the roots of role-playing certainly run back in history – in forms of children's play, pretend-play, make-believe, improvised theater and religious rituals – the discipline of psychology first codified the activity into discrete forms similar to the contemporary recreational role-playing. The physician Jacob L. Moreno developed the improvisation-based *Theater of Spontaneity* in early 1920's. From this early improv, he later developed *psychodrama* and *sociodrama* for psychiatric treatment (Blatner 2002).

[104] Unfortunately, as the rules of *The Amazing Race* are secret, so no example can be given.

The central concept of Moreno's work is *spontaneity*. Krysia M. Yardley-Matwiejczuk summarizes[105] Moreno's approach as follows:

> Moreno's central concept was that of 'spontaneity'. He believed that it is the person's essential creativity and spontaneity that allow therapeutic change and personal growth. Psychodrama is seen as a method for releasing and facilitating spontaneity, most often with the purpose of using this to provoke catharsis – the purging of hindering and dark emotional states which stultify and impede good psychological functioning. This spontaneity at times has, for Moreno, almost mystical qualities, as has one of his other core concepts, 'tele', which he put forward as an intuitive communications process occurring between individuals. However, underneath the frequently used hyperbole are many highly practical and thoroughly well-structured techniques for evoking involved and spontaneous participation in psychodramatic role play […] with the aim of enabling individuals to express deeper levels of their personal reality: 'the aim of these sundry techniques is not to turn patients into actors, but rather to stir them up to be on the stage what they *are* more deeply and more explicitly than they appear to be in life's reality' (Moreno, 1972)[106]. (Yardley-Matwiejczuk 1997, 52-53.)

As a concept, Moreno's spontaneity is not that far from the ephemeral creativity of play discussed in this work. Both are about choosing play moves from outside a pre-determined repertoire, and exploring the unlimited affordances of these somewhat open-ended games. However, in a sense, the function of Moreno's psychodrama was not to role-play someone else, as is typical in recreational, experimenting and sometimes escapist role-playing games, but rather to use the play as a social and psychological alibi (as discussed earlier).

The styles of psychological role-playing are at least as varied as those of recreational role-playing. While some scenarios last only for a few minutes for two people, others have resembled large, immersive and intricate larps. For example *The Grindstone Experiment*, a 31-hour exercise in nonviolent social defense played out in

---

[105] Yardley-Matwiejczuk (1997, 52) considers Moreno's work "grandiose and inaccessible", and mentions that attempting to summarize the clinical rationale behind psychodrama and the vast range of psychodrama studies was beyond the scope of her book. Likewise, the psychiatric role-play provides simply a backdrop for this study.

[106] Yardley-Matwiejczuk's Moreno quote is from *Psychodrama*, vol. 1, originally published by Beacon House in 1946.

1965, was a 50-person experiment, which displays numerous conventions typical for contemporary larping used in the simulation.

Theodore Olson & Gordon Christiansen (1966) report the rules of *The Grindstone Experiment* as follows:

> These rules for the exercise were posted, together with a large "prevailing conditions" map of the island, on blackboards in public view on Monday, August 2:
>
> 1. No water escape. No use of Crow Island.
> 2. No tamper with boats.
> 3. Kitchen and food supplies out of bounds.
> 4. Pump-house, electric supply, radio not to be *physically* molested or used.
> 5. Island staff neutral till they initiate and manifest different behavior.
> 6. Office equipment assumed to be brought by Unionists.
> 7. 'Wounded,' etc. to be taken care of by own forces.
> 8. 'Dead' and persons withdrawn from exercise or otherwise incapacitated will serve out the balance of the exercise in the Workman's Cottage, in umpires' off-limits area.
> 9. 'Canadiana by Gage' notebooks to be used *only* as diaries; these will be invisible to Unionist eyes.
> 10. Umpires will wear white arm bands and will normally be invisible until one needs to address an umpire, as in true emergency for a decision. Umpire decisions are law. Exercise will end when umpires so indicate.
>
> (Olson & Christiansen 1966.)

Most of these rules exist as conventions in larp culture nowadays. Structures similar to Rules 1, 2, 3, and 4 are usual in almost all larps, Rule 1 being considered a cliché in larps where the escape from the game area would otherwise be too obvious a choice for the characters. Rules 7 and 8 relate to the violence rules that are universal in contemporary larp, and every single larp known to the author has had *some kind* of an implicit or explicit rule for violence, even when that rule is as simple as "no violence allowed". Rule 9 is identical in function to the "off-game rune" used in many Nordic larps declaring places or containers to be outside the game (see Eidsem 2010). Rule 10 establishes the power of game master, and gives a symbol of office for game master, which is also a convention in some contemporary larps (see Loponen 2010).

While *The Grindstone Experiment* was a serious game in terms of exploring methods and scenarios of nonviolent defense, apparently it was also a gratifying,

enjoyable experience. As Olson & Christiansen (1966) write, "all agree that the Grindstone experiment was a great moment. For some it achieved the level of religious conversion". In this regard, the description strongly resembles the way Heidi Hopeametsä (2008) describes the contemporary, recreational larp *Ground Zero* mentioned earlier.

3.1.3 Origins of Tabletop Role-Playing Games

Numerous forms of pretense-oriented performance can be tracked through history, forms that resemble contemporary role-playing. For example, Cule (1994), Mortensen (2003, 223-226), Ericsson (2004), Tychsen et al. (2006), Morton (2007), Harviainen (2008; 2010; 2011a; 2011b) and Bowman (2010, 11-54) list numerous forms starting from ancient Egypt and Rome, through to renaissance fairs, theme parties, rituals, festivals, parlor games, improvised theater, military exercises, art movements, historical re-enactment, bibliodrama, cosplay, sadomasochistic activities et cetera.[107]

Even though pretend-play and make-believe are normally inherent for all humans, the role-player subculture often sees its origins in the publication of *Dungeons & Dragons* role-playing game in 1974 by Gary Gygax & Dave Arneson (Mason 2004; Dormans 2006). The very first version of *Dungeons & Dragons* did not actually resemble contemporary role-playing games: It had roots in the strategy wargaming culture derived from the Prussian *Kriegsspiel* and, ultimately, *chess*.

Dungeons & Dragons may have been the first *recreational game* about role-playing. It shifted the traditional focus of wargaming from an army to an individual warrior, enabling players to create increasingly sophisticated personalities for their warriors and increasingly complex game worlds for them. As the form evolved, the focus of entertainment and expression moved away from winning a violent conflict towards drama and interpersonal play. Gygax & Arneson essentially *productized* fun pretend play, packaging it in a way that enabled profitable business and a booming cultural phenomenon.

The form of tabletop role-playing matured as more games were published. The milestones are debatable, but at least games such as Sandy Petersen's *Call of Cthulhu*

[107] The validity of such comparisons can be disputed, of course (see Paper I; Montola et al. 2009a).

(1981), Greg Costikyan's *Paranoia* (1984), Greg Stafford's *Pendragon* (1985), Jonathan Tweet's and Mark Rein·Hagen's *Ars Magica* (1987), Mike Pondsmith's *Cyberpunk 2013* (1988), Eric Wujcik's *Amber Diceless Roleplaying Game* (1991) and Mark Rein·Hagen's *Vampire: The Masquerade* (1991) had a considerable impact in transforming tabletop role-playing from hack and slash wargaming into storytelling, intrigue, tragedy, and so forth. While the original dungeon hack play styles still exist, the evolution of tabletop role-playing games broadened the field considerably.

During the last ten years, two international movements have been reinventing tabletop role-playing. One movement originated in North America and the web community The Forge. Starting from games such as Ron Edwards' *Sorcerer* (2002), Paul Czege's *My Life with Master* (2003) and D. Vincent Baker's *Dogs in the Vineyard* (2004), The Forge community has created small, innovative games with novel mechanics aimed to produce certain kinds of narratives in play.

The other movement is the Nordic tradition of freeform role-playing that thrives especially in Denmark and Sweden. While The Forge community utilizes quantitative mechanics to drive drama, the Nordic freeform community has moved towards qualitative drama mechanics: Rules about how the players are allowed to interact in the space. Combining techniques from larp, improv, sociodrama and tabletop role-playing, such games employ versatile toolkits to create experiences from light and playful to the emotionally stressful (see Wrigstad 2008; 2010; White 2010; Montola 2011; Montola & Holopainen forthcoming).

3.1.4 Origins of Larp

Larp, or originally "live action role-playing", has no clear point of origin. Instead, it has been invented and reinvented around the world in many places.[108] As examples,

[108] It is frequently claimed that larp emerged as a live-action version of tabletop role-playing games. That argument is a simplification, in part because of the blurry boundary of larp definitions, in part because of the *Mazes and Monsters* effect. Additionally, according to its own history, *Dagorhir* was not inspired by tabletop role-playing, but by the *Lord of the Rings* trilogy and the movie *Robin and Marion*. "Bryan [Weise] had never heard of "medieval re-enactment," "Live Action Role Playing," or "Dungeons & Dragons." But he wanted to find a way to capture that spirit of adventure that could only come from wielding a sword or bow." (www.dagorhir.com, ref. November 10th, 2011; see also Stark 2012.)

Michael Tresca (2011, 182) lists the earliest American larps and proto-larps, mentioning *Dagorhir* in 1977, games of the MIT Assassin's Guild in 1980 (see also Tan 2001). He also points out that probably the oldest Swedish larp group Gyllene Hjorten was founded around the same time and Finnish larp began in 1985. According to Hook (2008), UK larp began at the same time in 1977 with the *Dungeons & Dragons* adaptation *Treasure Trap*. Pettersson's (2005) account of the origins of Finnish larp is similarly sporadic.

Larp has been established in different places around the globe for a number of reasons. As Morton (2007) and Bowman (2010) point out when discussing the predecessors of larp, they agree that it is somewhat unclear whether something constitutes a "larp" instead of an improvised performance, historical re-enactment or a religious ritual. J. Tuomas Harviainen has identified the structural similarities of larp with cultural forms such as *Happenings* (Harviainen 2008) and sadomasochistic role-play (Harviainen 2011a; 2011b; also Mortensen 2003, 223-226) – and both *Happenings* and sadomasochistic role-play clearly predate *Treasure Trap* and *Dagorhir*.

On the other hand, the 1982 anti-role-playing film *Mazes and Monsters* contributed not only to the raging moral panic against tabletop role-playing[109], but also to the sporadic emergence of larp. By misrepresenting tabletop role-playing games as embodied action, the film essentially (re)invented the idea of larp and spread it wide, allowing college students to come up with the idea of larp themselves.

Due to this pattern of sporadic emergence, larp cultures have evolved in very different directions. In the US, larps are stereotypically either rules-heavy combat-

[109] See Martin & Fine (1991), Williams et al. (2006, 8-10), Stark (2012) and Stackpole (1990) on moral panics targeting role-playing games. Not even academics are immune; Apter (1992, 130-132) for instance warns of the dangers of *Killer* and *Dungeons & Dragons* as follows: "Surely the make-believe frame cannot lead to trouble for the person who adopts it. Certainly this is true as long as everything takes place in imagination. But often make-believe is *acted out* in some form, and then *real* dangers can arise. This is particularly the case with role-playing games like "Assassin" and "Dungeons and Dragons"". As is characteristic for moral panic, he then cites newspaper stories where killings are attributed to "youngster's inability to distinguish fantasy and reality" or the fact that "the character whose role his brother had taken was supposedly clothed in a protective cloak which made him invisible". "Again, make-believe and reality were confused, with disastrous consequences", he concludes.

oriented fantasy campaigns that are run as small business franchises, or theatre-style larps that use cards for conflict resolution and are staged at gaming conventions (see Stark 2012).

In the Nordic countries larps are more diverse. In the collection *Nordic Larp* (Stenros & Montola 2010) we catalogued 30 Nordic larps with play duration ranging from hours to a month, player counts from six to a thousand and organization budgets from the negligible to hundreds of thousands of euros.

The central difference is that in the US, larp is often run as a continuous campaign based around a commercial larp franchise (such as *NERO* or *Darkon*) and organized as a business (even if there is no real profit) or a club with open membership (Stark 2012).[110] Nordic larps, on the other hand, are organized non-commercially. Even though cultural institutions might help finance them, it is more common to lose rather than earn money from organizing a larp. They are also often exclusive events, where players can apply to participate or are invited. While American larp tends to generate fun experiences, Nordic larps have gone often aimed for nuanced expression and non-fun gratification (see Stark 2012; Stenros & Montola 2010).[111]

3.1.5 Origins of Pervasive Games

The early history of pervasive games is at least as complicated as the history of role-playing. Here, pervasive games are understood as those games extending beyond a discernable magic circle of gameplay, which challenge the concepts of play area, play session and the game participant.[112] Thus, the definition of pervasive game is only applicable in urban societies:

---

[110] See also the documentary movies *Darkon* (2006), directed by Luke Meyer & Andrew Neel, and *Monster Camp* (2007), directed by Cullen Hoback.

[111] The development of Anglo-American and Nordic larp cultures echoes the predictions of the mass culture theory of the Frankfurter Schule (as summarized by Kunelius 1997, 84-86). Anglo-American larp, more influenced by commercialism, appears to be subject to much more powerful standardization of form, predictability of content and cultural harmonization than the mainstream of Nordic larp. (Compare Stark 2012 and Stenros & Montola 2010; also Hook 2008.)

[112] Compare with Flanagan (2009, 24-25) who uses Henri Lefebvre's discussion on the emergence of bourgeois culture and the idea of "leisure" to understand the position of play in contemporary culture.

> [W]e have limited our scope to ludic activities since the industrialization. The earlier distinctions of game and play were quite different from ours, as such concepts are intimately connected to the way a society understands itself and the world around it. The idea of temporal expansion is strongly connected to the dichotomy between work and leisure, and many pervasive games tap their power from this distinction. Likewise, spatially expanded games make sense mostly in an urban society based around public and private urban spaces. (Montola et al. 2009a, 53.)

From this angle, and following the same logic Huizinga (1938, 1-5) used when discussing the origins of culture in play, the exercise of looking for the first pervasive game appears absurd: It is obvious that animals play, but even though they metacommunicate (Bateson 1955), a discernable magic circle is not relevant for their play. Thus, it would appear that even though a magic circle contract is an important element of play in the contemporary Western culture, play predates the magic circle. And if games are seen as structured play, it is pointless to contemplate whether the structures turning games into play emerged before the contract-based spatiotemporal boundary of the magic circle. Whatever the case, it certainly happened a long time before any of these concepts carried the meanings that are relevant and possible in our culture.

In *Pervasive Games: Theory and Design* we scrutinized the history of play in public space and everyday life.[113] Looking at the history, it quickly became obvious that many of the contemporary forms of pervasive gaming have close roots in different playful activities, ranging from children's backyard games to forms of urban culture such as the graffiti movement, skateboarding, parkour, urban exploration (Ninjalicious 2005), squatting, the New Games Movement (Pearce et al. 2005) and so forth. April Fool's Pranks and student pranks have come close to pervasive play (cf. Holmila et al. 2007). Movements such as Theatre of the Oppressed (Boal 2002), Happenings (Kaprow 1966), psychogeography (Flanagan 2009, 207-216) and Fluxus (Flanagan 2009, 96-105) have explored similar activities.

Just like the film *Mazes and Monsters* rapidly popularized larp in 1982, the Italian 1965 cult classic *La decima vittima*, together with an episode of the television series

[113] This subchapter is largely based on research made for the Chapter Three of *Pervasive Games: Theory and Design* by Stenros & Montola (Montola et al. 2009a, 53-70).

The Saint popularized assassination games in the mid 60's (see also Johnson 1981). Similarly, the movies *The Last of Sheila*, 1973, *Midnight Madness*, 1980, and *The Game*, 1997, all inspired by pervasive games, have in turn inspired pervasive gamers. In fact, *Midnight Madness* was inspired by some of the games inspired by *Last of Sheila*, and it has been alleged (but not confirmed) that games inspired by *Midnight Madness* in turn inspired *The Game*.

Even though pervasive games were not termed as such before the turn of the millennium, the history of pervasive gaming is very fragmented, and the migration of influences is difficult or impossible to trace. Like the idea of larping, the idea of pervasive gaming is prone to being reinvented.

3.2 Defining Role-Playing in Games

Whether role-playing games are games in the ludological sense is a matter of definition, depending on both the style of role-playing perceived and the definition of game applied. Greg Costikyan (2002) has written one of the more open definitions of games: According to him, a game is "an interactive structure of endogenous meaning that requires players to struggle toward a goal". This definition is at least intended to include role-playing games, though it is debatable whether they require players to struggle toward a goal – and also what kind of a goal that would be (see Paper II).

For Jesper Juul (2005, 43) role-playing games are a borderline case of games. Out of his six criteria for a game – fixed rules, variable outcome, valorization of outcome, player effort, player attachment to outcome and negotiable consequences – role-playing games fill the last five. "[P]en and paper role-playing games are not classic games because, having a human game master, their rules are not fixed beyond discussion", writes Juul. In the light of the earlier discussion on rules, it is obvious that it is not uncommon at all that rules are not fixed beyond discussion.

In a manner similar to Juul, Katie Salen & Eric Zimmerman (2004, 81) consider tabletop role-playing games a "limit case" of games. They argue that even though games such as *Dungeons & Dragons* have the usual trappings of games and resemble them in most ways, their open-ended nature puts their gameness under question. Many tabletop role-playing campaigns do not have definite endings, and they also tend to lack victory conditions. After a discussion, however, they conclude that when role-

playing games are looked at and the levels of individual adventures, they fit their definition of game.

This angle can be criticized as well: As Salen & Zimmerman also note, tabletop role-playing games are not the only example of games that lack end conditions. Simulators such as *SimCity*, MMORPGs such as *World of Warcraft*, and Facebook games such as *FarmVille* are similarly open-ended, and all these examples generally fit under the umbrella of games as well.

It should be re-emphasized that for the most part, this dissertation discusses *role-playing in games*, not *role-playing games*. As is discussed in Paper II, and has been earlier proposed by Satu Heliö (2004), role-playing is an attitude and a mindset to be used in conjunction with some other activity. *Dungeons & Dragons*, *The Masquerade*[114] or *World of Warcraft* can all be played with or without a role-playing mindset (see also, e.g. Mortensen 2003, 59),[115] and a role-playing mindset can be applied to activities that are not designed as role-playing games – which is particularly relevant for pervasive larps such as *Prosopopeia* prototypes (discussed in Papers V-VII).

The different definitions of role-playing cover a lot of ground and vary widely. As previously mentioned, Krysia M. Yardley-Matwiejczuk presents a generic definition in her book on psychological role-playing:

> Role Play as a term describes a range of activities characterized by involving participants in 'as-if' or 'simulated' actions and circumstances. For example, someone may be asked to 'imagine' being in a dentist's waiting room anxiously awaiting a painful procedure, or to be a victim following a mugging. (Yardley-Matwiejczuk 1997, 1.)

Other definitions address very specific and precise forms of role-playing, for instance Daniel Mackay and Jennifer Grouling Cover only discuss tabletop role-playing. Mackay (2001, 4-5) defines role-playing games as "episodic and participatory story-

[114] The larp version of the tabletop role-playing game *Vampire: The Masquerade*, the later editions of which have also been published with the title *Laws of the Night*, also sold with the name *Mind's Eye Theatre*.

[115] In fact, only a minority of participants actually engages in role-play in virtual worlds (see Williams et al. 2010).

creation system that includes a set of quantified rules that assist a group of players and a game master in determining how their fictional characters' spontaneous interactions are resolved". Following Mackay closely, Cover suggests another definition:

> [Tabletop role-playing game] can be defined as a type of game/game system that involves collaboration between a small group of players and a gamemaster through face-to-face social activity with the purpose of creating a narrative experience. By game/game system I wish to convey the importance of the system of rules behind a TRPG. While role-playing can exist in a number of settings, without these rules, that role-play does not consist of a role-playing game. Childhood make-believe, for example, might be role-play that creates a narrative experience, but it is not a role-playing game. (Cover 2010, 168.)

Both Cover and Mackay produce definitions that serve as somewhat accurate descriptions of one, very specific form of role-playing. Henri Hakkarainen & Jaakko Stenros (2002) define role-playing much more abstractly, saying that "a role-playing game is what is created in the interaction between player(s) and game master(s) within a specified diegetic framework". Unlike Mackay and Cover, who define role-playing game systems, Hakkarainen & Stenros define role-playing as an activity.

Michael Hitchens & Anders Drachen also propose their own definition of a role-playing game, requiring a game world, participants, characters, game master, interaction and narrative. Their definition occupies a kind of middle space between the descriptive style of Mackay and the categorization-oriented style of Hakkarainen & Stenros. As their lengthy definition also serves as a good description of role-playing games, it's quoted here in full:

> **1. Game World**: A role-playing game is a game set in an imaginary world. Players are free to choose how to explore the game world, in terms of the path through the world they take, and may revisit areas previously explored. The amount of the game world *potentially* available for exploration is typically large.
>
> **2. Participants**: The participants in the games are divided between players, who control individual characters, and game masters (who may be represented in software for digital examples) who control the remainder of the game world beyond the player characters. Players affect the evolution of the game world through the actions of their characters.

> **3. Characters:** The characters controlled by players may be defined in quantitative and/or qualitative terms and are defined individuals in the game world, not identified only as roles or functions. These characters can potentially develop, for example in terms skills, abilities or personality, the form of this development is at least partially under player control and the game is capable of reacting to the changes.
>
> **4. Game Master:** At least one, but not all, of the participants has control over the game world beyond a single character. A term commonly used for this function is "game master", although many others exist. The balance of power between players and game masters, and the assignment of these roles, can vary, even within the playing of a single game session. Part of the game master function is typically to adjudicate on the rules of the game, although these rules need not be quantitative in any way or rely on any form of random resolution.
>
> **5. Interaction**: Players have a wide range of configurative options for interacting with the game world through their characters, usually including at least combat, dialogue and object interaction. While the range of options is wide, many are handled in a very abstract fashion. The mode of engagement between player and game can shift relatively freely between configurative and interperative.
>
> **6. Narrative:** Role-playing games portray some sequence of events within the game world, which gives the game a narrative element. However, given the configurative nature of the players' involvement, these elements cannot be termed narrative according to traditional narrative theory.
> (Hitchens & Drachen 2008, 16.)

Like most attempts to create precise definitions for cultural practices, all these definitions can be criticized. The descriptiveness of Mackay's definition can be seen lowering its defining value, especially by requiring episodic nature, quantified rules and presence of a game master person.

The requirement of a person in the game master role has been debated, because many role-playing games have experimented with dividing the functions of the traditional game master, among the participants in different ways. Johannes Kellomäki (2004) and Emily Care Boss (2006) have pointed out that taking a game master role is not a binary issue, but there are various stages between these two positions. This criticism has been answered by removing the requirement of game master as a person

and making it a function or a role instead, in a manner quite similar to the Power Rule presented in Paper II.

Another definition, by Eirik Fatland & Lars Wingård (1999) only discusses larp, but its simple eloquence applies to all role-playing games. They say that larp is a "meeting between people who, through their roles [characters][116], relate to each other in a fictional world". Fatland & Wingård's larp definition is relatively close to the description of role-playing game design pattern[117] by Staffan Björk & Jussi Holopainen (2005, 252): "Players have characters with at least somewhat fleshed out personalities. The play is centered on making decisions on how these characters would take actions in staged imaginary situations." This definition is a generalized version of Fatland & Wingård, which removes the excess sociality included in their definition – neither larps nor other role-playing games are restricted to mere diegetic meetings of people.

In this work, I use the definition of role-playing proposed in Paper II; a definition of role-playing as a structured social process. This process works as a mindset in the sense that it can be applied to other social institutions, turning activities such as ordinary gameplay into role-playing. It can be understood through its central constitutive rules, which are the World Rule, the Power Rule and the Character Rule. Quoting Paper II, the three *invisible rules* of role-playing are:

> 1) Role-playing is an interactive process of defining and re-defining the state, properties and contents of an imaginary game world.
> 2) The power to define the game world is allocated to participants of the game. The participants recognize the existence of this power hierarchy.
> 3) Player-participants define the game world through personified character constructs, conforming to the state, properties and contents of the game world.

These three rules define the foundation of role-playing in games, in the sense that they are the necessary constitutive rules of role-playing activity. In retrospect, I would like

---

[116] Due to linguistic differences, Scandinavian role-players often use the word "role" meaning a "character".

[117] Game design patterns are a collection of features used in games. It is curious to notice that no game system can ever enforce the players to play in a fashion that would include the role-playing pattern into the game played. It has been argued (e.g. Heliö 2004) that role-playing is not a feature of a game, but a feature of playing or gaming.

to emphasize the role of the character as player's "eyes, ears and hands" (Paper II) when interfacing with the game world, connecting the idea of the first person audience to the definition of role-playing.[118]

They are complemented by four additional rules that are not necessary, but typical for the different practices of role-playing:

> i) Typically the decisive power to define the decisions made by a free-willed character construct is given to the player of the character.
> ii) The decisive defining power that is not restricted by character constructs is often given to people participating in game master roles.
> iii) The defining process is often governed by a quantitative game ruleset.
> iv) The information regarding the state of the game world is often disseminated hierarchically, in a fashion corresponding with the power structure of the game.

Finally, I propose three more constitutive rules that *differentiate* the three most prevalent forms of role-playing. These three rules are mutually exclusive to some extent:

> t1) In tabletop role-playing the game world is defined predominantly in verbal communication.
> l1) In larp the game is superimposed on physical world, which is used as a foundation in defining the game world.
> v1) In virtual role-playing the game is superimposed on a computational virtual reality, which is used as a foundation in defining the game world.

The value of defining role-playing through invisible rules is not only that they seem to have fairly decent power in differentiating role-playing activities from those that are clearly not (borderline cases have been explored in Montola 2007), but their modularity also allows the definition to be tailored and used for several types of games: The related activities of tabletop role-playing, larp and online role-playing are all seen through the lens of the basic activity of role-playing.

Hitchens & Drachen (2008) have criticized the categorizing power of this definition, based on a short version of this definition published in Paper VI. They write:

[118] In part to address the criticism of Loponen & Stenros (2012) towards using the three original invisible rules as the definition of role-play.

> While it is almost certainly unfair, given its stated intention, we can examine how useful this definition is in explicitly categorising role-playing games; the word "game" is, after all, included. An "interactive process of defining and re-defining an imaginary game world" could apply to any game, as any game, even the most abstract, has a game world which the participants alter through their game play. The phrase "recognised structure of power" is likely meant to refer to the game master function and the variety of forms that can take, but does not define how power within the game is structured or how it is recognised or indeed whether the power structure may or may not be egalitarian. It should also be noted that software and a player could be considered to form a group of participants, with a power structure, so this covers all digital games. This definition could then cover a range of digital games, for example first person shooters and three-dimensional platform games, as well as board games such as Talisman and Squad Leader which represent individual characters within the game. It is not likely that this is actually intended and again this definition has much more to say about the role-playing process than role- playing games. (Hitchens & Drachen 2008.)

This criticism is rendered largely irrelevant in the (simultaneously published[119]) full version of *The Invisible Rules of Role-Playing* (Paper II), where the concepts of game world, power and characters are elucidated. It is also further clarified that a software program is not considered a participant in the sense of multi-player games requiring several players.

The full version also states that, following Heliö (2004), it *is* perfectly possible to engage in role-playing with *Talisman*, *Squad Leader* or *chess*, as role-playing is not seen as a system, but as a way of playing: Just like play in general is about constructing an additional layer of meaning on top of pre-existing brute and social reality, role-play in games is about constructing an additional layer on top of pre-existing social reality of the game used in play.

[119] The publication process of Paper II took several years after the manuscript was completed, and it was finally published in full in the inaugural issue of *International Journal of Role-Playing* where Hitchens & Drachen published their criticism of shorthand versions. Before the main paper was published, two papers not including the full definition were published; Paper VI and Montola 2007.

3.3 Defining Pervasive Games

Pervasive games have been defined in several ways over the years. Jay Schneider and Gerd Kortuem (2001) provided the first academic definition for the concept, writing: "We define a Pervasive Game as a LARP game that is augmented with computing and communication technology in a way that combines the physical and digital space together". Essentially, they created a live-action version of the board game *Cluedo*, in order to study the possibilities of pervasive computing applications for gaming.

After their work, the idea of pervasive gaming got separated from larp, and many works (e.g. Waern et al. 2004; Lindley 2005; Walther 2005) that use the precise term "pervasive games" only discuss pervasive games as games that utilize pervasive or ubiquitous computing technologies, such as wearable computers, computationally augmented artifacts and various handheld devices. During the following years, a lot of discourse emerged; conducting a literature survey, Eva Nieuwdorp (2007) identified at least the following meanings for the term (shortened):

- a game that depends primarily on pervasive technology and nonstandard input devices;
- an existing game that is augmented by computers, resulting in a blend of the real and virtual worlds;
- a game that pervades the real world in an undefined manner, and thus blends with it;
- a specific setting of the game world within the real world;
- a game that blurs the boundaries between itself and the real world, which can influence the concept of the magic circle;
- a game that is an overlay of the real world or where the world becomes a game board;
- a game with a persistent presence in the real world, and thus available to the players at all times;
- a game where the gameplay interacts with elements of the real world, thus challenging standard gameplay conventions;
- a game where there is mutual interaction among players and elements in the real world;
- a game that blends with everyday experiences.

The two first meanings are technological, and Nieuwdorp labeled this perspective on pervasive gaming as the *computing discourse*.

The IPerG project, during which the papers of this dissertation were mostly written, initially approached pervasive gaming mostly by way of the computing discourse (Söderberg et al. 2004). As the project was also keenly interested in the gameplay made possible by pervasive computing, it soon turned out that pervasive games needed to be studied *as games*, just like the early ludologists argued that games had to be studied as games. In terms of gameplay, the playful pervasive computing prototypes seemed to have numerous technology-independent predecessors. Thus, a ludological definition was necessary; one that did not approach pervasive games through the computing technologies used in play, but through their social, cultural and structural properties.

The central property of pervasive and ubiquitous computing is to open up the design space of games that reach spatially and temporally beyond the magic circle of gameplay. And as they do so, they also involve outsiders in play. Thus, pervasive games change the idea of the magic circle of gameplay spatially, temporally and socially. A short definition, from Paper III, goes as follows:

> A pervasive game is a game that has one or more salient features that expand the contractual magic circle of play spatially, temporally or socially.

The definition and the full surrounding discussion are presented in Paper III, and earlier versions in Montola (2005b) and Montola et al. (2006b). Some similar and related ideas about pervasive games blurring the boundaries of game had been discussed earlier by T.L. Taylor & Beth Kolko (2003), in their discussion of *Majestic*, Jane McGonigal (2003b), in her discussion of *The Beast*, and Katie Salen & Eric Zimmerman (2004, 578-581), in their discussion of *Vampire* larps played on streets.

Even though the ludological definition of pervasive games is very different from the definitions of the computing discourse, they are historically connected. The rapid spread of computer networks and wireless technologies have enabled numerous pervasive game designs that would have been impossible before. Even before the era of mobile phones, treasure hunts and other pervasive games sometimes used payphones, and with the proliferation of smartphones, designs such as *Shadow Cities* became possible.

As discussed earlier, pervasive games such as *Killer* are made possible by internal validation, i.e. only good sportsmanship can ensure that the player triggering the booby-trapped blender (Figure 4) reports his successful assassination. Mobile

computing technologies however make it possible to push the boundaries of external rule definition and validation much further than would be possible with even the best sportsmanship, for example through various real-time gameplay mechanics.

In a historical perspective, the frequently re-emerging connection of pervasive gaming and role-playing is perhaps a little surprising, because the connection of the two is not fundamental but merely practical.[120] Different forms of pretend play are common enough and children engage in "pervasive larp" on the streets on daily basis without a formal understanding of their activity.

3.4 Pervasive Role-Playing

Pervasive role-playing, such as the games analyzed in Papers V- VII, is simply pervasive gaming with role-playing elements. Despite their early definition of pervasive games, Jay Schneider & Gerd Kortuem's (2001) prototype game *Pervasive Clue* was not a pervasive role-playing game as per this definition – in fact, their game was not a pervasive game at all, according to the definition used in this dissertation.[121]

Pervasive forms of larp are a natural step of evolution from larping indoors and in the wilderness. One example is *The Masquerade*, a vampire-themed larp rule set, based on the tabletop role-playing game *Vampire: The Masquerade*. The authors of *The Masquerade* intended their game to be played as an indoor game, but the players soon took their vampire characters out onto the streets (see Salen & Zimmerman 2004, 578-584; Montola et al. 2009a, 36). Quoting the second edition of the book:

> When we set out to create [The Masquerade], we envisioned people playing in small groups in their homes. [. . .] We were wrong. Many people are now playing in public spaces and at conventions, some of them in groups of over two hundred players. (The Masquerade Second Edition 1994.)

---

[120] Even though Harviainen & Lieberoth (2011) also staple them together for analytic purposes: "Together, these game genres can be viewed as highly institutionalized versions of adult pretence play. Let us refer to them as PGs for short, underscoring their paradoxical proximity and distance to everyday life. P stands simultaneously for "proximity", "pretence," and "pervasive"."

[121] It is difficult to know the extent of role-playing that was done with the prototype game.

Other examples of independently and sporadically invented pervasive larping include *Föreningen visionära vetenskapsmäns årliga kongress*, a 1996 larp portraying a group of mad scientists attending their annual congress on the MS *Silja Europa*. According to Samir Belarbi, the creator of the larp, larping in public was not an entirely novel invention even then:

> Playing in public was nothing new. I studied at an art school and was very much influenced by the movements from the sixties, like Fluxus and Neo Dada. I was familiar with Augusto Boal's *invisible theatre* – a method to perform short undercover plays in public. The objective of those plays was to enlighten the spectators and force them to take action, thus becoming a part of the play. Another touchstone was the game *Gotcha!* '90 (1990, inspired and named after the 1985 film) played in Stockholm, running around in public and shooting each other with water pistols and ping-pong guns. (Belarbi 2010.)

Finally, in his master's thesis, Philip Tan (2003) describes a reverse development, where pervasive gaming picked up features of role-playing. The already-pervasive *Killer* games of the MIT Assassins' Guild picked up some properties of larp.

> The MIT Assassins' Guild was originally an ad-hoc student-run Killer group in the Massachusetts Institute of Technology. The university officially recognized the MIT Assassins' Guild as a student activity in 1982, in stark contrast with many other college campuses that outlawed Assassin games because of the inconvenience caused to bystanders and the occasional damage to college property. From extensive crosspollination and rivalry with the SIL group in Harvard, the Guild developed its "Team Killer" games into more complex conspiratorial, political, technological and fantasy motifs, experimenting with the theater style format while protecting the competitive streak of Assassin. (Tan 2003, 26.)

Even though the vast majority of games combining pervasive gaming and role-playing are larps, it is possible to imagine pervasive role-playing games that are not larps. In Paper II, larp is defined as a role-playing game where the following rule applies:

> In larp the game is superimposed on physical world, which is used as a foundation in defining the game world.

For example, a pervasive role-playing game could take place in public in the internet, in a manner slightly similar to alternate reality games. For instance, the players could stage a role-playing game on some internet forums, portraying fictional characters.

Such a game could follow the invisible rules of role-playing (Paper II) and feature very strong spatial, temporal and social expansions – even though the spatial expansion would take place in the cyberspace.

4. Studying Pervasive Role-Play

As an independent discipline, one of the central problems of ludology is its lack of sophisticated methodologies. Even though it originated from the desire to study games as games, ten years later it is still somewhat uncertain *how* that is done. Indeed, many of the works that advocate ludology are based on theoretical thinking, where the quality of argumentation is the measure of validity, reliability and generality.

In practice, the typical ludological works (e.g. Juul 2005; Järvinen 2008) utilize a pragmatic approach, combining theories, models, methods and disciplines in order to scrutinize a phenomenon from many angles and in various contexts. As the researchers are focused around the object of study, multi-disciplinary approaches are natural.

In this work, some papers are based on theoretical analysis (Papers II-III), pragmatically selecting approaches and concepts from several disciplines. Sometimes my personal research interests motivated those decisions, but equally often they were derived from project-wide research goals.

In addition to ludology, this work also connects to the research done in the field of human-computer interaction, especially research on new ways of interacting with novel technologies. Some papers discuss pervasive game prototypes (Papers IV-VII) staged in the context of technology research aiming to provide new kinds of user experiences. In such design research, the most common and often only way to proceed is through implementing prototypes in order to address research questions. Often the most interesting findings emerge as byproducts of the research trials (Reid et al. 2010), as has also happened sometimes in these papers.[122] As the quality criteria for prototype studies and theoretical ludological research are very different, it has been interesting to write papers integrating components from the both sides (Papers III-VII).

[122] It is in the nature of prototype research that research papers often have a large number of authors. While I have written and contributed to a number of such papers, I have chosen to include only very few of them in this dissertation, since I have rarely written them as the first author. However, some of the included papers (IV; VI; VII) synthesize some of that work.

Accompanying the work on *Prosopopeia* prototypes, we have also constantly maintained a track of ethical discussion, discussing the problems that emerged during the prototype runs, and reflecting them against the ethical issues that emerged from other pervasive games.[123]

4.1 Ephemeral Prototypes

Most ludologists study digital games and board games. Thus, they are able to refer to games as physical artifacts and software programs that can be archived and revisited whenever (e.g. Juul 2005; Björk & Holopainen 2005; Järvinen 2008). They can make do without a particular need to discuss their interpretations and viewpoints on games. In practice, it is relatively easy to double-check whether the first level of *Super Mario Bros* features representations of hippopotamuses or mushrooms, and the ways of playing *Super Mario Bros* are limited enough to allow sensible discussion on the game without a detailed account of a particular play session.

Virtual world game researchers face a more complicated situation, as the games are too massive to be understood totally by a single person, the games change constantly, and substantial parts of the experiences are produced communally and culturally among the players. Thus, researchers (e.g. Klastrup 2003; Mortensen 2003; Taylor 2006; Copier 2007; Pearce 2009) utilize ethnographic methods to reveal cultural phenomena particular to one virtual place and time and community. Authors who study the cultures and communities of play (e.g. Sihvonen 2009; Sotamaa 2009) are largely in the same situation.

Neither of the above approaches was particularly appropriate for the purposes of the papers included in this work. First, the games under scrutiny were ephemeral in nature, making the digital game approach impossible. Second, the games under scrutiny were research prototypes: Studying such prototypes through ethnography is problematic,

[123] As this dissertation is not a work on ethics, those publications have been excluded from this work.See Montola & Waern 2006a; Montola et al. 2006a; 2009a, 197-213; compare with Harvey 2006; Flanagan 2007; Flanagan 2009, 204-207. Those ethical discussions were also continued in a series of workshops that were held in Knudepunkt, Denmark (2007); PerGames, Austria (2007); Solmukohta, Finland (2007); and ENJMIN, France (2011),

because you are both creating cultural phenomena, and also studying them as an outside ethnographer.[124]

As the papers either seek to synthesize understanding gained from numerous instances of play and games (Papers III; IV; VI; VII), and often refer to individual occurrences, the problems of ephemerality are very relevant for this work. By example, there has ever been only one instance of *Momentum*. Recreating *Momentum* would be a practical impossibility, but more importantly the rerun would be extremely different from the original game: Unlike the resettable memory of a computer, *Momentum* was run in one place, at one time in one phase of a society, and it was deeply entwined with its players' personalities and personal histories. Playing through the single instance of *Momentum* changed the tokens of the game – the players of the game – irreversibly.

A constructionist approach is a natural choice for a work such as this one, which largely deals with players' perceptions and constructions regarding games: Both role-players and pervasive gamers deal with meaning-making, either through world-creation or assigning new meanings to the ordinary world. As discussed in the papers, role-playing is a process of constructing a social game world in communication (Paper II), and pervasive gaming can seen as a process of perceiving the world in a particular fashion, superimposing game meanings on the ordinary world (Paper III).

Researching these kinds of games requires heightened source criticism, and placing a considerable amount of trust on documents and interview statements. You, the reader, have no alternative but to trust the anecdotes and interpretations the first-hand observers and researchers have made of *Momentum*, because the primary source – the game itself – no longer exists, and cannot be reproduced with accuracy. Similarly, whenever I have referenced games such as *Uncle Roy All Around You*, *Epidemic Menace* and *BotFighters*, I have been forced to rely on authors writing about those games.

The unfortunate fact about such accounts is that sometimes they are inaccurate. After spending countless hours of effort in participating in a larp with the best possible effort, the players frequently come up with a *post-game lie* to convince others, but

[124] Denward's (2011) study of *Sanningen om Marika* is in a slightly different situation. First, that game was an experimental game, but no longer a research prototype. Second, she was not involved in its creation. Third, she also took an ethnographic approach to the producers of the game, not only the player community.

especially themselves that the game was excellent and that the effort put into participation was worthwhile (Stenros et al. 2011b). Similarly, Frank Lantz (2009) has commented that on the alternate reality game scene it is often mutually beneficial for the players, the producers, the executives and even the researchers to engage in mutual reassurance that the produced game was excellent and attracted vast crowds of active players. Players reassure themselves that their participation was worth the effort, producers bolster their portfolio with an excellent game, executives convince their superiors that the money was well spent, and the researchers gain an opportunity to publish interesting findings that get a lot of attention.

Such narrativization is not necessarily malignant; instead, it is often the most natural thing to do, and each party has a different rationalization. I personally wrote the following paragraph in a 2006 paper on *Prosopopeia Bardo 1: Där vi föll*:

> Our focus is mostly on the designs and intentions of the game organizers, discussing the player feedback and their subjective experiences a little less. This is because we want to emphasize the design lessons of *Prosopopeia* rather than the ups and downs of the unique orchestration of June 2005. (Montola & Jonsson 2006.)

In all honesty, numerous aspects of the project had gone wrong, forcing the runtime game masters to improvise and patch up the game constantly. The game had culminated in a major technology malfunction that ruined the final scene of the game for many of the 12 players. Nevertheless, we had valuable findings and considered the game a quite successful proof of concept for the gaming genre, and wanted to report those findings instead of mulling over our own failures when it came to minutiae of game producing, project management or prototype technology development.

This example underlines the problems of understanding ephemeral games without firsthand experience of them. Scholars should be skeptic about business claims such as "[o]ver 3 million people actively participated" in *The Beast*.[125] When reading about larps that strive for perfect physical illusion (e.g. Papers VI-VII; also Stenros &

[125] A claim made by 42 Entertainment in www.42entertainment.com/beast.html (ref. May 30th, 2009).

Montola 2010), documentation must be written and read carefully in order to truly understand what was actually implemented.[126]

Proving the validity and reliability of the results of such research is a difficult problem: How does one go about gathering evidence that an informed designer created a result that is "better" than the one she would have created without research knowledge? Answering that question in detail would merit a full dissertation in itself. This is especially true when we take into account the critique of hedonic psychology towards our ability to assess our experiences retroactively. If we are, as Daniel Kahneman (1999) and others have shown, unable to give even remotely reliable retrospective assessments of pain, how could we assess the enjoyability of our gameplay experiences any better?[127]

Nevertheless, ephemeral performances need to be studied, and such study can yield solid results. In fact, each paper included in this dissertation should display the way generalized understanding can be derived from those fleeting moments.

Josephine Reid and others (2010) have developed an *emergence-driven research method* for location aware experiences, based on the problems caused by the expanded magic circle. They suggest a following model (Figure 11).

[126] Few documentations are done as thoroughly and honestly as Johanna Koljonen's exemplary analyses of the *Dragonbane* larp (Koljonen 2008; Koljonen et al. 2008).

[127] This relates to the complicated philosophical issue of whether it is better to have a play experience that is enjoyable during play, or an experience that we remember as enjoyable afterwards.

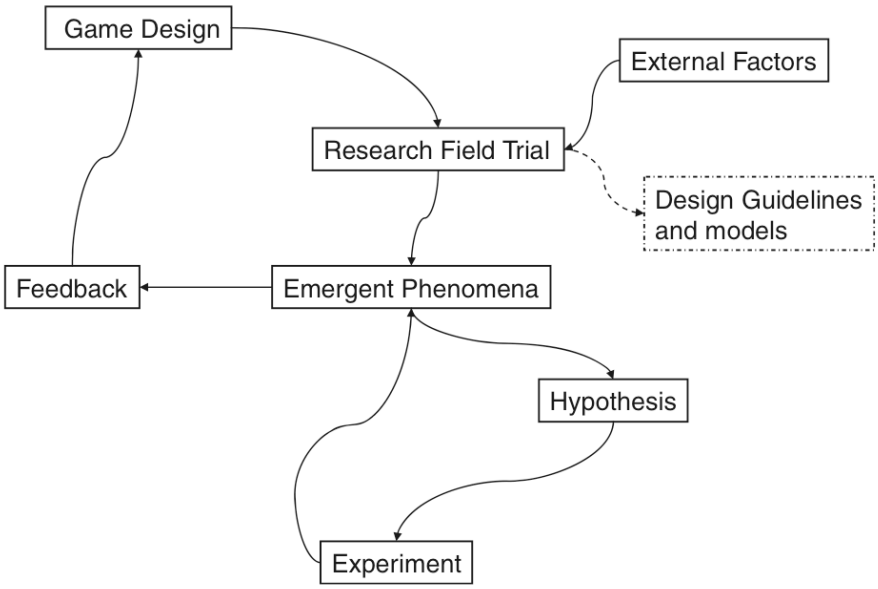


Figure 11. Emergence-driven research method (quoted from Reid et al 2010). Games such as *Där vi föll, Momentum* and *Conspiracy For Good* classify as research field trials. No experiments were conducted for this dissertation.

In the emergence-driven method, games (such as the *Prosopopeia* games) are staged.[128] Because field trials are large-scale games, they are influenced by numerous external factors and design constraints (see Koivisto & Ollila 2006; Paper IV), ranging from diverse research interests packed in the same project to constraints such as funder requirements in projects like *Conspiracy For Good* or *Sanningen om Marika*. Nevertheless, studying such games generates interesting findings. According to Reid et al, such findings should then be confirmed with specifically designed experiments, where the influence of external factors can be minimized.

This process has not been used in the research leading to this dissertation, for many reasons. First, the method was suggested only years after the prototypes had been staged and evaluated. Second, such process is extremely work-intensive even for a doctoral dissertation; Reid et al suggest that "[o]ften an experiment will be a Masters or

[128] Reid et al. suggest that field trials last from a week to a month, have hundreds of participants and 10-20 researchers and administrators working on them. Even though they had fewer players, the *Prosopopeia* games were projects of roughly this size.

PhD project and will be designed and conducted by one to five researchers", while field trials require 10-20 researchers.

Thus, studies such as the research on *Prosopopeia Bardo 1: Där vi föll* and *Prosopopeia Bardo 2: Momentum* should be considered exploratory studies, situated in the upper end of the emergence-driven research loop. Most of the findings produced by those games emerged in play.

Validation of such results has been done through the comparison of field trial –level projects, especially in Paper IV (also in *Pervasive Games: Theory and Design*; and to a lesser extent in Paper VI). When doing comparisons between several field trials, it is impossible to minimize distracting external factors in order to interrogate one specific research hypothesis. Then again, there can be no such a thing as a controlled pervasive experiment in any case. As Reid et al. argue:

> As the context and the physical environment is such an integral part of a located game, we believe that it is essential to be able to evaluate the experience within the real environment which, by its nature, is uncontrolled, unpredictable and unrepeatable, unlike a laboratory experiment where many factors such as light, temperature, spectators, props and game players can be controlled. In a public space, we cannot control who else is there, what the weather will be like, whether plants will be in bloom, animals will make an appearance or if other natural or social events might occur. (Reid et al. 2010.)

Thus, I argue that confirming emergent findings through the comparisons of field trials and published games is methodologically as valid as confirming them by means of precisely designed experiments. In practice, researchers should always initially look for confirmation from other research field trials and published games, for the simple reason that creating a valid experiment requires a lot of effort. In order to allow later comparisons, findings that cannot be confirmed from earlier games should also be reported.

As a case example, in the study of pervasive larp, there has been a clear and distinguishable progression of knowledge ranging from the *Där vi föll* game evaluations (e.g. Montola & Jonsson 2006; Paper V) to the design of *Momentum* (Jonsson et al. 2007) and evaluation (Stenros et al. 2007a; 2007b; 2007c). The evaluation findings have been further generalized to discussion on pervasive game design (Papers IV and VII; Montola et al. 2009a), pervasive game ethics (Montola & Waern 2006a; Montola et al. 2006a; 2009a, 193-218) and pervasive larp design (Paper

VI; Montola et al. 2009b).[129] These design and research exercises have lead to development of further games, such as the Nokia-funded *Conspiracy For Good*, in which many earlier findings manifested themselves again.

For example, one of the radical design decisions of *Prosopopeia* was to provide as many game instructions as possible in a diegetic manner. Because players were role-playing possessed versions of *themselves* (Paper V; Montola & Jonsson 2006), they also existed within the game world, and could be instructed by non-player characters: Instead of a game rule stating that "This is a possession ritual, where you will now be possessed", the diegetic versions of the players were taken into a possession ritual, and players were expected to understand that in the magical reality of *Prosopopeia*, such a ritual would obviously work.

This kind of a radical decision is appealing, because it minimizes the need of non-diegetic preparation, and supposedly generates a thrilling sense of blurring the magic circle. In practice, however, such ambiguity created undesired confusion[130] in players (see Montola & Waern 2005), and the design strategy was toned down for *Momentum* (see Jonsson et al. 2007) with successful results. The same group of designers later created the game *Conspiracy For Good*, where they experimented with diegetic play instructions again, but again ended up with confusion:

> In particular, giving out the instructions on how to play and recapitulating the story so far in a diegetic fashion caused major problems. However attractive the ideal was, it was slow, inefficient, imprecise and muddled. It is much preferable to communicate the rules, goals and setting outside the fiction and in a clear and concise manner. Seemingly, this violates the coherence of the game, but in actual practise, confusion over the setting and the rules is much more damaging to the experience. As noted by Jonsson et al. (2007) in an earlier unsuccessful attempt of a similar solution, the "problem was that there was no *agreement* on how to play and what to play". As we can see from *CFG*, this may be particularly problematic

[129] Many of these research papers are not included, because they are results of collaborations, especially with Jaakko Stenros and Annika Waern, and including them in the main corpus of a doctoral dissertation turned out to be troublesome. The methodological discussion is nevertheless relevant for understanding Papers IV-VII.

[130] In light of the theory presented in this introduction, it is obvious that the confusion resulted from the fact that players were uncertain of whether X counted as Y in context of the game.

> in productions where there is an apparent element of competition. (Stenros et al. 2011a.)

This process from *Där vi föll* to *Momentum* to *Conspiracy For Good* is similar to the upper end of the emergence-driven research method of Reid et al: External factors could not be controlled, especially not in the case of *Conspiracy For Good*, which was a commercial project.

4.2 Evolution of Pervasive Role-Playing Prototypes

The prototypes studied in the included papers were produced in international multidisciplinary collaboration projects. As such, the papers selected for this collection should be understood in that larger context, as they have been produced in and contributed to those projects. This subchapter discusses how knowledge of pervasive larp has been accumulated and utilized in a number of pervasive games exploring the genre.

The central decision was to focus on *pervasive forms of playfulness* instead of *games utilizing pervasive computing* (see Papers III and IV). The decision, which may appear simple in retrospect, was both academic and political in the context of the IPerG project. In my opinion, it appeared more fruitful to study pervasive forms of playfulness rather than the pervasive computing technologies, even though the project funding and many of the project partners put a strong emphasis on technology.

Combining prototype research with social construction is not a typical decision. A proper constructionist study should be undertaken with a high awareness of the cultural context of the studied phenomenon, and prototype studies inherently lack a natural context. For example, in Paper IV, I have criticized studies that try to understand fun in pervasive games for their difficulties of separating novelty value from those properties of the prototype game, as well as from their tendency to stage games in a research prototype context instead of a context where the players would be oriented towards having fun with a game. This combination was nevertheless necessary in this work, for producing an understanding of pervasive games. First; the IPerG project worked on futurology in the sense that the goal was to understand the potential of pervasive games utilizing technologies that were still not in widespread use. Second, understanding the gameplay of those prototypes made it necessary to use both subjectivist and

constructionist explanations. It was deemed necessary to use constructionist approach on a topic that did not have a natural context.[131]

The discussion on pervasive games presented in this dissertation owes much to the works of Jane McGonigal (especially 2003a; 2003b; 2006). On the other hand, this work comes from the culture of prototyping pervasive games that was brought to the IPerG project by the people from the field of computer-human interaction research (see Paper IV; also Waern et al. 2004). Most of all, the value of these prototypes needs to be credited to designers and producers such as Martin Ericsson, Staffan Rosenberg, Christopher Sandberg and Adriana Skarped.

4.2.1 Beginning: Där vi Föll

The first *Prosopopeia* prototype was designed based on the designers' experiences from larp. The designers had earlier created a number of intricate larps aimed at producing a perfect physical immersion in a closed space (Ericsson 2009; Koljonen 2007; also Paper VII). On the other hand, they were aware of the typical hobby practices of earlier pervasive larps, such as vampire larps (see Salen & Zimmerman 2004, 578-581; Montola et al. 2009a, 35-37; Loponen 2010) and alternate reality games (see e.g. McGonigal 2003a; 2003b). They had also experimented with a location-aware game, prototyping the ways of teaching the history of the city of Visby to tourists (Ericsson 2003).

Prosopopeia Bardo 1: Där vi föll was created from this background. It was an attempt to develop a proof of concept for an extremely powerful pervasive illusion of merging life with game. In a sense, the game was a playable version of the aesthetics presented in David Fincher's 1997 movie *The Game*: A game where the players would be uncertain of where the game ended and where the ordinary life begun, a game that might interact with the friends and the families of the players, a game that would absorb the players not only physically, but also socially.

[131] *Där vi föll* and *Momentum* were designed and played by Stockholm larpers, so the larp culture served as their primary cultural context. Many other IPerG games, such as *Interference*, *Mythical: The Mobile Awakening* and *Epidemic Menace* only had the (in some sense) artificial research context.

In order to reach this *This Is Not a Game* aesthetic, they used numerous novel designs: The scenography and the props of the game were made to appear as real as possible so as not to detract from the immersive nature of the game. The players were made to interact with stooges, outsiders and known players in order to force them to treat every person they encountered as a part of the game – since they could never be sure. The game featured a possession-themed role taking method that allowed the players to both engage in deep character role-play and meet their families and friends in a context that would still be a part of the game for them.

Där vi föll was a 52-hour game for 12 players, analyzed in more detail in Paper V, as well as in Montola & Jonsson (2006).

4.2.2 Scaling Up: Momentum

The results of *Där vi föll* were encouraging in terms of player experiences and players found the game highly engaging and enjoyable. The project team decided that the main follow-up research question concerned scaling up the project and seeking out more economical ways of producing similar experiences. The original intent was to make a five to ten times longer game for a five to ten times larger number of players, without sacrificing too much of the *Där vi föll* aesthetics. As *Prosopopeia Bardo 2: Momentum* ran for five weeks for 30 players, the duration goal was exceeded, but the player number goal was not met. Some players claimed that they had been mostly in character for the full duration of 30 days, 24/7. Of course, staying in the diegetic frame in *Momentum* was much easier than in some other larps, as the possession model used allowed the players to at least claim their everyday discussions as a part of the diegetic frame: I may be possessed by a ghost, but the fact that I'm playing a digital game is just a moment when the ghost is not in charge of what I do. Thus, my playing of the digital game is a part of my *Momentum* diegesis.

Game mastering a larp that is played at strange times in unexpected places, where you are never sure who the players conversed with, proved to be a major challenge. The game masters tried to keep watch at all times, in case players needed attention – supporting characters responded to their emails, ghastly voices spoke out of the occult equipment, et cetera. In practice however, maintaining such a watch for 30 days was extremely exhausting.

In this work, traces of *Momentum* are present in Papers IV, VI and VII. The detailed evaluation of the results and most significant lessons have been presented elsewhere (Stenros et al. 2007a; 2007b; 2007c; Jonsson et al. 2007a; 2007b), but as those works are collaborative efforts merging the ideas of numerous people, they have been excluded from this dissertation.

4.2.3 Spinning Off

Där vi föll and *Momentum* were products of the IPerG project. After they were played and tested, some of the ideas trickled into the final IPerG prototypes – such as the augmented reality game *Interference* (see Bichard & Waern 2008) and the mobile phone game *Mythical: The Mobile Awakening* (see Paavilainen et al. 2009; Holopainen & Waern 2009).

At the same, time the creators of *Prosopopeia* and *Momentum* pursued their attempts at popularizing pervasive role-playing. *Sanningen om Marika* (see Denward 2011; Denward & Waern 2008; Waern & Denward 2009) was produced in collaboration by The company P and Sweden's Television SVT. It combined a drama series shown on television with elements of alternate reality gaming. However, its most notable feature was the extremely strong blurring of reality and fiction, partially based on the reputation of the public service broadcaster producing it. Among other things, the production included fabricated talk shows that combined real and fictional characters who debated the events portrayed in the drama series as if they were real. During the course of that production, the main actress Adriana Skarped engaged in pervasive role-playing for months with very few breaks (Stenros & Montola 2011b).

Conspiracy For Good (see Stenros & Montola 2011a; Stenros et al. 2011a) was an attempt at bringing pervasive role-playing closer to mainstream in London in summer 2010, by "tricking" people into role-play in several ways. The last episode of that game made the players infiltrate the evil corporation by sending them to work interviews with fake identities, expecting them to dress up accordingly. Once the players were talking with actors, dressed up and pretending to be someone else, they were essentially larping. Most recently, many of the same people have been collaborating with several major European public service broadcasters on a new project combining pervasive larp with television.

Since 2011, I have worked as a professional game designer for the commercial location-based online role-playing game *Shadow Cities*. While the game is closer to prototypes such as *Songs of North* (see Lankoski et al. 2004) and *Mythical: The Mobile Awakening*, than it is to the *Prosopopeia* series, it certainly is a spatially and temporally expanded pervasive game that could afford role-playing mindset with a double life strategy.

4.3 Central Outcomes

In the introduction I stated that the goals of this work are to establish a conceptual framework for understanding pervasive games and role-playing in games, to shed light into the expressive potential of pervasive games through prototype designs, and to establish a theoretical foundation for the study of ephemeral games.

Probably the most valuable contribution of this work is in establishing conceptual frameworks for understanding role-playing in games and pervasive games through *definition work*. The way pervasive games have been defined and understood (Paper III) as an entire basket of experiences has been particularly influential. The idea of pervasive games did not exist in this way before the work was conducted for this dissertation (compare Nieuwdorp 2007 and Paper III).

The book *Pervasive Games: Theory and Design* (opened by Paper III) shows the value of the way of understanding pervasive games, as it has already played an important role in the doctoral dissertations of Erik Kristiansen, Roskilde University (2009); Christy Dena, University of Sydney (2009); Marie Denward, University of Malmö (2011) and Stine Ejsing-Duun, University of Aarhus (2011).[132] In a review in *Journal of Gaming and Virtual Worlds*, Jason Farman (2010) stated that *Pervasive Games* is "a snapshot of the foundation of pervasive games and will undoubtedly be the text we continue to refer to for years to come".

The conceptualization of role-playing through the invisible rules of role-playing (Paper II) has also seen some use (e.g. Copier 2007, 39; Medler & Magerko 2010;

[132] The dissertation of Neil Dansey, University of Portsmouth, is also forthcoming.

Harviainen 2011a; Bergström forthcoming), as well as debate over its merits (cf. Hitchens & Drachen 2008; Arjoranta 2011).

Crafting theoretical definitions is always normative work.[133] The process of defining pervasive games or role-play is at least as much about choosing to define X as Y, as it is about discovering and labeling X. Thus, good definition building work is always also about building definitions that support fruitful theory formation. The pragmatic value of definition work will ultimately be determined in the test of time.

Looking back to the year 2004 when this process began, it is clear that the understanding of the expressive power of pervasive role-playing has increased significantly. Even though pervasive larps had been staged before *Där vi föll*, and *Momentum* (see Belarbi 2010; Tan 2001; Salen & Zimmerman 2004, 578-584), those games experimented with numerous novel ways of playing, that have been analyzed in this research process.

In addition to the direct impact of the *Prosopopeia* prototypes, the design repertoire, the understanding of the ethical issues, the use of technology in larp, and the techniques of game mastering have grown considerably. This dissertation contributes to that process by theorizing the phenomenon and synthetizing and generalizing lessons taken from various sources. Papers such as IV and VII have been efforts at distributing the lessons of *Prosopopeia* games beyond the game studies community.

This introduction, and the final paper of this work (Paper I) have established one way of studying ephemeral games, by contesting the dominant formalism[134] of ludology. This work arose from a need for theoretical and methodological tools, as a ludological formalism is impractical for the study of ephemeral games. The impact of this work is, of course, impossible to assess at the time of writing.

Working on pervasive role-playing has produced opportunities to work on the fundamentals of the genres. In publications such as *Pervasive Games* (Montola et al. 2009a) and *Nordic Larp* (Stenros & Montola 2010), it has been possible to make nascent and unknown gamer cultures visible. Documenting little-known forms of play is particularly valuable in the context of games that are hard to access. Ephemeral

[133] As Frasca (2007, 76-77) also argues.

[134] Or structuralism, as Järvinen (2008, 24-25) characterizes the focus on systems and exclusion of players.

games are not the only case where such work is particularly valuable, other examples include Asian games (from the Western perspective) and games that require extreme amounts of skill and dedication to play.

5. Introduction to the Included Papers

The collection of papers selected for this dissertation has its roots in the various interests and activities of the research period. While the discussion on ephemerality that binds role-play and pervasive games together is fairly recent in the progress leading to this dissertation, the connections of these two open-ended and mutually supportive styles of gaming were discovered much earlier.

In retrospect, it appears that I have done similar work in two fields: When I published my first (semi-academic) paper on role-playing in 2003[135], discussions on role-play needed additional concepts and frameworks. When I started publishing on pervasive games in 2005, the situation was largely the same with pervasive games. These two threads come together in the discussions on pervasive larps. The interrelations of the selected papers are illustrated in Figure 12.

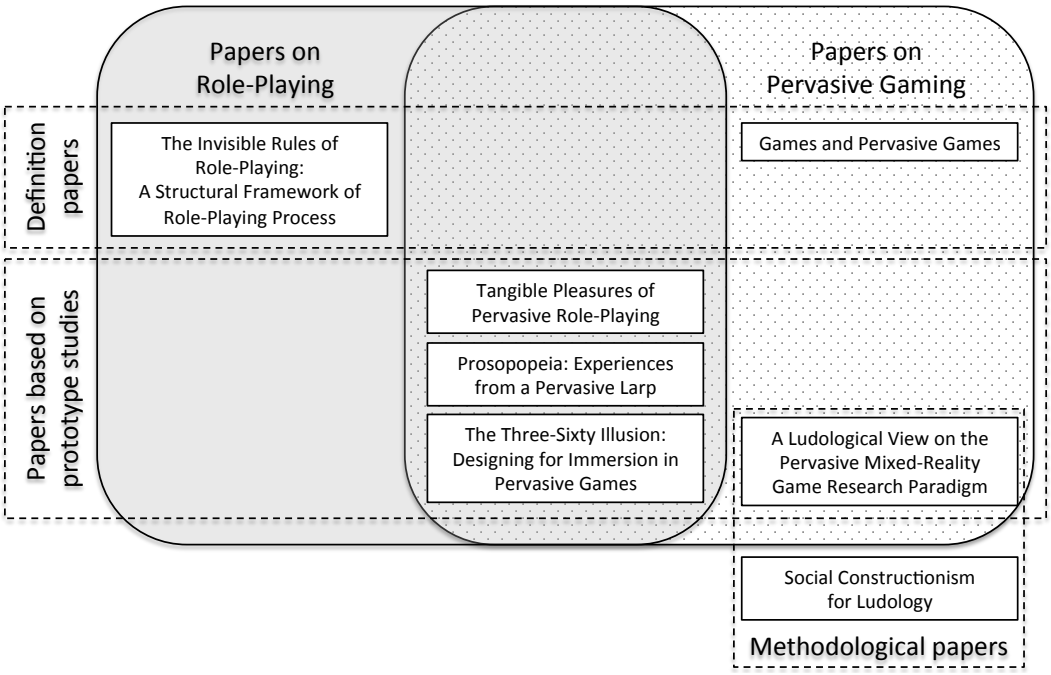


Figure 12. Relationships of the included papers.

[135] Montola 2003; blissfully ignorant of works such as Fine (1983) and Mackay (2001).

The prototype papers (Papers V and VII) are results of the IPerG project. In such a project, design ideas and theoretical understanding flow freely and informally, and it is often impossible to name the first person to come up with a certain concept of finding. *Där vi föll* team included some 12 persons (plus two evaluators), while *Momentum* was created by a team of 30 persons (plus three evaluators). Both projects were influenced by larger project goals and work done in elsewhere in the IPerG project. Because each author's contributions should be differentiated in papers included in a doctoral dissertation, the included papers are mostly solo publications. Two joint papers have only been included in order to show the relevance of prototype research connected with this theoretical work.

5.1 Methodological Papers

I. **Montola, M.** (2011): Social Constructionism and Ludology: Implications for the Study of Games. In *Simulation & Gaming*, Sage, London. doi:10.1177/1046878111422111

This paper complements the social constructionist discussion of this introduction, clarifying the often-implicit foundations of the other papers. In order to negotiate the different perceptions on games and gameplay, and to contextualize the numerous types of research data used in pervasive game prototype studies, this paper proposes a *social constructionist view* on games – a holistic amalgam of often-contradictory perceptions on games.

While this paper presents a broad approach rather than a clear method, it complements the methodological discussion on prototype studies that is discussed in this introduction as well as in Paper IV (see also Stenros et al. 2011b).

5.2 Papers on Role-Playing

II. **Montola, M.** (2008): The Invisible Rules of Role-Playing: A Structural Framework of Role-Playing Process. In *International Journal of Role-Playing* 1 (1).

This paper was originally written in 2005 for a book on role-playing. After numerous delays, it appeared in the inaugural issue of the *International Journal of Role-Playing* in December 2008. As publication of the paper was just around the corner for three years, several papers were based on it before it was published (see Montola 2007; Paper VI).

The paper describes role-playing as an activity and a process, looking for common denominators of different forms of role-play. The paper draws on earlier papers on role-playing (Montola 2003; Loponen & Montola 2004; Montola 2005a), trying to form a cohesive overview on what exactly happens when people role-play.

The three invisible rules of role-playing presented in the paper may be used to define role-playing activity. As all such definitions of social activities create inevitable border cases, the definition should not be used as a rigid binary distinction. Montola (2007) discusses the games that exist on the borderline of this definition, inspecting activities that lack the world rule, the power rule or the character rule.

5.3 Papers on Pervasive Games

III. **Montola, M.** (2009): Games and Pervasive Games. In Montola, M., Stenros, J. & Waern, A. (2009): *Pervasive Games: Theory and Design*. Morgan Kaufmann, Burlington. ISBN:978-0123748539.

This paper is the opening chapter for the book *Pervasive Games: Theory and Design*. Thus, it expands and condenses earlier papers (Montola 2005b; Montola et al. 2006b) on defining and describing pervasive games. The aim was to establish an umbrella concept for a group of games that share interesting properties, to allow comparisons and generalizations.

IV. **Montola, M.** (2010): A Ludological View on the Pervasive Mixed-Reality Game Research Paradigm. In *Pervasive and Ubiquitous Computing* 15 (1). Springer, Berlin. doi:10.1007/s00779-010-0307-7

This paper is a comparative study of many pervasive game prototypes. In addition to providing an overview of the state-of-the-art, it is intended to comment on the technology-driven methodology guiding such projects.

The initial impetus came from a small-scale prototype game *NOCSH'08* (see Holopainen et al. 2010) staged by the Nokia Research Center. The game was created to study camera-based gameplay with mobile phones, but it was also expected to produce ludological findings. However, very few of the ludological findings from *NOCSH'08* were new, and the game just reinforced numerous earlier findings. This paper was written to avoid repeating that mistake by analyzing earlier research more carefully. In retrospect, the study on *NOCSH'08* should have been published in order to confirm many results of earlier studies.

5.4 Papers on Pervasive Role-Playing

V. **Jonsson, S., Montola, M., Waern, A. & Ericsson, M.** (2006): Prosopopeia: Experiences from a Pervasive Larp. In *ACE 2006* conference. doi:10.1145/1178823.1178850

This paper is the project description and evaluation report of the first of *Prosopopeia Bardo 1: Där vi föll*. The game was staged as a proof of concept of a game blurring the border of game and ordinary life as thoroughly as possible, and also as a first step towards *Momentum* that was created a year later. *Där vi föll* was intended to be a test platform for experimental larp technologies. However, most of that technology was tested elsewhere, and only game mastering tools were used in *Där vi föll*.

Staffan Rosenberg and Martin Ericsson contributed to this paper by developing the prototype. Their contributions include ideas such as the *possession model* and *prosopopeia proposal*. Annika Waern was the project leader, working in particular with technology evaluation and game mastering. Personally I was in charge of prototype evaluation conducted through observation, interviews and theoretical analysis. I co-wrote the paper with Annika Waern.

The earlier versions of this paper were presented in Montola & Jonsson (2006) and in the unpublished *Prosopopeia Evaluation Report* (Montola & Waern 2005).

VI. **Montola, M.** (2007): Tangible Pleasures of Pervasive Role-Playing. In Baba, Akira (ed.) (2007): *Proceedings of DiGRA 2007 Situated Play conference* 178-185. September 24.-28. University of Tokyo.

The main prototype evaluations contributing to this dissertation process were close collaborations of numerous researchers. Thus, many papers on *Prosopopeia Bardo 1: Där vi föll* (e.g. Paper V; Montola & Jonsson 2006; Montola & Waern 2006a; 2006b) and *Prosopopeia Bardo 2: Momentum* (e.g. Jonsson et al. 2007a; 2007b; Stenros et al. 2007a; 2007b; 2007c) would have been impractical to include in a dissertation. This paper, which establishes the genre of pervasive role-playing and looks into some of the aesthetics and pleasures common for such games, was written as a solo contribution to deal with such restrictions of the dissertation process.

VII. **Waern, A., Montola, M. & Stenros, J.** (2009): The Three-Sixty Illusion. Designing for Immersion in Pervasive Games. In *CHI '09* conference. doi:10.1145/1518701.1518939

In this paper, the authors look at one design ideal that stems from the Nordic larp scene, and show how it has been applied in certain pervasive game prototypes. It is another example of the bridging work between role-play and pervasive games.

Distinguishing each author's contribution to this co-authored paper is not simple, but my contribution lies largely in the theoretical work and on the sections on *Momentum*. The concept of "authenticity" used in this paper is based on author's earlier discussions on indexical representation (e.g. Papers III; V; VI).[136]

[136] Authors of the paper would have preferred to use the concept of indexical representation, as discussed in Paper III, but the term was changed due to the reviewers' much narrower interpretation of Peirce's concept of index.

Ludography

The ludography only includes works and forms of play that have been historically stable and long-lived, or that are based on codified rules, or that have been played in one or more documented instances. This list is inclusive in the sense that it includes many cultural products that could be seen primarily as something other than games – televised game shows for example. I have sought to primarily credit individual designers, secondarily development organizations, and publishers only as a last resort.

100m: IAAF.
Amazing Race, The (2001): Jerry Bruckheimer Television.
Amber Diceless Roleplaying Game (1991): Erick Wujcik. Phage Press.
Arkanoid (1986): Taito. Romstar.
Ars Magica (1987): Jonathan Tweet & Mark Rein·Hagen. Lion Rampant Games.
basketball: FIBA.
Beast, The (2001): Jordan Weisman, Elan Lee, Sean Stewart, and others. Microsoft. A.k.a. "The A.I. Web Game", "The A.I. Web Puzzle".
BotFighters (2001): It's Alive.
Call of Cthulhu (1981): Sandy Petersen. Chaosium.
Calvinball: Bill Wattersson. Described in numerous *Calvin and Hobbes* comic strips.
checkers: Trad. FMJD. A.k.a. "draughts".
Chinook (1989): Jonathan Schaeffer, Rob Lake, Paul Lu, Martin Bryant & Norman Treloar.
chess: Trad. FIDE.
City of Heroes (2004-): Cryptic Studios. NCsoft.
Cluedo (1949): Anthony E. Pratt. Waddingtons. Numerous editions. A.k.a. "Clue".
Conspiracy For Good (2010): Tim Kring, Nokia & The company P. London, UK.
cricket: ICC.
Cyberpunk 2013 (1988): Mike Pondsmith. R. Talsorian Games.
Dagorhir (1977): Bryan Weise and others. www.dagorhir.com
Dakar Rally: Amaury Sport Organisation.
Daley Thompson's Decathlon (1984): Ocean Software.
Darkon (1985): The Darkon Wargaming Club.
Desert Bus (1995): Imagineering. A mini-game in the unpublished Penn & Teller's Smoke and Mirrors collection. Absolute Entertainment.
Dogs in the Vineyard (2004): D. Vincent Baker. Lumpley Games.
Donkey Kong (1981): Nintendo.
Dragonbane (2006): Timo Multamäki & others. Älvdalen, Sweden.
DragonRealms (1996): Simutronics.
Dungeons & Dragons (1974): Gary Gygax & Dave Arneson. TSR. Various editions published by various authors and companies.
E.T. The Extra Terrestrial (1982): Atari.
En stilla middag med familjen (2007): Anna Westerling, Anders Hultman, Elsa Helin, Anna-Karin Linder, Tobias Wrigstad, Patrik Balint & others. Flen, Sweden.

Epidemic Menace (2005, 2006): Fraunhofer FIT and Sony Network Services. IPerG prototype, two iterations.
EVE Online (2003-): CCP Games.
Executive Game, The (2001-2003): Mikko Rautalahti. Lohja, Finland.
FarmVille (2009-): Zynga.
Façade (2005): Michael Mateas & Andrew Stern. www.interactivestory.net
Fear Factor (2001): Endemol.
Föreningen visionära vetenskapsmäns årliga congress (1996): Samir Belarbi. The MS *Silja Europa*.
Gang Rape (2008): T. Wrigstad. Published in Ellemand, F., Petersen, M. G. and Olsen, K. M. (eds.) (2010): *Scenariebogen: 9 fremragende danske rollespilsscenarier 2006–2010.* Rollespilsakademiet, Copenhagen.
Go Game, The (2002): Wink Back, Inc. www.thegogame.com
golf: IGF.
Grindstone Experiment, The (1966): Canadian Friends Service Committee.
Ground Zero (1998): Jami Jokinen & Jori Virtanen. Turku, Finland.
Hamlet (2002): A larp by Martin Ericsson, Anna Ericson, Christopher Sandberg, Martin Brodén et al. Interaktiva Uppsättningar. Stockholm, Sweden.
Heavy Rain (2010): Quantic Dream. Sony Computer Entertainment.
ice dancing: ISU.
ice hockey: IIHF.
Insectopia (2006): Johan Peitz, The Interactive Institute. IPerG Prototype.
Interference (2007): Jean-Paul Bichard, Annika Waern, and others, The Interactive Institute. IPerG Prototype.
Journey, The (2010): Fredrik Axelzon. Available at http://jeepen.org, ref 4 April 2011. Finnish translation Matka published in Apollo, K., Pettersson, J. & Wrigstad, T. (eds.): *Unelma Keltaisesta kuninkaasta ja muita tanskalaisia roolipelejä.* Pohjoismaisen roolipelaamisen seura, Helsinki.
Killer: The Game of Assassination (1981): Steve Jackson. Steve Jackson Games. Ref. 4th edition, 1998. Based on traditional forms of play, known as Assassin, Deathgame, and Circle of Death.
Kriegsspiel (1812): Georg Leopold von Reiswitz & Georg Heinrich Rudolf von Reiswitz.
Living Greyhawk (2000-2008): RPGA. Wizards of the Coast.
Lode Runner (1983): Douglas E. Smith. Brøderbund.
Magic: The Gathering (1993): Richard Garfield. Wizards of the Coast.
Majestic, The (2001): Origin. Published by Electronic Arts.
Manhattan MegaPUTT (2006): Dave Warth & Dustin D'Addato. http://megaputt.blogspot.com
Masquerade, The (1993, 1994): White Wolf. Various editions. Later editions published with the name The Laws of the Night.
Mass Effect (2007): Bioware. Microsoft Game Studios.
Mass Effect 2 (2010): Bioware. Electronic Arts.
minigolf: WMF.
My Life with Master (2003): Paul Czege. Half Meme Press.
Mythical: The Mobile Awakening (2007): Nokia Research Center, University of Nottingham, University of Tampere, Gotland University, and The Interactive Institute. IPerG Prototype.
NERO LARP (1988): Ford Ivey and others. www.nerolarp.com
NOCSH '08 (2008): Timo Nummenmaa, Jussi Holopainen & others. Nokia Research Center.
Once Upon a Time (1994): Richard Lambert, Andrew Rilstone & James Wallis. Atlas Games.
Pac-Man (1980): Namco.
Painstation (2001): Volker Morawe & Tilman Reiff. Two versions. A.k.a. The Artwork Formerly Known as Painstation. www.painstation.de
Paranoia (1984): Greg Costikyan, Dan Gelber & Eric Goldberg. West End Games.
Pendragon (1985): Greg Stafford. Chaosium.
Pervasive Clue (2001): Jay Schneider and Gerd Kortuem.

Pictionary (1985): Robert Angel. Seattle Games.
Prisoner Escape from the Tower (2006): Historic Royal Palaces, mscape Team.
Prosopopeia Bardo 1: Där vi föll (2005): Martin Ericsson, Staffan Jonsson, Adriana Skarped & others. The Interactive Institute & SICS. IPerG prototype. Stockholm, Sweden.
Prosopopeia Bardo 2: Momentum (2006): Staffan Jonsson, Emil Boss, Martin Ericsson, Daniel Sundström, Henrik Esbjörnsson, and others. The Company P, The Interactive Institute & SICS. IPerG prototype. Stockholm, Sweden.
Radar Rat Race (1981): Commodore.
Sanningen om Marika (2007): A television series intertwined with a game. Series created by Richard Jarnhed, SVT. Game by Martin Ericsson, Andie Nordgren, Christopher Sandberg & others, The Company P. Eng. "The Truth about Marika."
RuneQuest (1987): Steve Perrin & others. Chaosium.
Shadow Cities (2010-): Grey Area.
Shadow of the Colossus (2005): Team Ico. Sony Computer Entertainment.
SimCity (1989): Will Wright. Maxis.
soccer: FIFA.
Songs of North (2004): Petri Lankoski et al. Hypermedia Laboratory, University of Tampere, Finland. www.uta.fi/hyper/projektit/mogame
Sorcerer (2002): Ron Edwards. Adept Press.
ski jumping: FIS.
Squad Leader (1977): John Hill. Avalon Hill.
Starcraft (1999): Blizzard Entertainment.
Super Mario Bros (1985): Nintendo.
table tennis: ITTF.
Talisman (1983): Robert Harris. Games Workshop.
Tetris (1985): Alexey Pajitnov. Soviet Academy of Sciences.
Train, The (2009): Brenda Braithwaite.
Trenne byar (1994): Christian Angerbjörn, Alexander Graff, Aigars Grins, Gabriel Sandberg, Christopher Sandberg, Gabriel Walldén, Victoria Henriksson, Martin Ericsson, Jonas Henriksson & others. Ett Glas. Ludvika, Sweden.
Twister (1966): Charles F. Foley & Neil Rabens. Hasbro.
Uncle Roy All Around You (2003–2004): Blast Theory, University of Nottingham & British Telecom.
Vampire: The Masquerade (1991): Mark Rein·Hagen. White Wolf.
Warhammer 40,000 (1987): Games Workshop. Numerous editions.
Witcher, The (2007): CD Projekt Red Studio. Atari. Ref. the 2008 Enchanced Edition.
Wizard of Wor (1980): Midway.
World of Warcraft (2004): Blizzard Entertainment.
Yahtzee (1956): Milton Bradley.

References

I have preferred original publication dates in inline references, giving version details in the reference list. When conference papers are provided with hyperlinks to permanent internet repositories (such as the digital libraries of ACM and DiGRA), I have referred to the online versions, not the versions presented in conferences or printed proceedings. For that reason, I have omitted the information on dates and locations of those conferences, as well as the details of the print versions. Unless otherwise specified, hyperlinks were confirmed on 1st December, 2011.

Aarseth, E. (1997): *Cybertext. Perspectives on Ergodic Literature.* Baltimore: John Hopkins University Press.

Aarseth, E. (2001): Computer Game Studies, Year One. In *Game Studies* 1 (1).

Abt, C. C. (1970): *Serious Games.* Viking Press, New York.

Andreasen, C. (2003): The Diegetic Rooms of Larp. In M. Gade, L. Thorup & M. Sander, eds. *As Larp Grows Up. Theory and Methods in Larp*. Copenhagen: Projektgruppen KP03. www.laivforum.dk/kp03_book

Apter, M. J. (1991): A Structural-Phenomenology of Play. In J.H. Kerr & M.J. Apter (eds.), *Adult Play: A Reversal Theory Approach.* Amsterdam: Swets & Zeitlinger.

Apter, M. (1992): *The Dangerous Edge.* The Free Press.

Aristotle [1920]: *Poetics.* Ref. English translation by Ingram Bywater, 1920. Project Gutemberg. www.gutenberg.org/files/6763/6763.txt, ref. September 1st, 2009.

Arjoranta, J. (2011): Defining Role-Playing Games as Language-Games. In *International Journal of Role-Playing* 2. www.journalofroleplaying.org

Avedon, E. & Sutton-Smith B. (1971): *The Study of Games.* New York, John Wiley & Sons.

Bacon, H. (2000): *Audiovisuaalisen kerronnan teoria.* Tampere, Suomalaisen kirjallisuuden seura.

Barthes, R. (1967): The Death of the Author. Ref. www.deathoftheauthor.com, ref. 2nd December, 2011.

Bateson, G. (1955): A Theory of Play and Fantasy. Originally published in *Psychiatric Research Reports*, 2. Ref. Salen, K. & Zimmerman, E. (eds.) (2005): *The Game Design Reader. A Rules of Play Anthology.* The MIT Press, Cambridge.

Belarbi, S. (2010): Föreningen Visionära Veteskapsmäns Årliga Kongress. Sailing the Seas of Mental Disorder. In Stenros, J. & Montola, M. (eds.) (2010): *Nordic Larp*. Fëa Livia, Stockholm.

Benford, S., Crabtree, A, Reeves, S., Flintham, M., Drozd, A., Sheridan, J., Dix, A. (2006): The Frame of the Game: Blurring the Boundary between Fiction and Reality in Mobile experiences. In *CHI '06* conference. http://dx.doi.org/10.1145/1124772.1124836

Berger, P. L. & Luckmann, T. (1966): *The Social Construction of Reality. A Treatise in Sociology of Knowledge*. Mostly ref. the 1994 Finnish translation: *Todellisuuden sosiaalinen rakentuminen. Tiedonsosiologinen tutkielma.* Gaudeamus.

Bergström, K. (2010a): The Implicit Rules of Board Games – On the Particulars of the Lusory Agreement. In *MindTrek 2010* conference, October 6-8. Tampere, Finland. http://dx.doi.org/10.1145/1930488.1930506
Bergström, K. (2010b): Hamlet. Something is Still Rotten in the State of Denmark. In Stenros, J. & Montola, M. (eds.) (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Bergström, K. (forthcoming): Creativity Rules. How Rules Impact Player Creativity in Three Tabletop Role-Playing Games. Forthcoming in *International Journal of Role-Playing* 3.
Bichard, J-P. & Waern, A. (2008): Pervasive Play, Immersion and Story: Designing Interference. In *DIMEA 2008* conference. http://dx.doi.org/10.1145/1413634.1413642
Björk, S. (2008): Games, Gamers, and Gaming. Understanding Game Research. In *Mindtrek 2008* conference. October 7-9, 2008, Tampere, Finland. http://dx.doi.org/10.1145/1457199.1457213
Björk, S. & Holopainen, J. (2005) *Patterns in Game Design.* Charles River Media, Massachusetts.
Blatner, A. (2002): *Role-Playing in Education.* In www.blatner.com/adam/pdntbk/rlplayedu.htm.
Boal, A. (2002): *Games for Actors and Non-Actors* (2nd ed.). Original version published in 1992. Routledge, London.
Bøckman, P. (2003): The Three Way Model. In Gade, M., Thorup, L. & Sander, M. (eds.) (2003): *As Larp Grows Up. Theory and Methods in Larp*. Knudepunkt 2003. Copenhagen, Projektgruppen KP03. www.laivforum.dk/kp03_book
Bogost, I. (2006): *Unit Operations. An Approach to Videogame Criticism.* The MIT Press, Cambridge. Kindle edition.
Bogost, I. (2007): *Persuasive Games: The Expressive Power of Videogames.* The MIT Press, Cambridge.
Bogost, I. (2009): *Videogames are a Mess.* Keynote presentation at DiGRA 2009 conference. At www.bogost.com/writing/videogames_are_a_mess.shtml, ref. November 30th 2011.
Bordwell, D. & Thompson, K. (1986): *Film Art: An Introduction*. Second Edition. Knopf, New York.
Boss, E. C. (2006): Collaborative Roleplaying: Reframing the Game. In *Push* 1.
Bowman, S. L. (2010): *The Functions of Role-Playing Games. How Participants Create Community, Solve Problems and Explore Identity.* McFarland, Jefferson. Kindle edition.
Bragge, J., Thavikulwat, P. & Töyli, J. (2010): Profiling 40 Years of Research in Simulation & Gaming. In *Simulation & Gaming* 41 (6). Sage, London.
Burr, V. (1995): *An Introduction to Social Constructionism.* Routledge, London.
Butler, N. P. (2011): *The Star Wars Timeline. Gold Edition.* Ref. the 78th Edition, 49th Gold Edition. At www.starwarsfanworks.com/timeline, ref. October 1st 2011.
Caillois, R. (1958): *Man, Play and Games*. Ref. 2001 version. Free Press, Chicago.
Castronova, E. (2005): *Synthetic Worlds. The Business and Culture of Online Games.* University of Chicago Press. Kindle edition.
Consalvo, M. (2009): There is no Magic Circle. In *Games and Culture* 4 (4). Sage, London.
Copier, M. (2005): Connecting Worlds. Fantasy Role-Playing Games, Ritual Acts and the Magic Circle. In DiGRA 2005 conference. www.digra.org/dl/db/06278.50594.pdf
Copier, M. (2007): *Beyond the Magic Circle. A Network Perspective on Role-Play in Online Games.* Doctoral dissertation, Utrecht University.
Costikyan, G. (1994): I Have No Words & I Must Design. In *Interactive Fantasy: The Journal of Role-Playing and Story-Making Systems* 2. Hogshead, London.
Costikyan, G. (2002): I Have No Words & I Must Design: Toward a Critical Vocabulary for Games. In Mäyrä, F. (ed.) (2002): *Proceedings of Computer Games and Digital Cultures Conference*. Tampere University Press, Tampere. http://www.digra.org/dl/db/05164.51146.pdf
Cover, J. G. (2010): *The Creation of Narrative in Tabletop Role-Playing Games.* McFarland, Jefferson. Kindle edition.

Crawford, C. (1981): *The Art of Computer Game Design*. Ref. the 1997 electronic version, available at http://library.vancouver.wsu.edu/art-computer-game-design (ref. May the 15th, 2011).
Cule, M. (1994): Improvisation in the Theatre. As Discipline, Tool, and Political Statement. In *Inter*action* 1. Hogshead, London.
Dansey, N., Stevens, B. & Eglin, R. (2009): Contextually-Ambiguous Pervasive Games: An Exploratory Study. In *DiGRA 2009* conference. www.digra.org/dl/db/09287.40164.pdf
Dena, C. (2009): *Transmedia Practice: Theorising the Practice of Expressing a Fictional World across Distinct Media and Environments.* Doctoral dissertation, University of Sydney.
Denward, M. (2011): *Pretend that it is Real!: Convergence Culture in Practice.* Doctoral dissertation, Malmö University. http://dspace.mah.se/handle/2043/12240
Denward, M. & Waern, A. (2008): Broadcast Culture Meets Role-Playing Culture. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw
Dormans, J. (2006): On the Role of the Die: A Brief Ludologic Study of Pen-and-Paper Roleplaying Games and their Rules. In *Game Studies* 6 (1).
Dormans, J. (2011): Integrating Emergence and Progression. In *DiGRA 2011* conference. www.digra.org/dl/db/11310.25319.pdf
Douglas, N. (1916): *London Street Games*. The St. Catherine Press, London. Ref. www.archive.org/details/londonstreetgame00doug, ref. December 5th, 2011.
Dworkin, R. (1986): *Law's Empire.* Hart, Portland.
Eidsem Hansen, E. (2010): Trenne Byar. The Woodstock of Nordic Larp. In Stenros, J. & Montola, M. (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Ejsing-Duun, S. (2011): *Location-Based Games: From Screen to Street.* Doctoral dissertation, Aarhus University.
Ericsson, M. (2003). Enchanting Reality: A Vision of Big Experiences on Small Platforms. In *DiGRA 2003* conference. www.digra.org/dl/db/05163.11401
Ericsson, M. (2004): Play to Love. Reading Victor Turner's "Liminal to Liminoid, in Play, Flow, and Ritual; An Essay in Comparative Symbology". In Montola, M. & Stenros, J. (eds.) (2004): *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination.* Solmukohta 2004. Ropecon, Helsinki. www.ropecon.fi/brap
Ericsson, M. (2009): The Quest for the Perfect Manifestation of a Dream. Speech at *Nordic Larp Talks 2009*. In http://nordiclarptalks.org/post/584378365/the-quest-for-the-perfect-manifestation-of-a-dream, ref. May the 15th, 2011.
Eskelinen, M. (2001): The Gaming Situation. In *Game Studies* 1 (1).
Farman, J. (2010): The Transformation of Everyday Life Through Pervasive Play. Book Review of Pervasive Games: Theory and Design. *Journal of Gaming and Virtual Worlds* 2 (3).
Fatland, E. (2005): Incentives as Tools of Larp Dramaturgy. In Bøckman, P. & Hutchison, R. (eds.) (2005): *Dissecting Larp. Collected Papers for Knutepunkt 2005*. Knutepunkt 2005, Oslo. http://knutepunkt.laiv.org/kp05
Fatland, E. (2010): 1942 – Nåen å Stole På? Role-Playing Living Memory. In Stenros, J. & Montola, M. (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Fatland, E. & Wingård, L. (1999): *Dogma 99. A Programme for the Liberation of LARP.* International version. Ref. the 2003 version in Gade, M., Thorup, L. & Sander, M. (eds.) (2003): *As Larp Grows Up. Theory and Methods in Larp*. Knudepunkt 2003. Copenhagen, Projektgruppen KP03. www.laivforum.dk/kp03_book
Fine, G. A. (1983): *Shared Fantasy: Role-Playing Games as Social Worlds.* University of Chicago Press, Chicago.
Flanagan, M. (2007): Locating play and politics: Real world games & activism. In *DAC 2007* conference. www.maryflanagan.com/articles/RealWorldGames.pdf, ref. November 30th, 2011.
Flanagan, M. (2009): *Critical Play: Radical Game Design*. The MIT Press, Cambridge.

Frasca, G. (1999): 'Ludology Meets Narratology. Similitude and Differences between (Video)games and Narrative'. Originally published in Finnish in *Parnasso* 3. Ref. the English translation in www.ludology.org/articles/ludology.htm, ref. November 30th, 2011.
Frasca, G. (2003): Simulation versus Narrative: Introduction to Ludology. In Wolf, M. J. P. & Perron, B. (eds.) (2003): *Video/Game/Theory*. Routledge, London.
Frasca, G. (2007): *Play the Message. Play, Game and Videogame Rhetoric*. Doctoral Dissertation, ITU of Copenhagen. www.powerfulrobot.com/Frasca_Play_the_Message_PhD.pdf, ref. November 30th, 2011.
Gerge, T. (2012): Larp and Aesthetic Responsibility. In Pettersson, J. (ed.) (2012): *States of Play. Nordic Larp Around the World*. Solmukohta 2012. Pohjoismaisen roolipelaamisen seura. www.nordicrpg.fi/julkaisut/states-of-play
Glas, R. (2011): Breaking Reality. Exploring Cheating in Foursquare. In *DiGRA 2011* conference. www.digra.org/dl/db/11307.57380.pdf
Goffman, E. (1956): *The Presentation of Self in Everyday Life.* Ref. 1987 edition. Penguin Books, Reading.
Goffman, E. (1961): *Encounters: Two Studies in the Sociology of Interaction - Fun in Games & Role Distance*. Bobbs-Merrill, Indianapolis.
Goffman, E. (1974): *Frame Analysis: An Essay on the Organization of Experience.* Northeastern University Press, Boston.
Gotthard, P. & Zlatohlávek, J. (2010): Children of a Freedom Clock. In Larsson, E. (ed.) (2010): *Playing Reality.* Knutpunkt 2010. In http://interactingarts.org/pdf/Playing%20Reality%20(2010).pdf, ref. November 30th, 2011.
Gräslund, S. (2010): Europa. Intimate Refugee Role Reversal. In Stenros, J. & Montola, M. (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Hacking, I. (1997): *Review Symposium on John R. Searle.* In *History of Human Sciences* 10 (4). Sage, London.
Hacking, I. (1999): *The Social Construction of What?* Harvard University Press. Mostly ref. the, 2009 Finnish translation: *Mitä sosiaalinen konstruktionismi on?* Vastapaino, Tampere.
Hakkarainen, H. & Stenros, J. (2002): The Meilahti School. Thoughts on Role-Playing. Ref. the 2003 version in Gade, M., Thorup, L. & Sander, M. (eds.) (2003): *As Larp Grows Up. Theory and Methods in Larp*. Knudepunkt 2003. Copenhagen, Projektgruppen KP03. www.laivforum.dk/kp03_book
Hall, E. T. (1966): *The Hidden Dimension.* Ref. 1990 edition. Anchor Books, New York.
Harvey, A. (2006): The Liminal Magic Circle: Boundaries, Frames, and Participation in Pervasive Mobile Games. In *Wi: Journal of the Mobile Digital Commons Network* 1.
Harviainen, J. T. (2006): Information, Immersion, Identity: The Interplay of Multiple Selves During Live-Action Role-Play. In *Journal of Interactive Drama* 1 (2).
Harviainen, J. T. (2008): Kaprow's Scions. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw
Harviainen, J. T. (2010): A Brief Introduction to Larp as an Art Form. In Castellani, A. (ed.) (2010): *Larp Graffiti. Preistoria e presente dei giochi di ruolo dal vivo*. Larp Symposium 2010, Trieste. www.larpsymposium.org/?page_id=368, ref. November 30th, 2011.
Harviainen, J. T. (2011a): Sadomasochist Role-Playing as Live-Action Role-Playing: A Trait-Descriptive Analysis. In *International Journal of Role-Playing* 2. www.journalofroleplaying.org
Harviainen, J. T. (2011b): The Larping that is not Larp. In Henriksen, T. D., Bierlich, C., Hansen, K. F. & Kølle, V. (eds.) (2011): *Think Larp. Academic Writings from KP2011.* Knudepunkt 2011. Rollespilsakademiet, Copenhagen. http://rollespilsakademiet.dk/kpbooks/think_larp_web.pdf
Harviainen, J. T. (2012): Ritualistic Games, Boundary Control and Information Uncertainty. In *Simulation & Gaming*. Sage, London.
Harviainen J. T. & Lieberoth, A. (2011): Similarity of Social Information Processes in Games and Rituals: Magical Interfaces. In *Simulation & Gaming.* Sage, London. http://sag.sagepub.com/content/early/2011/04/05/1046878110392703

Heliö, S. (2004): Role-Playing: A Narrative Experience and a Mindset. In Montola, M. & Stenros, J. (eds.) (2004): *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination.* Solmukohta 2004. Ropecon, Helsinki. www.ropecon.fi/brap

Hendricks, S. Q. (2006): Incorporative Discourse Strategies in Tabletop Fantasy Role-Playing Gaming. In Williams, J. Patrick, Henrdicks, Sean Q. & Winkler W. Keith (eds.) (2006): *Gaming as Culture. Essays on Reality, Identity and Experience in Fantasy Games.* McFarland, Jefferson.

Hills, M. (2002): *Fan Cultures*. Routledge, London.

Hitchens, M. & Drachen, A. (2008): The Many Faces of Role-Playing Games. In *International Journal of Role-Playing* 1. www.journalofroleplaying.org

Holopainen, J., Nummenmaa, T. & Kuittinen, J. (2010): Modelling Experimental Game Design. In *Nordic DiGRA 2010* conference. www.digra.org/dl/db/10343.48507.pdf

Holopainen, J. & Waern, A. (2009): Designing Pervasive Games for Mobile Phones. In Montola, M., Stenros, J. & Waern, A. (2009): *Pervasive Games: Theory and Design.* Morgan Kaufmann.

Hook, N. (2007): The Bristol Manifesto. In Donnis, J., Gade, M. & Thorup, L. (2007): *Lifelike*. Knudepunkt 2007. Projektgruppen KP07, Copenhagen. www.liveforum.dk/kp07book

Hook, N. (2008): The Children of Treasure Trap: History and Trends of British Live Action Role-Play. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw

Holmila, E., Kovanen, L. & Saarenpää, J. (2007): *Troolattua saimaannorppaa ja 124 muuta. Teekkarijäynien historiaa.* Art House, Juva.

Hopeametsä, H. (2008): 24 Hours in a Bomb Shelter. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw

Huizinga, J. (1938): *Homo ludens: Versuch einer bestimmung des spielelements der kultur.* Published originally in 1944. Ref. English translation (1955): *Homo ludens: A study of play element in culture.* Beacon Press, Boston.

Jackson, S. (1981): *Killer: The Game of Assassination.* Steve Jackson Games.

Jacobs, M. & Sihvonen, T. (2011): In Perpetual Beta? On the Participatory Design of Facebook Games. In *DiGRA 2011* conference. www.digra.org/dl/db/11312.19220.pdf

Järvinen, A. (2008): *Games without Frontiers: Theories and Methods for Game Studies and Design.* Doctoral dissertation, University of Tampere. http://acta.uta.fi/english/teos.php?id=11046, ref. November 30th, 2011.

Johnson, J.W. (1981): A Scholar looks at Killer: Afterword in *Killer: The Game of Assassination.* Steve Jackson Games.

Jonsson, S., Montola, M., Stenros, J. & Boss, E. (2007a): Five Weeks of Rebellion. Designing Momentum. In Donnis, J., Gade, M. & Thorup, L. (2007): *Lifelike*. Knudepunkt 2007. Projektgruppen KP07, Copenhagen. www.liveforum.dk/kp07book

Jonsson, S. & Waern, A. (2008): The Art of Game-Mastering Pervasive Games. In *ACE '08* conference. http://dx.doi.org/10.1145/1501750.1501803

Jonsson, S., Waern, A., Montola, M. & Stenros, J. (2007b): Game Mastering a Pervasive Larp. Experiences from Momentum. In Magerkurth, Carsten & al. (2007): *Proceedings of the 4th International Symposium on Pervasive Gaming Applications* 31-39. PerGames 2007, June 11.-12. Salzburg, Austria.

Juul, J. (1999): *A Clash between Game and Narrative.* Master's thesis, University of Copenhagen. Referred to 2001 English translation at www.jesperjuul.net/thesis, ref. November 30th, 2011.

Juul, J. (2003): *Half-Real. Video Games between Real Rules and Fictional Worlds.* Doctoral dissertation, IT University of Copenhagen.

Juul, J. (2005): *Half-Real. Video Games between Real Rules and Fictional Worlds.* The MIT Press, Cambridge. Kindle edition.

Juul, J. (2008): The Magic Circle and the Puzzle Piece. In *The Philosophy of Computer Games 2008*. Universität Potsdam.

Juul, J. (2010): Personal discussion in *Nordic DiGRA 2010* conference. Stockholm, Sweden.
Kahneman, D. (1999): Objective Happiness. In Kahneman, D., Diener, E. and Schwarz, N. (eds.). *Well-Being: The Foundations of Hedonic Psychology*. Russel Sage, New York.
Kaprow, A. (1966): *Assemblage, environments & happenings*. Harry N. Abrams, New York.
Kelley (1988): *The Art of Reasoning.* Norton, New York.
Kellomäki, J. (2004): *Simulaatio ja kerronta – roolipeli ergodisena järjestelmänä.* Master's thesis, University of Helsinki.
Klabbers, J. H. G. (2006): *The Magic Circle: Principles of Gaming & Simulation.* Sense Publishers, Rotterdam.
Klastrup, L. (2003): *Towards a Poetics of Virtual Worlds: Multi-User Textuality and the Emergence of Story.* Doctoral dissertation, IT University of Copenhagen.
Koivisto E. M. I. & Ollila, M. (2006): How to Fail: Mobile Game Design in a Research Project Involving Software Prototype Development. In *Game Design & Technology Workshop '06*, November 8.-9. Liverpool, UK.
Koljonen, J. (2004): "I Could a Tale Unfold Whose Lightest Word Would Harrow up Thy Soul". In Montola, M. & Stenros, J. (eds.) (2004): *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination.* Solmukohta 2004. Ropecon, Helsinki. www.ropecon.fi/brap
Koljonen, J. (2007): Eye-Witness to the Illusion. An Essay on the Impossibility of 360° Role-Playing. In Donnis, J., Gade, M. & Thorup, L. (2007): *Lifelike*. Knudepunkt 2007. Projektgruppen KP07, Copenhagen. www.liveforum.dk/kp07book
Koljonen, J. (2008): The Dragon Was the Least of It: Dragonbane and Larp as Ephemera and Ruin. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw
Koljonen, J. (2010): Carolus Rex. The Flagship of Enclosed Space Opera. In Stenros, J. & Montola, M. (eds.) (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Koljonen, J., Kuustie, T. & Multamäki, T-L. (2008): *Dragonbane – The Legacy.* Dragon Dawn, Sodankylä.
Kunelius, R. (1997): *Viestinnän vallassa.* WSOY, Juva.
Kristiansen, E. (2009): *Computer Games for the Real World: Designing a Design Method for Site-Specific Computer Games.* Doctoral dissertation, Roskilde University.
Lankoski, P., Heliö, S., Nummela, J., Lahti, J., Mäyrä, F., & Ermi, L. (2004): A Case Study in Pervasive Game Design: The Songs of North. In *NordiCHI '04* conference. http://dx.doi.org/10.1145/1028014.1028083
Lantz, F. (2009): Personal discussion in *GDC 2009* conference. San Francisco, California.
Lassila, K. (2008): Adventurous Romanticism: Enabling a Strong Adventurous Element in Larp. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw
Lastowka, G. (2009): Rules of Play. In *Games and Culture* 4 (4). Sage, London.
Lieberoth, A. (2008): Are you the Daddy? Comparing Adult Fantasy Play in Children and Adults through Vivian Gussin Paley's A Child's Work. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw
Lillard, A. S. (1993): Pretend Play Skills and the Child's Theory of Mind. *Child Development* 64.
Lindley, C. A. (2005): Game space design foundations for trans-reality games. In *ACE 2005* conference. http://dx.doi.org/10.1145/1178477.1178569
Logas, H. L. (2011): Meta-Rules and Complicity in Brenda Braithwaite's The Train. In *DIGRA 2011* conference. www.digra.org/dl/db/11301.05058.pdf
Loponen, M. (2010): Helsingin Camarilla. Vampire Larps in Finland. In Stenros, J. & Montola, M. (2010): *Nordic Larp*. Fëa Livia, Stockholm.

Loponen, M. & Montola, M. (2004): A Semiotic View on Diegesis Construction. In Montola, M. & Stenros, J. (eds.) (2004): *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination.* Solmukohta 2004. Ropecon, Helsinki. www.ropecon.fi/brap

Loponen, M. & Stenros, J. (2012): The Correct Cthulhu and the Real Batman: Structuring the Power Relations in Cultural Semiospheres. Presentation in the *Role-Playing in Games* seminar. April 10-11, Tampere, Finland. Unpublished.

Mackay, D. (2001): *The Fantasy Role-Playing Game. A New Performing Art.* London, McFarland, Jefferson.

Malaby, T. M. (2007): Beyond play: A new approach to games. *Games and Culture* 2 (2). Sage, London.

Martin, D. & Fine, G. A. (1991): Satanic Cults, Satanic Play: Is "Dungeons & Dragons" a Breeding Ground for the Devil? In Richardson, J. T., Best, J. & Bromley, D. G. (eds.) (1991): *The Satanism Scare*. De Gruyter, New York.

Mason, P. (2004): In Search of the Self. A Survey of the First 25 Years of Anglo-American Role-Playing Game Theory. In Montola, M. & Stenros, J. (eds.) (2004): *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination.* Solmukohta 2004. Ropecon, Helsinki. www.ropecon.fi/brap

Mäyrä, F. (2008): *An Introduction to Game Studies. Games and Culture.* Sage, London.

McGonigal, J. (2003a): "This is not a game": Immersive aesthetics & collective play. In *DAC 2003* conference. RMIT. Ref. www.seanstewart.org/beast/mcgonigal/notagame/paper.pdf

McGonigal, J. (2003b): A real little game: The performance of belief in pervasive play. In *DiGRA 2003* conference. www.digra.org/dl/db/05097.11067.pdf

McGonigal, J. (2006): *This Might be a Game: Ubiquitous Play and Performance at the Turn of the Twenty-First Century.* Doctoral dissertation, University of California, Berkeley.

McGonigal, J. (2011): *Reality is Broken. Why Games Make Us Better and How They Can Change the World.* Penguin, New York. Kindle edition.

Medler, B. & Magerko, B. (2010): The Implications of Improvisational Acting and Role-Playing on Design Methodologies. In *CHI 2010* conference. http://dx.doi.org/10.1145/1753326.1753398

Montola, M. (2003): Role-Playing as Interactive Construction of Subjective Diegeses. In Gade, M., Thorup, L. & Sander, M. (eds.) (2003): *As Larp Grows Up. Theory and Methods in Larp*. Knudepunkt 2003. Copenhagen, Projektgruppen KP03. www.laivforum.dk/kp03_book

Montola, M. (2004): Chaotic Role-Playing. Applying the Chaos Model of Organisations for Role-Playing. In Montola, M. & Stenros, J. (eds.) (2004): *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination.* Solmukohta 2004. Ropecon, Helsinki. www.ropecon.fi/brap

Montola, M. (2005a): Designing Goals for Online Role-Players. In *DiGRA 2005* conference. www.digra.org/dl/db/06276.39565.pdf

Montola, M. (2005b): Exploring the Edge of the Magic Circle. Defining Pervasive Games. In *DAC 2005* conference, December 1.-3. IT University of Copenhagen.

Montola, M. (2007): Breaking the Invisible Rules. Borderline Role-Playing. In Donnis, J., Gade, M. & Thorup, L. (2007): *Lifelike*. Knudepunkt 2007. Projektgruppen KP07, Copenhagen. www.liveforum.dk/kp07book

Montola, M. (2010): *The Executive Game. Misogynous Mobsters, Minimalist Immersion.* In Stenros, J. & Montola, M. (2010): *Nordic Larp*. Fëa Livia, Stockholm.

Montola, M. (2011): The Painful Art of Extreme Role-Playing. In *Journal of Gaming and Virtual Worlds* 3: 3, pp. 219–237.

Montola, M. & Holopainen, J. (forthcoming): First Person Audience and the Art of Painful Role-Playing. In Torner, E. & White, W. J. (forthcoming): *Immersive Gameplay: Studies in Role-Playing and Media Immersion.* McFarland, Jefferson.

Montola, M. & Jonsson, S. (2006): Prosopopeia. Playing on the Edge of Reality. In Frizon, T. & Wrigstad, T. (eds.) (2006): *Role, Play, Art. Collected Experiences of Role-Playing*. Knutpunkt 2006. Stockholm, Föreningen Knutpunkt.

Montola, M., Stenros, J. & Waern, A. (2009a): *Pervasive Games: Theory and Design.* Morgan Kaufmann, Burlington.
Montola, M., Stenros, J. & Waern, A. (2009b): Philosophies and Strategies of Pervasive Larp Design. In Holter, M., Fatland, E. & Tømte, E. (2009): *Larp, the Universe and Everything*. Knutepunkt 2009, Oslo. http://knutepunkt.laiv.org/2009/book
Montola, M. & Waern, A. (2005): *Prosopopeia Evaluation Report.* IPerG Deliverable D11.4. Unpublished, available from the authors.
Montola, M. & Waern, A. (2006a): Ethical and Practical Look at Unaware Game Participation. In Santorineos, M. (ed.), *Gaming Realities: A Challenge for Digital Culture*. Mediaterra 2006. Fournos Centre for the Digital Culture, Athens.
Montola, M. & Waern, A. (2006b): Participant Roles in Socially Expanded Games. In Strang, T., Cahill, V. & Quigley, A. (eds.) (2006): *Pervasive 2006 Workshop Proceedings* 165-173. PerGames 2006 workshop of Pervasive 2006 conference, May 7.-10. University College Dublin. www.ipsi.fraunhofer.de/ambiente/pergames2006/final/PG_Montola_Roles.pdf
Montola, M., Waern, A., Kuittinen, J. & Stenros, J. (2006a): *Ethics of Pervasive Gaming.* IPerG Deliverable D5.5.
Montola, M., Waern, A. & Nieuwdorp, E. (2006b): *The Domain of Pervasive Gaming.* IPerG Deliverable D5.3B.
Mortensen, T. (2002): Playing with Players. Potential Methodologies for MUDs. In *Game Studies*, 2 (1).
Mortensen, T. (2003): *Pleasures of the Player; Flow and Control in Online Games.* Doctoral Dissertation, University of Bergen. www.hivolda.no/attachments/site/group23/tm_thesis.pdf, ref. November 16th, 2011.
Mosca, I. (2011): Just a Cyberplace. The Rules in Videogames: Between Ontology and Epistemology. In *DiGRA 2011* conference. www.digra.org/dl/db/11312.36127.pdf
Murray, J. (1997): *Hamlet on the Holodeck*. The MIT Press, Cambridge.
Myers, D. (2008): Play and Punishment: The Sad and Curious Case of Twixt. In *[Player]* conference. IT University of Copenhagen.
Myers, D. (2009): In Search of a Minimalist Game. In *DiGRA 2009* conference. www.digra.org/dl/db/09287.39520.pdf
Myers, D. (2010): *Play Redux. The Form of Computer Games.* University of Michigan Press, Ann Arbor. http://hdl.handle.net/2027/spo.7933339.0001.001, ref. November 6th, 2011.
Nachmanovitch, S. (1990): *Free Play. Improvisation in Life and Art.* Penguin Putnam, New York. Kindle edition.
Nieuwdorp, E. (2005): The Pervasive Interface. Tracing the Magic Circle. In *DIGRA 2005* conference. www.digra.org/dl/db/06278.53356.pdf
Nieuwdorp, E. (2007): The Pervasive Discourse: An Analysis. In *ACM Computers in Entertainment*, 5 (2).
Ninjalicious (2005): *Access All Areas: A User's Guide to the Art of Urban Exploration.* Infiltration, Toronto.
Nonaka, I. & Takeuchi, H. (1995): *The Knowledge-Creating Company. How Japanese Companies Create the Dynamics of Innovation.* Oxford University Press, New York.
Norman, D. A. (1988): *The Psychology of Everyday Things.* Basic Books, New York.
Norman, D. A. (2007): *The Design of Future Things.* Basic Books, New York.
Norman, D. A. (2011): *Living with Complexity.* The MIT Press, Cambridge.
Olson, T. & Christiansen, G. (1966): *Thirty-One Hours: The Grindstone Experiment.* Toronto: Canadian Friends Service Committee. Ref. the 2008 Online Edition in www.civilresistance.info/grindstone, November 30th, 2011.
Örnebring, H. (2007): Alternate Reality Gaming and Convergence Culture: The Case of Alias. In *International Journal of Culture Studies*, 10 (4).
Paavilainen, J., Korhonen, H., Saarenpää, H., Holopainen, J. (2009): Player Perception of Context Information Utilization in Pervasive Mobile Games. In *DiGRA 2009* conference. www.digra.org/dl/db/09287.55066.pdf
Paley, V. G. (1990): *The Boy Who Would Be a Helicopter.* Harvard University Press, Cambridge.

Pargman, D., Jacobsson, P. (2006): The magic is gone: A critical examination of the gaming situation. In Santorineos, M. (ed.), *Gaming Realities: A Challenge for Digital Culture*. Mediaterra 2006. Fournos Centre for the Digital Culture, Athens.
Pearce, C. (2009): *Communities of Play. Emergent Cultures in Multiplayer Games and Virtual Worlds.* The MIT Press, Cambridge.
Pearce, C., Fullerton, T., Fron, J., & Morie, J. (2005): Sustainable play: Towards a New Games Movement for the Digital Age. In *DAC 2005* conference, December 1.-3. IT University of Copenhagen.
Pedersen, B. (2010): Delirium. Insanity and Love Bleeding from Larp to Life. In Stenros, J. & Montola, M. (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Pettersson, J. (2005): *Roolipelimanifesti*. Like, Helsinki.
Piaget, J. (1962): *Play, Dreams and Imitation in Childhood*. Norton, New York.
Pohjola, M. (2000): The Manifesto of the Turku School. Ref. the 2003 version in Gade, M., Thorup, L. & Sander, M. (eds.) (2003): *As Larp Grows Up. Theory and Methods in Larp*. www.laivforum.dk/kp03_book
Poremba, C. (2007): Critical potential on the brink of the magic circle. In *DiGRA 2007* conference. www.digra.org/dl/db/07311.42117.pdf
Reid, J. (2008): Designing for Coincidence. Incorporating Real World Artifacts in Location-Based Games. In *DIMEA '08* conference. http://dx.doi.org/10.1145/1413634.1413643
Reid, J., Hull, R., Clayton, B., Melamed, T. & Stenton, P. (2010): A research methodology for evaluating location-aware experiences. In *Personal and Ubiquitous Computing* 15 (1). Springer, London.
Roversi, C. (2010): Constitutive Rules in Context. *Archiv für Rechts- und Sozialphilosophie* 96. Ref. a draft at http://www.cirsfid.unibo.it/NR/rdonlyres/95FF110C-E778-42ED-88BC-3CE39983D073/234609/constitutive_rules_in_context.pdf, May 7. 2012.
Ryan, M. L. (2001a): *Narrative as a Virtual Reality. Immersion and Interactivity in Literature and Electronic Media.* John Hopkins University Press, Baltimore.
Ryan, M. L. (2001b): Beyond Myth and Metaphor. The Case of Narrative in Digital Media. In *Game Studies* 1 (1).
Salen, K. & Zimmerman, E. (2004): *Rules of Play: Game Design Fundamentals*. The MIT Press, Cambridge.
Salen, K. & Zimmerman, E. (eds.) (2005): *The Game Design Reader. A Rules of Play Anthology.* The MIT Press, Cambridge.
Sayer, A. (2000): *Realism and Social Science.* Sage, London.
Schaeffer, J., Burch, N., Björnsson, Y., Kishimoto, A., Müller, M., Lake, R., Lu, P. & Sutphen, S. (2007): Checkers Is Solved. In *Science* 14 September 2007. http://dx.doi.org/10.1126/science.1144079
Schechner, R. (1988): *Perfomance Theory*. Ref. 1994 reprint. Routledge, New York.
Schechner, R. (2002): *Perfomance Studies. An Introduction*. Ref. 2006 reprint. Routledge, New York.
Schneider, J., & Kortuem, G. (2001): How to Host a Pervasive Game: Supporting Face-to-Face Interactions in Live-Action Roleplaying. In *Ubicomp 2001* conference. Atlanta, Georgia.
Searle, J. R. (1969): *Speech Acts. An Essay in the Philosophy of Language*. Cambridge University Press, Cambridge.
Searle, J. R. (1975): The Logical Status of Fictional Discourse. In *New Literary History* 6 (2).
Searle, J. R. (1995): *The Construction of Social Reality.* Penguin, London.
Searle, J. R. (1998): *Mind, Language and Society. Philosophy in the Real World.* Basic Books, New York. Kindle edition.
Searle, J. R. (2010): *Making the Social World. The Structure of Human Civilization.* Oxford University Press, Oxford.
Sihvonen, T. (1997): Pieni johdatus live-roolipelaamisen psykologiaan. In Vainio, N. (ed.) (1997): *Larppaajan käsikirja*. Suomen live-roolipelaajat, Tampere.
Sihvonen, T. (2009): *Players Unleashed! Modding The Sims and the Culture of Gaming.* Doctoral dissertation, University of Turku.

Smith, B. (2003): John Searle: From Speech Acts to Social Reality. In Smith, B. (ed.) (2003): *John Searle. Contemporary Philosophy in Focus.* Cambridge University Press, Cambridge.
Smuts, A. (2007): The Paradox of Painful Art. In *Journal of Aesthetic Education* 41 (3).
Söderberg, J., Waern, A., Åkesson, K-P., Björk, S., Falk, J. (2004): Enhanced Reality Live Role-Playing. In Workshop on Gaming Applications in Pervasive Computing Environments, in *Pervasive 2004* conference. April 21-23. Vienna, Austria.
Sotamaa, O. (2009): *The Player's Game. Towards Understanding Player Production Among Computer Game Cultures.* Doctoral dissertation, University of Tampere. http://acta.uta.fi/pdf/978-951-44-7651-8.pdf
Stackpole, M. A. (1990): *The Pulling Report.* www.rpgstudies.net/stackpole/pulling_report.html
Stark, L. (2012): *Leaving Mundania. Inside the Transformative World of Live Action Role Playing Games.* Chicago Review Press, Chicago.
Stenros, J. (2010): Nordic Larp: Theatre, Art and Game. In Stenros, J. & Montola, M. (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Stenros, J., Holopainen, J., Waern, A., Montola, M. & Ollila, E. (2011a): Narrative Friction in Alternate Reality Games: Design Insights from Conspiracy for Good. In *DiGRA 2011* conference. www.digra.org/dl/db/11301.54362.pdf
Stenros, J. & Montola, M. (eds.) (2010): *Nordic Larp*. Fëa Livia, Stockholm.
Stenros, J. & Montola, M. (2011a): Conspiracy For Good. In Andresen, L., Nielsen, C. B., Carbonelli, L., Heebøll-Christensen, J. & Oscilowski, M. (eds.) (2011): *Do Larp. Documentary Writings from KP2011*. Knudepunkt 2011. Knudepunkt 2011. Rollespilsakademiet, Copenhagen. http://rollespilsakademiet.dk/kpbooks/do_larp_web.pdf.
Stenros, J. & Montola, M. (2011b): Parasocial Interaction in Pervasive Role-Play. In Henriksen, T. D., Bierlich, C., Hansen, K. F. & Kølle, V. (eds.) (2011): *Think Larp. Academic Writings from KP2011.* Knudepunkt 2011. Rollespilsakademiet, Copenhagen. http://rollespilsakademiet.dk/kpbooks/think_larp_web.pdf
Stenros, J., Montola, M. & Waern, A. (2007a): Post Mortem Interaction. Social Play Modes in Momentum. In Donnis, J., Gade, M. & Thorup, L. (2007): *Lifelike*. Knudepunkt 2007. Projektgruppen KP07, Copenhagen. www.liveforum.dk/kp07book
Stenros, J., Montola, M., Waern, A. & Jonsson, S. (2007b): *Momentum Evaluation Report.* IPerG Deliverable D11.8 Appendix C.
Stenros, J., Montola, M., Waern, A. & Jonsson, S. (2007c): *Play it for Real: Sustained Seamless Life/Game Merger in Momentum.* In *DiGRA 2007* conference. www.digra.org/dl/db/07313.58398.pdf
Stenros, J. & Waern, A. (2011): Games as Activity: Correcting the Digital Fallacy. In Evans, M. (ed.) (2011): *Videogame Studies: Concepts, Cultures and Communications.* Interdisciplinary Press, Oxford.
Stenros, J., Waern, A. & Montola, M. (2011b): Studying the Elusive Experience in Pervasive Games. *Simulation & Gaming.* Sage, London.
Sutton-Smith, B. (1997): *The Ambiguity of Play.* Harvard University Press, Harvard.
Suits, B. (1978): *The Grasshopper. Games, Life and Utopia.* Broadview.
Tan, P. B. (2001): *Tensions in Live-Action Roleplaying Game Design.* Master's thesis, MIT. Ref. http://web.mit.edu/philip/www/chapters/thesis.pdf, ref. November 30th, 2011.
Taylor, T. L. (2006): *Play Between Worlds. Exploring Online Game Culture.* The MIT Press, Cambridge.
Taylor, T. L. (2009): Negotiating Play: The Process of Rule Construction in Professional Computer Gaming. In *DiGRA 2009* conference. www.digra.org/dl/db/09291.03274.pdf
Taylor, T.L., & Kolko, B. (2003): Boundary spaces: Majestic and the uncertain status of knowledge, community and self in a digital age. In *Information, Communication & Society*, 6 (4), 497-522. www.itu.dk/~tltaylor/papers/TaylorKolko-Majestic.pdf, ref. December 7th, 2011.
Timplalexi, E. (2011): Towards a Discourse Between the Performative and the Iconic. Drama and Immersion in Larps (and MMORPGs). In Castellani, A. & Harviainen, J. T. (2011):

Larp Frescos. Affreschi antichi e moderni sui giochi di ruolo dal vivo. Larp Symposium 2011, Firenze.

Tresca, M. J. (2011): *The Evolution of Fantasy Role-Playing Games.* McFarland, Jefferson. Kindle edition.

Tychsen, A., Hitchens, M., Brolund, T. & Kavakli, M. (2006): Live Action Role-Playing Games. Control, Communication, Storytelling, and MMORPG Similarities. In *Games and Culture* 1 (3). Sage, London.

Virtanen, J. (2010): Ground Zero. The First Day of a Nuclear Holocaust. In Stenros, J. & Montola, M. (eds.) (2010): *Nordic Larp*. Fëa Livia, Stockholm.

Vygotsky, L. S. [1978]: *Mind in Society. The Development of Higher Psychological Processes*. A book edited from Vygotsky's essays and lectures by Michael Cole, Vera John-Steiner, Sylvia Scribner and Ellen Souberman in 1978. Harvard University Press, Harvard.

Waern, A., Benford, S., Goetcherian, V., Åkesson, K-P., Söderlund, T., Björk, S., Mäyrä, F., Holopainen, J., Schäfer, L., Ghellal, S. (2004): IPerG Position Paper. In Workshop on Gaming Applications in Pervasive Computing Environments, in *Pervasive 2004* conference. April 21-23. Vienna, Austria.

Waern, A. & Denward, M. (2009): On the Edge of Reality: Reality Fiction in 'Sanningen om Marika'. In *DiGRA 2009* conference. www.digra.org/dl/db/09287.50584.pdf

Walther, B. K. (2005): Atomic Actions – Molecular Experience. Theory of Pervasive Gaming. In *Computers in Entertainment* 3 (3). http://dx.doi.org/10.1145/1077246.1077258

Walton, K. L. (1990): *Mimesis as Make-Believe. On the Foundations of the Representational Arts.* Harvard University Press, Harvard.

Walz, S. P. (2010): *Toward a Ludic Architecture: The Space of Play and Games.* ETC Press. In www.etc.cmu.edu/etcpress/content/toward-ludic-architecture, ref. November the 16th, 2011.

Westlund, A. (2004): The Storyteller's Manifesto. In Montola, M. & Stenros, J. (eds.) (2004): *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination.* Solmukohta 2004. Ropecon, Helsinki. www.ropecon.fi/brap

White, W. J. (2010): Blurring the Boundaries. Structured Freeform in the Indie RPG Design Community. In Eagar, A. (2010): *Journeys to another world. Companion to the 2010 LARP summit at WyrdCon.* WyrdCon 2010. Costa Mesa, California.

Williams, D., Kennedy, T. L. M. & Moore, R. J. (2010): Behind the Avatar: The Patterns, Practices, and Functions of Role Playing in MMOs. In *Games and Culture* 6 (2).

Williams, J. P., Hendricks, S. Q. & Winkler, K. (2006): Introduction: Fantasy Games, Gaming Cultures, and Social Life. In Williams, J. P., Hendricks, S. Q. & Winkler, K. (eds.) (2006): *Gaming as Culture. Essays on Reality, Identity and Experience in Fantasy Games.* McFarland, Jefferson.

Wimsatt, W. & Beardsley, M. C. (1946): The Intentional Fallacy. *Sewanee Review* 54. Ref. the revised 1954 version in http://faculty.smu.edu/nschwart/seminar/Fallacy.htm, ref. December 2nd, 2011.

Wilson, D. & Sicart, M. (2010): Now It's Personal: On Abusive Game Design. In *Futureplay 2010* conference. http://dx.doi.org/10.1145/1920778.1920785

Woodford, D. P. (2008): Abandoning the Magic Circle. Presentation in *Breaking the Magic Circle* seminar. University of Tampere, Tampere. In www.dpwoodford.net/Papers/MCSeminar.pdf, ref. November the 16th, 2011.

Wrigstad, T. (2008): The Nuts and Bolts of Jeepform. In Montola, M. & Stenros, J. (eds.) (2008): *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games*. Solmukohta 2008. Ropecon, Helsinki. www.ropecon.fi/pw

Wrigstad, T. (2010): *This Might Sting a Little.* Lecture at IT University of Copenhagen. In www.vimeo.com/10030923

Yardley-Matwiejczuk, K. M. (1997): *Role Play. Theory & Practice.* Sage, London.

Zimmerman, E. (2012): Jerked Around by the Magic Circle – Clearing the Air Ten Years Later. In www.gamasutra.com/view/feature/6696/jerked_around_by_the_magic_circle.php, ref. May the 7th, 2012.

Simulation & Gaming
XX(X) 1–21

DOI: 10.1177/1046878111422111
http://sag.sagepub.com
SAGE

Social Constructionism and Ludology: Implications for the Study of Games

Markus Montola[1]

Abstract

This article combines the paradigm of social constructionism with the developing field of ludology. As games are intersubjective meaning-making activities, their study requires understanding of the nature of social constructions, and how such constructions are produced and interpreted: The formalist nature of ludological core concepts such as game world and game rules is often taken for granted, even though such structures exist only as social constructions. The article also considers the implications of the constructionist approach on the research of games: Such a perspective is especially important for the study of nonrepeatable, irreversible, distributed, and emergent forms of play.

Keywords

constructionist approach, ephemera, game studies, intersubjectivity, larp, ludology, MMORPGs, pervasive games, play, replayability, role-playing, social constructionism

According to Mäyrä (2008), "game studies is a multidisciplinary field of study and learning, with games and related phenomena as its subject matter" (p. 6). Numerous disciplines ranging from psychology to literature studies and from computer science to sociology are used to understand the growing fields of games and play. Around the turn of the millennium, authors such as Frasca (1999, 2003) and Juul (1999, 2003) advocated establishing the discipline of *ludology*[1] to study games as games. The core of their argument was that the *way* of looking at games also guides *what exactly* is looked at. If the discipline of narratology is used to understand games (e.g., Aarseth,

[1]University of Tampere, Finland

Corresponding Author:
Markus Montola, School of Information Sciences, University of Tampere, Kanslerinrinne 1, 33014 Tampereen yliopisto, Finland
Email: markus.montola@uta.fi

1997), the results are quite different from approaches focusing on, for example, rules and other systemic elements of games (e.g., Järvinen, 2008).

Whenever things like game rules, game states, and game worlds are discussed as formal and systemic structures, they are understood as being precise, stable, and timeless. In this article, I use *social constructionism* to critique the taken-for-granted simplicity of such a view. The impetus comes from the constructionism that has been in the background of my earlier research on pervasive games (Montola, Stenros, & Waern, 2009), role-playing (Montola, 2008), and online worlds (Montola, 2005),[2] forms of play which are difficult to properly understand with a purely systemic view.

While most constructionists are intellectual descendants of Berger and Luckmann (1966), social constructionism is used in many different ways. Burr (1995) lists four central tenets of constructionism:

1. a critical stance toward taken-for-granted knowledge
2. historical and cultural specificity
3. understanding that knowledge is sustained by social processes
4. the idea that knowledge and social action go together

Deconstruction of *gender* is a good example, where constructionism opened the discussion on social gender by criticizing the taken-for-granted nature of biological gender.

In this article, social constructionism is used in a weak form, as a theory of knowledge asserting that even though the existence of material reality does not depend on sentient observers, all *meanings* are constructed socially. As Searle (1969, 1995) discusses, the existence of the planet Earth is a *brute fact*, as it does not depend on mankind, but immaterial concepts such as democracy and game rules need human institutions to exist—they are socially constructed *institutional facts*. While culture and language were born in play for Huizinga (1938/1955), they are necessary predecessors of game institutions for Searle.

For Searle (2010), all human institutions are systems of *constitutive rules* that do not only regulate activities, but also make them possible: The rules of CHESS do not only limit the ways to move a rook, but also make that activity possible through defining and establishing the meanings of the different components of the game. All institutions allow establishment of further institutional facts: The institution of CHESS does not only allow rooks to capture bishops, but also makes it possible for constructions such as "Queen's Gambit" to be built.

Even though the distinction did not exist back in 1966, Berger and Luckmann (1966) were not strong constructionists. They discuss a *reality of everyday life* that is the brute foundation of existence: It imposes itself on us constantly and imperatively, and presents itself as a seemingly objective reality. Their reality of everyday life is the reality we sense immediately, and are unable to ignore. Indeed, Hacking (1999) has a hard time finding any theorist advocating for universal constructionism.[3] He writes,

> Berger and Luckmann did not stake a claim for any form of universal social constructionism. They did not claim that everything is a social construct, including, say, the taste of honey and the planet Mars—the very taste and the planet themselves, as opposed to their meanings, our experience of them, or the sensibilities that they arouse in us. . . . They did not claim that nothing can exist unless it is socially constructed. (p. 25)

As the brute reality of everyday life is undeniable, we can, at best, put effort into weakening its imperative presence through immersive play. In a fashion similar to the concept of *magic circle* (e.g., Salen & Zimmerman, 2004; see also Huizinga, 1955/1938), popular in ludology, Berger and Luckmann (1966) discuss how special pockets can be constructed within the reality of everyday life:

> The transition between realities is marked by the rising and falling of the curtain. As the curtain rises, the spectator is "transported into another world" with its own meanings and an order that may or may not have much to do with the order of everyday life. As the curtain falls, the spectator returns to reality. (p. 25)

Much could be written about the social constructions surrounding play, ranging from construction of gamers (see Fron, Fullerton, Morie, & Pearce, 2007) to identity and communities (see Pearce, 2009). However, this article addresses the ludological building blocks that are often taken for granted as stable, formal, and systemic elements of play: games, rules, goals, game worlds, game states, and so forth.

Knowledge as a Social Process

Understanding the way knowledge is sustained in social processes is essential for understanding games. From the constructionist perspective, some formalistic arguments regarding the nature of rules and game worlds appear nonsensical. For example, the title of Juul's doctoral dissertation (2003) and widely cited book (2005) is *Half-Real: Video Games Between Real Rules and Fictional Worlds*. He explains the half-real nature of games as follows:

> *Half-real* refers to the fact that video games are two rather different things at the same time: video games are real in that they consist of real rules that players actually interact with; that winning or losing a game are real events. Conversely, when winning a game by slaying a dragon, the dragon is not real, but fictional. In this perspective, playing a video game is to be engaged in the interaction with some real rules *while* imagining a fictional world, and designing a video games is to design a set of rules as well as designing a fictional world. This does not imply that the fictional world is *more* real than in other media, but rather that fictional worlds in games are special kind of tentative and flickering fictions

> that in complex ways interact with the real and non-fictional rules of the game. (Juul, 2003, p. 2, italics from original)

Juul, who does not define *real* and *fictional*, leaves a constructionist puzzled—in what sense of real are rules more real than fiction? After all, rules only exist as social constructions; while their absoluteness is sometimes taken for granted, the practices of play show that rules are intangible, changing, and arbitrary. Furthermore, it would be normative to claim that rules are more relevant than the fiction produced in play (see Copier, 2007; Linderoth, 2008; Montola, 2005). Rules and fiction are equally constructed, equally intangible and equally real. We have an imaginary dragon, an imaginary rule, and an imaginary character slaying the dragon: These imaginings are prompted by the game (see Walton, 1990) and interpreted in its context. The rules and the fiction of an arcade machine are rooted in the brute reality of hardware and software, but the play is made meaningful by the player.

As gameplay is necessarily symbolic, games are *intersubjective* phenomena whenever more than one person is involved. Every player has subjective, unique, unverifiable, unpredictable, and uncontrollable perceptions of the game state and game rules. At best, those perceptions are *equifinal*, which happens when no explicit contradiction exists, as the different interpretations produce indistinguishable consequences (see Montola, 2008). Players' readings of MONOPOLY (1933) rules can be equifinal until one player tries to follow the widespread Free Parking jackpot[4] house rule and it is not recognized by others. Equifinality allows the game to proceed, but when a contradiction is noticed, some participants have typically already made moves based on contradictory assumptions.

Searle's (1969, 1995) logic of institutional facts is based on *collective intentionality*, where we agree that *some things count as other things in certain contexts*: A token counts as a hotel in the context of MONOPOLY. The fact that we have a hotel on Boardwalk is a fact within the institution of MONOPOLY, while the existence of the game is based on deeper cultural institutions—on the lowest level foundational constructions exist such as language and playfulness. Playing MONOPOLY also creates momentary, short-lived constructions such as the current game state. Moreover, if the game is played wrongly, as it often is, the activity constructs another version of the game with different constitutive rules. The constructionist approach is relevant both on the micro level of individual game interactions and on the macro levels of long-lived stable institutions.

Let us consider another example. If the game master of a tabletop role-playing game declares that "a large stone" is to be found in the field, she engages in construction on a micro level. She performs a speech act within the game institution to establish a new institutional fact pertaining to the world construction (see Searle, 2010). The process is not objective, as every listener makes a reading of the utterance: The readings are equifinal if no contradiction arises. However, if one player tries to have his or her character lift the stone, while others imagine a huge boulder, the conflict must be solved (see Loponen & Montola, 2004; Montola, 2008). In online worlds, the construction can mean anything from typing emotes to sculpting virtual objects.

Communication lag and differences in graphics settings regularly lead to loss of equifinality in online environments.

For Searle (2010), it is an epistemically objective institutional fact that Barack Obama is president of the United States because it can be verified or falsified. However, play is often understood better with an epistemically subjective approach. It is not uncommon that participants' understanding of the institutional facts is contradictory, and while verification may be possible—and it often is not—it happens with delay. As that delay can last until next play session or next play instance, games are often played *as if* they were epistemically subjective.

Reading a Game

Game studies discuss games in many ways. As Bogost (2009) has pointed out, E. T. THE EXTRA TERRESTIAL (1982), for Atari VCS, can be discussed as 8 kilobytes of data, as a software program, as a ROM circuit, as a consumer good, as a system of rules, as an experience, as a unit of intellectual property, and so on.

> All of these units of being exist simultaneously with, yet independently from one another. No one "real" E. T. exists, be it the structure, characterization, and events of a narrative, nor the code that produces it, nor anything in between. (Bogost, 2009)

We can identify the following common ways of perceiving games. No doubt others exist.

Systemic

The *systemic view* is focused around procedural, algorithmic, and quantitative understanding of concepts like rules, goals, and game state. For instance, Björk and Holopainen (2005) write that gameplay can be described as making changes in quantitative game states, where each state is a collection of all values of all game elements and the relationships between them. In their view, the state of a digital game is always explicitly stored in the computer, but strategies and gameplay experiences do not belong to it. The systemic view focuses on thoroughly codified algorithmic and quantitative games. It not only suits digital games the best, but also has merits outside digital games: For example, in the setup of the board game CLUEDO (1949), random cards are placed in an envelope, entrusting the system with information not given to any individual.

Materialistic

The *materialistic view* is common to physical sports. It is based on Berger and Luckmann's (1966) reality of everyday life: an objectified, physical reality that is often considered self-evident. While skiing can be seen as a simple racing system

designed for competition, the materialistic view is needed to discuss the significance of waxing and weather. Similarly, location-based games based on wireless technologies are always on the mercy of the material reality (e.g., Barkhuus et al., 2005). The *Laws of Chess*[5] illustrate how the systemic view is imposed over the material reality of chessboard through meticulously codified procedures.

Referee-Centric

The *referee-centric view* surfaces mostly in competitive sports. In SOCCER, the materialistic view is primarily used to determine whether a goal is made. However, as the game state does not exist in a precise algorithm, the equifinality is regularly lost and a referee is needed to arbitrate. In these games, a hierarchy of individuals ultimately decides the state of the game: When the brute fact of whether the ball was inside a goal on a given moment cannot be verified, the referee's reading determines the institutional fact of the matter. Hakkarainen and Stenros (2002) propose a referee-centric view for role-playing games as well, while Taylor (2009) shows how the cybersports sometimes fall back on a referee-centric view, even though digital games are often assumed to be unequivocally systemic.

Player-Centric

The *player-centric view* is derived from reader-centric reception theories, assuming that every reader has the power and freedom to interpret a game. This view is useful for studying single-player digital games, such as MASS EFFECT (2007), where the player may read the feminine alien Liara as a woman, as portrayed audiovisually (Figure 1), or as a 106-year-old non-asexual member of a monosexual species, as described in the game: "while asari have only one gender, they are not asexual like single-celled life—all asari are sexually female" [*sic*]. Even though players interpret multiplayer games as well, the implicit conventions of good sportsmanship[6] require them to aim toward conventional, equifinal readings. Player-centrism prompts the question of whether two people are playing the same game if they interpret it differently.

Designer-Centric

The *designer-centric view* is derived from the auteur theory of film: The assumption is that, for each game, an auteur-creator's view is dominant, even after it is released to an audience. This view is highlighted when developers publish rule changes or release software patches, overruling established play practices. In the designer-centric view, Liara's gender is determined by the game studio, which may refuse to answer questions or even have reasons to lie. As traditional games have no auteur designers, this view is intimately connected to commoditization of play (see Stenros & Sotamaa, 2009).

Figure 1. Dr. Liara T'Soni, 106 years

Objectivist and Subjectivist Perspectives

The systemic and the materialist views are *objectivist* views, as they imply that the game appears similar regardless of the observer. The referee-centric, player-centric, and designer-centric views are *subjectivist* in the sense that they acknowledge the subjectivity of readings and the need to negotiate them. As social action is based on knowledge (Burr, 1995), these perceptions influence conventions of play directly: Cybersport conflicts are ultimately solved by referees; players generally consider Liara a woman, and game designers such as Gary Gygax (see Mason, 2004) retain influence over how people use their products.

Even without us going into the politics of freedom, democracy, and play, all these ways of reading a game have their weaknesses: The formal, systemic view fails to address the meanings produced in play and fails to understand nonalgorithmic play activities such as role-playing on top of a multiplayer game (Copier, 2007; Linderoth, 2008; Montola, 2005). Systemic approaches implicitly assume that games are isolated from ordinary life because they are unable to explain the nonsystemic outside reality—even though it has been shown that play is a flickering activity constantly merging with everyday life (Fine, 1983; Pargman & Jakobsson, 2006). Idealistic systemism sometimes even disregards brute facts of computer systems, such as network lag or the inaccuracy of the global positioning system (GPS), or treats differently patched massively multiplayer online role-playing game (MMORPG) clients as identical systems.

The referee-centric view works best for games that can be completely observed from one vantage point, making it unsuitable for pervasive games, larps, and online worlds.[7] The referee-centric view is primarily motivated by the practical necessity of solving equifinality conflicts during play, and thus is ill-suited for research. The designer-centric view fails to understand games as social systems of meaning-making, which is problematic for studying, for example, online worlds, where player communities and cultures emerge and define themselves (see Myers, 2008; Pearce, 2009). An entirely player-centric view would be unable to negotiate the conflicting readings of multiplayer games (see Taylor, 2009). The materialistic view is, by definition, unsuitable for the study of immaterial properties of games.

Studying Replayable Single-Player Games

First we look into the easier kind of games to study. Researchers of single-player digital games and other unchanging, replayable game artifacts can archive and revisit games to produce more play experiences as needed. Thus, it has been easier to study such games without going into details of interpretations: Game content can be accessed at any time, and the ways of playing are limited enough to allow sensible discussion on the game without a detailed account of a particular play session.

Nevertheless, games are experienced differently by different participants, and the interpretations and readings of games vary greatly, based on players' preferences, skills, and experiences. Aarseth (2003) problematizes the method of playing as a way of scholarly data acquisition, as numerous different ways of playing games exist, and players' conscious choices influence play significantly.

Naturally, the usual problems of contextual interpretations apply as well: Just like a book about war offers different readings to veterans and literature students, a game can offer different readings based on the players' personal history and cultural context. When MS. PAC-MAN was released in 1981, it was a novel experience for most players, but probably looked like a clone to someone already familiar with PAC-MAN (1980). The first-timer experiences of the two games are rather similar.[8]

To claim that the software and hardware of MS. PAC-MAN were merely institutional facts would be strong social constructionism, and fall beyond this article, but their meanings fall within weak constructionism. Games have cultural and contextual *meaning potentials* (see Lehtonen, 1996): At its time, MS. PAC-MAN could be a new and exciting challenge or a boring rehash of PAC-MAN, now it can be read as a nostalgic arcade classic.

While the cultural and contextual nature of meaning potentials make them impossible to predict and manage, it can be argued that PAC-MAN does not have a potential to be read to include hippopotamuses wallowing in mud: Walton (1990) would even argue that such a reading would be inappropriate and unauthorized. Walton discusses the authorized and appropriate readings of cultural products in the context of the games of imagination prompted by the famous pointillist painting *La Grande Jatte*:

> People can play any sort of game they wish with a given work. We could arbitrarily decide to adopt a principle of generation whereby, because of the patterns of paint sported by *La Grande Jatte*, we are to imagine a pair of hippopotamuses wallowing in a mud hole rather than a couple strolling in a park. This would make the former proposition fictional in our game and the latter not. However, it would not change the world of the painting. It would not then be *La Grande Jatte*—fictional that hippos are wallowing in a mud hole, not even if all viewers of the painting should for some reason choose to play games in which this is fictional. It would still be *La Grande Jatte*—fictional that a couple is strolling in a park.
>
> Our notion of function comes into play here. It is *La Grande Jatte's* function, its purpose, to serve as a prop in certain sorts of games—games involving a principle of generation which results in the fictionality (in those games) of the proposition that a couple is strolling in a park. It is not the function of *La Grande Jatte* to be a prop in games in which fictionally hippos are wallowing in a mud hole, no matter what games people actually play with it. The hippopotamus game is inappropriate for the painting, *unauthorized* (in the sense defined earlier); to play it is to misuse the work. This is why it is not *La Grande Jatte*—fictional that hippos are wallowing in a mud hole. (pp. 59-60)

Walton's (1990) attempt to negotiate auteur centrism and spectator centrism does not satisfactorily solve all the problems presented in this article. The contemporary games are interactive products designed to allow different types of uses.

In games where players are cocreators, even extensive play does not provide the player with a "complete" view of the game—Sihvonen (2009) for instance discusses the way her experience of THE SIMS (2000) changed when she learned to kill her sims. Instead of experiences of nurture and sympathy, the advanced player can go for sadism, thrill, and even eroticism (Korhonen, Montola, & Arrasvuori, 2009). Ultimately, almost every game affords some creative gaming, ranging from creation of machinima to pursuing self-defined goals.

Even the simplest replayable games can produce unforeseen experiences. When Billy Mitchell completed the first "perfect game" of PAC-MAN, he played the game flawlessly for 6 hours.[9] He completed 255 levels, never dying, getting full points from every level. Such marathon experiences are impossible for a regular player, and Mitchell's experience was produced in the context of being the first person to play a perfect game after years of practice.

The example of Mitchell's play illustrates the way the so-called *single-player games* are often social activities (see Stenros, Paavilainen, & Mäyrä, 2009): Systemically speaking, PAC-MAN was only a part of a global high-score competition. It is difficult to say whether the record competition constituted "authorized" use of the PAC-MAN arcade machine. The biological needs of a marathon player also necessitate the use of the materialist view to understand the experience.

The ephemeral and dynamic nature of play reduces the usefulness of the concept of meaning potential. Analyzing a game as a static whole in retrospect is not ideal, as games are primarily read in situ: Reading the game is an essential part of the play activity. A first-time player of PAC-MAN might evade scared ghosts after eating a power pill, until trial and error verifies the designer-intended role-reversal reading. The player of a replayable game builds her impression of the game through repetition.

The discussion in game studies, design, and journalism often revolves around idealized play experiences. The assumption is that an ideal play experience can be somewhat satisfactorily reached by a member of the target group. Harmonizing player experiences is a central goal in contemporary digital game design: For instance, dynamic difficulty levels are widely used to lessen the proportion of players experiencing the game as too easy or too difficult. Thorough playtesting is used to optimize learning curves and game controls, and to ensure that players do not get lost in levels.

Nevertheless, the problems are *comparatively* simple when studying repeatable single-player games. The game can be seen as an *ergodic* text that produces meaning when a user interacts with it (Aarseth, 1997).[10] A simple computer game—like PAC-MAN—produces a relatively similar set of experiences for most people, allowing players to discuss and compare their experiences. Even though all players enter the game with different skills, contexts, and expectations, their experiences are similar enough to allow comparisons. Playing PAC-MAN is a repetitive activity.

Studying Ephemeral Play Practices

Certain ephemeral properties influence the practical reality of game studies. Some games are more difficult to study as objects than others: Games that are only played once (alternate reality games, larps), that are distributed in space (location-based games), that blur the boundary between ordinary life and play (pervasive games), that feature emergent structures rising from player communities (MMORPGs such as EVE ONLINE [2003]), or that are performative and qualitative in nature (freeform role-playing games), are especially hard to define, codify, preserve, delimit, or analyze. While *play* is always an ephemeral process, in some of these cases, even the very

games can be considered ephemeral, as they emerge from changing contexts and are shaped by the spontaneous play, being impossible to reproduce as such.

A constructionist approach is particularly appropriate when discussing games that cannot be reproduced. While repeatable games have the property of being safe environments for trial and error (e.g., Tsuchiya & Tsuchiya, 1999), Frasca (2000) suggests that irreversibility is desirable for serious games, as it forces the player to face the consequences of her decisions.

> [Videogame] actions are typically trivial, because you can always play again and do exactly the opposite. Actually, in computer games you do not even need to wait until you lose in order to restart: you can save the exact situation of the environment at a certain moment for later retrieval. (p. 174)

Ephemeral and irreversible play inspires narrativization of experience. While PAC-MAN is one of the most famous digital games in history, few people remember any stories of PAC-MAN gameplay. Roughly speaking, *games of progression* inspire players to write walkthroughs, *games of emergence* inspire guides, and *ephemeral play* inspires narrativization.[11] This can be seen from the *paratexts* (see Consalvo, 2007) discussing different aspects of MMORPG gameplay: Quests are discussed in walkthroughs, combat mechanics in guides, and nonrepeatable experiences are shared through stories.[12]

As all participants of these fleeting and distributed games produce meanings, the semiotic structure of ephemeral play differs from the most typical forms of performance. To compare with classical music, even though the sound of a symphony orchestra is very different depending on whether the listener stands next to violins or trombones, he or she can, at least theoretically, receive all signs produced by the musicians. In pervasive games, larps, and online worlds no participant is able to access all the game content.

The tens of thousands concurrent players on the Tranquility server of EVE ONLINE[13] produce massive amounts signs (or institutional facts), interacting with the game system and with each other, both through the server and outside it. In the pervasive larp MOMENTUM (2006; Stenros, Montola, Waern, & Jonsson, 2007), each participant was able to receive only a tiny fraction of all the signs relevant to the game—the 30 players lived the game for weeks, and all their private discussions and activities were included in the game. A player reading a book at home appropriated those signs into the ergodic system of MOMENTUM. Game content can even travel between spheres of play, like when the exiles of MYST ONLINE (2003) brought their culture to SECOND LIFE (2003) and THERE.COM (2003-2010; Pearce, 2009). These ergodic systems (Aarseth, 1997), operating realities (Crookall, Oxford, & Saunders, 1987), or diegetic worlds (Montola, 2008) turn out to be extremely complicated.

Some ephemeral games are asymmetric in the sense that players play different parts in the game. If games are not repeated, those asymmetric parts remain the players' only connection to the game: The game is different for each participant, and no unitary

ideal player exists. This is especially typical in role-playing games. For example, Koljonen (2004) discusses the larp HAMLET (2002), which was based on the Shakespeare's play. In the larp, only one player plays the titular role: Hamlet's player was not reading the same texts as Ophelia's in the next room, and their affordances in the operating reality were radically different. Larpers commonly debrief their games together to narrativize their fragmented experiences.

Similarly, a variety of player positions in alternate reality games depend on the players' investment on the games: Incidentally, such games are often designed for a puzzle-solving minority, even though the majority of participants are spectator-like *readers* (Martin, Thompson, & Chatfield, 2006). As every puzzle can only be cracked once for the first time, the pivotal moments of play are fleeting incidents experienced by few players working alone or in teams. Peer-to-peer storytelling is a central part of an alternate reality game experience, building communities around ephemeral play (Dena, 2008).

In cocreated games, the construction of the diegetic reality sometimes requires interpreting signs that are in explicit contradiction. In a typical MMORPG, the communication happens in at least three modes: on a visual level presented through graphics (avatars, places), on the level of textual description shown on the screen (emotes, dialogue typed in by players), and on the level of program code made manifest through the computer-operated algorithms. In SECOND LIFE, players can build things on all three levels. When a bar fight or a sex scene is only staged through emotes, it is unclear whether it took place in the virtual reality.

As no referee is presiding over the situation, the referee-centric view is unusable to sort these three modes. If the scene is purely visual or created with user-created tools, the game system does not understand that a bar fight is happening. In SECOND LIFE, the scripts and animations actuating the fight may have been created communally, rendering the designer-centered view unsuitable. An entirely player-centric view needs reconciliation if the fight is misunderstood by the participants (see Montola, 2008).

Reading a game coherently from such inputs requires knowledge of the contextual practices and a common cultural *background* (Searle, 1969, 1995). Players need to develop special literacy skills to negotiate whether to give precedence to graphics, textual emotes, or the software. One example is the player-produced permanent death in MMORPGs (see Montola, 2005): If role-players consider a character dead, but he or she is still alive and walking on the screen, is he or she dead or alive? To read visual, textual, and systemic information correctly, the player has to often promptly disregard some signs offered by the play system.

This highlights the processual nature of knowledge (Burr, 1995), showing that players' perceptions of games are more important than codified or historical facts. As the game instances can last for years, even player forgetfulness turns into a relevant factor. Play is based on perceived, narrativized, and remembered institutional facts rather than accurate formal systems.

Gamers' Game Studies

Socially constructed games can only be understood in their cultural context.[14] For example, Ericsson (2004) finds traces of larp-like activity from ancient Egypt, and Morton (2007) follows up with larp-like properties of gladiator games. Ericsson analyzes a text by Herodotos that describes an event from 1800BC from Abydos, to discuss the roots of role-playing:

> The roots of the senseless boffer-war climax run deep indeed. The game must be considered quite hard core, not only for the heavy blunt-weapon fighting—the game ended with the Osiris-pharaoh slaying a live hippopotamus acting the part of Seth and a feast of hippo-cake and copious amounts of beer. The games at Abydos were not the first participatory dramas and they were not the last. Through the ages and across the globe we find similar spectacles of serious role-taking creating phenomena ranging from intimate initiatory rites to sprawling carnivals. (p. 18)

Even though the Pharaoh role-playing Osiris in a fictional world game-mastered by priests might satisfy a definition of larp (Montola, 2008), and although the pervasive ceremony might satisfy a definition of pervasive game (Montola et al., 2009), it would be a highly formalist claim to state that a larp or a pervasive game took place. Such a claim would disregard the way cultural constructions change over time: Was the religious ritual considered real or fictional by the culture that perhaps saw the pharaoh as a divine being? Did the pharaoh play the part, was he possessed, or did he incarnate Osiris in the event? Indeed, even today the concept of larp differs greatly across the world (compare Fatland, 2005, and Hook, 2008). The original performance was enacted within an institution of religion, but a contemporary version would be created within an institution of reenactment or play.

Like cultural studies, ludology faces the intractable problem of how to best understand a subculture and its products. We have valid reasons to argue that only a real fan can properly understand fan culture, but valid reasons also exist to argue that only an outsider can understand a fan culture. The former assumption is that being a fan is so complex and elaborate thing that it cannot be understood through mere observation, while the latter argues that a researcher absorbed in a culture is unable to see it in perspective.

Suominen, Koskimaa, Mäyrä, and Sotamaa (2009; see also Aarseth, 2003) discuss the outsider approach through a comparison with a researcher of literature who would keep distance to the object of study, observing and measuring readers instead of reading herself. Such an approach would help the researcher avoid becoming a part of fan culture, but while such a reader could find out that books have profound influence to their readers, she would be unable to say anything about the meanings of books or the inherent properties of literature.

One traditional solution to the problem is ethnography, having an outsider spend months inside the culture to be studied, gradually learning to understand both the outsider and insider perspectives. Many researchers (e.g., Copier, 2007; Pearce, 2009) have utilized ethnographic methods to understand the ephemeral, emergent, constantly evolving, and distributed play in online worlds.

Participatory study of ephemeral play faces the problem of *first-person audience* (see, for example, Harviainen, 2008), of audience consisting of participants. When play is irreversible and nonrepeatable, the observer's dependency on her personal experiences is heightened (see Frasca, 2000). As Ahlroth (2008) wonders, how could a violinist write a review of a performance where he or she was playing—but how could one review a game without playing it? Most games are not spectator sports, and in many cases, the audiences do not even understand their systems: The rules of THE AMAZING RACE (2001) are kept secret, while FORMULA ONE is so complex that not even the players know all the rules (Montola et al., 2009).

Sometimes we have reason to suspect that stakeholders' accounts on ephemeral play are systematically biased. As larpers invest countless hours as cocreating participants of a larp, it makes sense for them to convince outsiders and especially themselves that the game was worth the effort (see Stenros, Waern, & Montola, 2011 [this issue]). Similarly, in alternate reality games, it is beneficial for the players, producers, investors, and researchers to engage in mutual reassurance that the game was a success.[15] Players reassure themselves that the participation was worth the effort, producers bolster their portfolio, investors convince their superiors, and the researchers gain an opportunity to study a special game.

The insider approach widely used in ludology is close to that of literature research: Game researchers play games for their entire lives and tend to be socialized into gamer cultures. It is no accident that recent doctoral dissertations have been almost invariably written by gamers, whether they bring attention to the fact (e.g., Copier, 2007; Järvinen, 2008; Juul, 2003; Sihvonen, 2009) or not (e.g., Calleja, 2007; Ollila, 2009; Sotamaa, 2009). The shared cultural background allows researchers to understand games in their cultural context. Indeed, just like the programs in comparative literature require students to read classics as a part of their education, it is increasingly common that students of games have to play classics as well (see also Aarseth, 2003).

Conclusion

When the object of research is a static artifact such as a digital game, nonconstructionist approaches are comparatively unproblematic. However, the research of highly ephemeral, distributed, and open-ended games faces additional challenges, as play is a temporary and ever-changing social process that can only be analyzed as a whole in retrospect. Participants obtain different pieces of information during the play, and no participant can ever accumulate all the information related to a game.

Thus, every player has different readings of constructions such as rules, worlds, and fiction, and verification and harmonization are done through negotiating the different

views during the game. The negotiation is made possible through common cultural background and sometimes facilitated by a referee. After the game is over, ephemeral play is preserved in narratives.

The *social constructionist view* on games is a holistic amalgam of the often contradictory perceptions presented above. A game is an intersubjective social process made meaningful by its participants, fundamentally rooted in material reality. Even though all interpretations are subjective and unique, the shared cultural background allows participants to make sense of games in an equifinal manner.

The methodological implication of the constructionist view is that the researcher must understand the object of research on numerous levels and be aware of what kind of knowledge is produced on each level. This view questions the taken-for-granted nature of games as unambiguously codified formal systems that produce uniform play experiences. A thorough understanding of a game includes understanding of players and contexts as well as formal properties.

The practices of play are complicated, messy, and polyphonic: Gameplay is not a formal and isolated activity, but a flickering process constantly merging with ordinary life (Fine 1983; Pargman & Jacobsson, 2006). Even the most tightly codified rules fail to produce universally equifinal interpretations, so cybersports still need referees (Taylor, 2009). An emoted sex scene both does and does not happen within WORLD OF WARCRAFT (2004; Montola, 2008), and for most players, social MMORPG rules are as relevant as formal ones (Myers, 2008). Virtual worlds have more in common with ordinary life than with board games (see Pearce, 2009).

Cutting the fictional dragon out of the rules-based game, denying the materiality of a GPS game, or limiting the perception of *game* to the systemic elements limits our understanding of the phenomena associated with play. Even though objectivist concepts can and should be used to analyze games, simplistic approaches have a hard time grasping the multifaceted totality of ephemeral play. Especially when more complicated games are under scrutiny, the importance of understanding the polyphony of subjectivist views cannot be denied.

Acknowledgments

The author wishes to thank J. Tuomas Harviainen, Mikael Jakobsson, Frans Mäyrä, Celia Pearce, Jaakko Stenros, Sanna Koulu, and Bart Simon for comments.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: This article was written with support from a grant from Finnish Cultural Foundation.

Notes

1. Many definitions for ludology exist. Frasca (2003) defines it as "a discipline that studies games in general, and video games in particular," while Järvinen (2008) uses the word to discuss a systemic view on games, with "an interest towards formal elements in games, such as rules and other structures."
2. Pearce (2009) and Copier (2007) use constructionism explicitly in their study of online worlds.
3. Searle, (1995, 2010), along with many others, also makes a strong case against universal constructionism.
4. See, for example, http://en.wikipedia.org/wiki/Monopoly_%28game%29, ref. June 2010
5. www.fide.com/component/handbook
6. Such good sportsmanship is subjective, as it can usually only be *internally validated* (see Dansey, Stevens, & Eglin, 2009).
7. To protect their privacy, the SECOND LIFE community has created client (Greenlife Emerald Viewer) that uses strong off-the-record messaging (OTR) encryption to prevent administrators from seeing private messages. Massively multiplayer online role-playing game (MMORPG) players frequently use third party services (Ventrilo, Teamspeak) to organize their communications.
8. MS. PAC-MAN was developed as an "unauthorized sequel" to PAC-MAN, a year later.
9. See *The King of Kong: A Fistful of Quarters*, a documentary by Seth Gordon.
10. *Ergodic systems* are texts that require work (erg) from the reader.
11. Games of progression have low replayability value, as they are usually story-driven and easily completed after the player has mastered them. Games of emergence are games with few rules that lead to complicated gameplay. Classical adventure games are games of progression, while card games are games of emergence (see Juul, 2003, 2005).
12. An excellent example of such story is "Murder Incorporated" in *PC Gamer* (retrieved from www.computerandvideogames.com/article.php?id=180867, ref. June 2010). See also Glas (2006) and Montola, Stenros, & Waern (2009).
13. EVE ONLINE is an example of a digital game that is not replayed. We have only two ongoing game instances, on *Tranquility* (2003) and *Serenity* (2006) server clusters, *Serenity* being only accessible for Chinese citizens.
14. Myers (2009) would call this position *cultural relativist* in the sense that the concepts change with their contexts.
15. Frank Lantz, personal discussion, March 2009.

References

Aarseth, E. (1997). *Cybertext: Perspectives on ergodic literature*. Baltimore, MD: John Hopkins University Press.

Aarseth, E. (2003). *Playing research: Methodological approaches to game analysis* (DAC 2003). Retrieved from http://hypertext.rmit.edu.au/dac/papers/Aarseth.pdf

Ahlroth, J. (2008). Leave the cat in the box: Some remarks on the possibilities of role-playing game criticism. In M. Montola & J. Stenros (Eds.), *Playground worlds. Creating and*

evaluating experiences of role-playing games. Jyväskylä, Finland: Ropecon. Retrieved from www.ropecon.fi/pw

THE AMAZING RACE. (2001). CBS.

Barkhuus, L., Chalmers, M., Tennent, P., Hall, M., Bell, M., Sherwood, S., & Brown, B. (2005). *Picking pockets on the lawn: The development of tactics and strategies in a mobile game* (UbiComp 2005). Retrieved from http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.60.4213

Berger, P. L., & Luckmann, T. (1966). *The social construction of reality. A treatise in sociology of knowledge.* (Mostly ref. the 1994 translation *Todellisuuden sosiaalinen rakentuminen.*) Tiedonsosiologinen tutkielma: Gaudeamus.

Björk, S., & Holopainen, J. (2005). *Patterns in game design*. Hingham, MA: Charles River Media.

Bogost, I. (2009). *Videogames are a mess* (Keynote address at DiGRA 2009). Retrieved from www.bogost.com/writing/videogames_are_a_mess.shtml

Burr, V. (1995). *An introduction to social constructionism*. London, England: Routledge.

Calleja, G. (2007). *Digital games as designed experience: Reframing the concept of immersion* Victoria University of Wellington, New Zealand. Retrieved from www.gordoncalleja.com/GordonCalleja_Digital_Games_as_Designed_Experience.pdf

CLUEDO. (1949). [Developed by Anthony E. Pratt, Hasbro. A.k.a. CLUE].

Consalvo, M. (2007). *Cheating. Gaining advantage in videogames*. Cambridge, MA: MIT Press.

Copier, M. (2007). *Beyond the magic circle. A network perspective on role-play in online games* CHESS. Trad. Utrecht University, the Netherlands. Retrieved from http://igitur-archive.library.uu.nl/dissertations/2007-0710-214621/index.htm

Crookall, D., Oxford, R., & Saunders, D. (1987). Towards a reconceptualization of simulation. From representation to reality. *Simulation/Games for Learning, 17*, 147-170.

Dansey, N., Stevens, B., & Eglin, R. (2009). *Contextually-ambiguous pervasive games: An Exploratory Study*. DiGRA 2009. Retrieved from http://www.digra.org/dl/db/09287.09154.pdf

Dena, C. (2008). Emerging participatory culture practices: Player-created tiers in alternate reality games. *International Journal of Research Into New Media Technologies, 14*, 41-57.

Ericsson, M. (2004). Play to love. Reading Victor Turner's "Liminal to Liminoid, in Play, Flow, and Ritual: An Essay in Comparative Symbology." In M. Montola & J. Stenros (Eds.), *Beyond role and play: Tools, toys and theory for harnessing the imagination*. Vantaa, Finland: Ropecon. Retrieved from www.ropecon.fi/brap

E. T. THE EXTRA TERRESTIAL. (1982). [Developed by Atari]. Atari.

EVE ONLINE. (2003). CCP.

Fatland, E. (2005). Knutepunkt and nordic live role-playing: A crash course. In P. Bøckman & R. Hutchison (Eds.), *Dissecting Larp* (pp. 11-20). (Collected papers for Knutepunkt 2005)

Fine, G. A. (1983). *Shared fantasy: Role-playing games as social worlds*. Chicago, IL: University of Chicago Press.

Frasca, G. (1999). *Ludology meets narratology: Similitude and differences between (Video) games and narrative.* (Originally published in Finnish in *Parnasso*, 1999(3), 365-371). Retrieved from www.ludology.org/articles/ludology.htm

Frasca, G. (2000). Ephemeral games: Is it barbaric to design videogames after Auschwitz? In M. Eskelinen & R. Koskimaa (Eds.), *Cybertext yearbook 2000*. University of Jyväskylä. Retrieved from http://cybertext.hum.jyu.fi/index.php?browsebook=4

Frasca, G. (2003). Simulation versus narrative: Introduction to Ludology. In M. J. P. Wolf & B. Perron (Eds.), *The video game theory reader*. London, England: Routledge. Retrieved from www.ludology.org/articles/VGT_final.pdf

Fron, J., Fullerton, T., Morie, J., & Pearce, C. (2007, September 24-28). The hegemony of play. In A. Baba (Ed.), *DiGRA 2007 situated play conference* (pp. 309-318). Tokyo, Japan: University of Tokyo.

Glas, R. (2006). Power asymmetry and fragmentation in a MMORPG. The case of the Gates of Ahn'Qiraj. In M. Santorineos (Ed.), *Gaming realities: A challenge for digital culture* (pp. 32-39). Athens, Greece: FOURNOS Centre for the Digital Culture (Mediaterra 2006 Festival).

Hacking, I. (1999). *The social construction of what?* (Mostly ref. the 2009 Finnish translation *Mitä sosiaalinen konstruktionismi on?* Vastapaino.) Cambridge, MA: Harvard University Press.

Hakkarainen, H., & Stenros, J. (2002). The Meilahti school: Thoughts on role-playing. In M. Gade, L. T. Thorup, & M. Sander (Eds.), *As Larp grows up: Theory and methods in Larp*. Copenhagen, Denmark: Projektgruppen KP03. Retrieved from www.laivforum.dk/kp03_book

HAMLET. (2002). Martin Ericsson, Christopher Sandberg, Anna Ericsson and Martin Brodén.

Harviainen, J. T. (2008). Kaprow's scions. In M. Montola, & J. Stenros (Eds.), *Playground worlds. Creating and evaluating experiences of role-playing games*. Jyväskylä, Finland: Ropecon. Retrieved from www.ropecon.fi/pw

Hook, N. (2008). The children of treasure trap: History and trends of British live action role-play. In M. Montola & J. Stenros (Eds.), *Playground worlds. Creating and evaluating experiences of role-playing games*. Jyväskylä, Finland: Ropecon. Retrieved from www.ropecon.fi/pw

Huizinga, J. (1955). *Homo ludens. A study of play element in culture*. Boston, MA: Beacon. (Original work published 1938).

Järvinen, A. (2008). *Games without frontiers: Theories and methods for game studies and design* University of Tampere, Finland. Retrieved from http://urn.fi/urn:isbn:978-951-44-7252-7

Juul, J. (1999). *A clash between game and narrative* (Unpublished master's thesis). University of Copenhagen, Denmark. (Ref. 2001 English translation at www.jesperjuul.net/thesis)

Juul, J. (2003). *Half-real: Video games between real rules and fictional worlds* (Unpublished doctoral dissertation). IT University of Copenhagen, Denmark.

Juul, J. (2005). *Half-real. Video games between real rules and fictional worlds*. Cambridge, MA: MIT Press.

Koljonen, J. (2004). "I could a tale unfold whose lightest word would harrow up thy Soul." Lessons from Hamlet. In M. Montola & J. Stenros (Eds.), *Beyond role and play: Tools, toys and theory for harnessing the imagination*. Vantaa, Finland: Ropecon. Retrieved from www.ropecon.fi/brap

Korhonen, H., Montola, M., & Arrasvuori, J. (2009). *Understanding playful user experience through digital games*. International Conference on Designing Pleasurable Products and Interfaces, Université de Technologie de Compiègne, France.

Lehtonen, M. (1996). *Merkitysten maailma: Kulttuurisen tekstintutkimuksen lähtökohtia* [The world of meanings. Guidelines for cultural analysis of texts]. Tampere, Finland: Vastapaino.

Linderoth, J. (2008). *The struggle for immersion. Narrative re-framings in world of warcraft*. Proceedings of the [player] conference. ITU of Copenhagen, Denmark.

Loponen, M., & Montola, M. (2004). A semiotic view on diegesis construction. In M. Montola & J. Stenros (Eds.), *Beyond role and play: Tools, toys and theory for harnessing the imagination*. Vantaa, Finland: Ropecon. Retrieved from www.ropecon.fi/brap

Martin, A., Thompson, B., & Chatfield, T. (Eds.). (2006). *2006 alternate reality games white paper.* International Game Developers Association (IGDA). Retrieved from http://archives.igda.org/arg/resources/IGDA-AlternateRealityGames-Whitepaper-2006.pdf

Mason, P. (2004). In search of the self. A survey of the first 25 years of Anglo-American role-playing theory. In M. Montola & J. Stenros (Eds.), *Beyond role and play: Tools, toys and theory for harnessing the imagination*. Vantaa, Finland: Ropecon. Retrieved from www.ropecon.fi/brap

MASS EFFECT. (2007). [Developed by Bioware]. Microsoft Game Studios, Electronic Arts.

Mäyrä, F. (2008). *An introduction to game studies. Games and culture*. London, England: SAGE.

MOMENTUM. (2006). [Developed by Staffan Jonsson et al.] Stockholm, Sweden.

MONOPOLY. (1933). [Developed by Charles Darrow]. Hasbro.

Montola, M. (2005). *Designing goals for online role-players.* In Proceedings DiGRA 2005. Vancouver, British Columbia, Canada: Simon Fraser University.

Montola, M. (2008). The invisible rules of role-playing: A structural framework of role-playing process. *International Journal of Role-Playing, 1*, 22-36.

Montola, M., Stenros, J., & Waern, A. (2009). *Pervasive games: Theory and design*. Burlington, MA: Morgan Kaufmann.

Morton, B. (2007). Larps and their cousins through the ages. In J. Donnis, L. Thorup, & M. Gade (Eds.), *Lifelike*. Copenhagen, Denmark: Projektgruppen KP07. Retrieved from www.live-forum.dk/kp07book

MS. PAC-MAN. (1981). Midway.

Myers, D. (2008). *Play and punishment: The sad and curious case of Twixt*. Proceedings of the [player] Conference, ITU of Copenhagen, Denmark.

Myers, D. (2009). *In search of a minimalist game*. DiGRA 2009. Retrieved from www.digra.org/dl/db/09287.39520.pdf

MYST ONLINE: URU LIVE. (2003). [Developed by Cyan Worlds]. Ubisoft and other developers.

Ollila, E. (2009). *Using prototyping and evaluation methods in iterative design of innovative mobile games* (Unpublished doctoral dissertation). Tampere University of Technology, Finland.

PAC-MAN. (1980). Namco.

Pargman, D., & Jakobsson, P. (2006). The magic is gone: A critical examination of the gaming situation. In M. Santorineos (Ed.), *Gaming realities: A challenge for digital culture*

(pp. 15-22). Athens, Greece: FOURNOS Centre for the Digital Culture (Mediaterra 2006 Festival).

Pearce, C. (2009). *Communities of play. Emergent cultures in multiplayer games and virtual worlds*. Cambridge, MA: MIT Press.

Salen, K., & Zimmerman, E. (2004). *Rules of play. Game design fundamentals*. Cambridge, MA: MIT Press.

Searle, J. R. (1969). *Speech Acts. An Essay in the Philosophy of Language*. Cambridge University Press.

Searle, J. R. (1995). *The construction of social reality*. London, England: Penguin.

Searle, J. R. (2010). *Making the social world*. Oxford, UK: Oxford University Press.

SECOND LIFE. (2003). Linden Labs.

Sihvonen, T. (2009). *Players unleashed! Modding the sims and the culture of gaming*. University of Turku, Finland. Retrieved from http://urn.fi/URN:ISBN:978-951-29-3941-1

THE SIMS. (2000). [Developed by Maxis]. Electronic Arts.

Sotamaa, O. (2009). *The player's game. Towards understanding player production among computer game cultures* University of Tampere, Finland. Retrieved from http://acta.uta.fi/pdf/978-951-44-7651-8.pdf

Stenros, J., Montola, M., Waern, A., & Jonsson, S. (2007, September 24-28). Play it for real: Sustained seamless life/game merger in momentum. In A. Baba (Ed.), *DiGRA 2007 Situated Play conference*. Tokyo, Japan: The University of Tokyo.

Stenros, J., Paavilainen, J., & Mäyrä, F. (2009). *The many faces of sociability and social play in games*. MindTrek, 2009 conference. Retrieved from http://doi.acm.org/10.1145/1621841.1621857

Stenros, J., & Sotamaa, O. (2009). *Commoditization of helping players play: Rise of the service paradigm*. DiGRA 2009 conference. Retrieved from www.digra.org/dl/db/09287.24201.pdf

Stenros, J., Waern, A., & Montola, M. (2011). Studying the elusive experience in pervasive games. *Simulation & Gaming*. Retrived from: http://sag.sagepub.com/content/early/2011/10/12/1046878111422532.full.pdf+html

Suominen, J., Koskimaa, R., Mäyrä, F., & Sotamaa, O. (2009). Johdanto [Introduction]. In J. Suominen, R. Koskimaa, F. Mäyrä, & O. Sotamaa (Eds.), *Pelitutkimuksen vuosikirja 2009* [Game Studies Yearbook 2009] (pp. i-vi). Retrieved from www.pelitutkimus.fi/vuosikirja-2009

Taylor, T. L. (2009). *Negotiating play: The process of rule construction in professional computer gaming*. Unpublished presentation in DiGRA 2009 Conference.

THERE.COM. (2003-2010). Makena technologies.

Tsuchiya, T., & Tsuchiya, S. (1999). The unique contribution of gaming/simulation. In D. Saunders & J. Severn (Eds.), *Simulation & gaming research yearbook* (Vol. 7, pp. 46-57). London, England: Kogan Page.

Walton, K. L. (1990). *Mimesis as make-believe. On the foundations of the representational arts*. Cambridge, MA: Harvard University Press.

WORLD OF WARCRAFT. (2004). [Developed by Blizzard]. Blizzard Entertainment.

Bio

Markus Montola is a doctoral candidate at the University of Tampere, Finland. He is one of the authors of *Pervasive Games: Theory and Design* and an editor of three books on Nordic larp. He is about to finish a doctoral dissertation discussing the various forms of role-playing and pervasive gaming.

Contact: markus.montola@uta.fi

The Invisible Rules of Role-Playing The Social Framework of Role-Playing Process

Popular Abstract - This paper looks at the process of role-playing that takes place in various games. Role-play is a social activity, where three elements are always present: An imaginary game world, a power structure and personified player characters. In a nutshell, all role-playing activities about imaginary people acting out in an imaginary environment; the power structure is needed to differentiate these activities from free make-believe and children's play. After the basics, the paper moves on to discuss the various components in detail, going through how rules, goals, worlds, power, information and identity function in role-play. While the paper does not lead to a simple conclusion, it seeks to present a solid foundation for further research.

Markus Montola
University of Tampere
Finland
markus.motola@uta.fi

ABSTRACT

This paper presents a structural framework for role-playing that can be used as a foundation when creating further role-playing theory. The framework is based on assumption that all games are based on rules, and tries to make the implicit rules of role-playing visible by proposing the three rules of role-playing. Compared to regular gaming, role-playing is seen ultimately as a qualitative process rather than a quantitative one, differentiating it from many regular games.

1. INTRODUCTION[1]

When studying games, a critical differentiation has to be made separating the study of games as formal systems from study of games as social processes. In the formal system of Texas hold'em Poker the player has quite limited number of legal options influencing her chance of winning a single round – in addition to bidding, she may change some cards or fold right away.

In the social process of gameplay the alternatives are a much wider. Gamers might influence each other in a million ways beginning from bluffing and threatening, with or without the intent of affecting the outcome of the game. Clearly, looking at Poker as a formal system can never fully grasp the whole essence of the game – the game as it is played is very different from the game on paper.

Role-playing has also been often defined as a game system (e.g. Mackay 2001), though some attempts to look at it as a gaming process (e.g. Hakkarainen & Stenros 2002) have been done as well. Based on Heliö (2004), it can be argued that any formal game system can be used as a basis of role-playing process, provided the players have the proper mindset, and that any formal game system is not necessarily needed. On the other hand it has been noted that any role-playing game – whether we are discussing traditional tabletop role-playing games, larps (live role-playing games) or online role-playing games – can be participated without role-playing. Bartle (2004) for instance decides that online worlds are not games but places, since they lack many qualities of games while having several qualities of places.

Partially due to this confusion, the ludological discussion has been confused on whether role-playing is game playing or not. Typically, the analyses have focused on the role-playing games as rulesets. Role-play has been seen as a borderline case of game for various reasons. Due to game master's influence, role-playing lacks static rules (Juul 2003), and many role-playing systems do not allow the players to rate their characters' success or

[1] This paper was originally written in 2005 and updated in 2008. My two other papers (Montola 2007a, 2007b) already reference it.

failure in the game as "positive" or "negative" thing (Montola 2005).

In this paper I see role-playing mindset as a method of game playing, which can be optionally combined with various game systems. It is not the only distinct gaming mindset. For instance, some games are supposed to be played with mindset of a conspiratorial diplomacy and backstabbing, while others require a honorable sportsmanship or a style prioritizing style over success.

Hakkarainen and Stenros (2002) define role-playing game as that which "is created in the interaction between players or between player(s) and game master(s) within a specified diegetic framework". This definition approaches role-playing from the angle of communication. If role-playing games are to be studied as games, a more ludological definition is required, one that demonstrates the similar game-like and features of all different forms of role-playing. It must also be understood that Bartle's notion of persistent worlds being places rather than games is appropriate to all forms of role-playing to certain extent.

To this end, we need to make the implicit rules of role-playing visible. Typically the role-playing contexts such as virtual worlds, tabletop game rulesets and larp events only provide algorithmic rules of the formal system used as a platform for role-playing, but do not explicate the rules of role-playing expression itself. In this paper, I look at the played game as a game, not the game presented in the tabletop role-playing game rulebooks.

The following discussion includes several forms of role-playing, focusing on tabletop role-playing, live-action role-playing and virtual role-playing (see Montola 2003).[2] Other forms do exist, including freeform role-playing (which combines elements from larp and tabletop role-play) and pervasive role-playing (Montola 2007b), and even more can be invented. Additionally, there is a group of borderline forms of expression and gaming that might constitute role-playing as defined in this paper. These include a forms such as improv, psychodrama and Happenings.[3]

2. The Invisible Rules

Björk and Holopainen (2003) divide game rules and game goals into endogenous and exogenous categories – the rules and goals defined in the game structure, and the rules and goals brought to the game activity by players to give it meaning. Earlier, Fine (1983) has proposed a three-layered[4] structure for role-playing, consisting of a primary (social) frame inhabited by people, secondary (game) frame inhabited by players and tertiary (diegetic) frame inhabited by characters.

Combining the approach of Fine with that of Björk and Holopainen, it is clear that endogenous rules are a part of the game frame, while exogenous rules are a part of the social frame. However, we need to add a third category, that of diegetic rules and diegetic goals, for rules and goals existing within the fiction of the role-play (see Montola 2005).

Illustrating Fine's three frames with examples, this is how they look like:

- "Do not discuss non-game business during the game" – exogenous.
- "A sword does d10 points of damage" – endogenous.
- "Carrying a sword within the city limits is punishable by fine" – diegetic.

In its various forms, role-playing process appears to follow certain endogenous yet implicit rules, making it simultaneously a relatively formal way of expression and a relatively informal kind of a game. These rules have not been explained as rules in the published role-playing games, but rather this implicit information has been conveyed in the sections of the book trying to explain what role-playing is or how a role-play should be conducted.

For all role-playing in general I propose the following three rules, which are the world rule, the power rule and the character rule:

1) Role-playing is an interactive process of defining and re-defining the state, properties and contents of an imaginary game world.
2) The power to define the game world is allocated to participants of the game. The participants recognize the existence of this power hierarchy.

[2] Tabletop role-playing is also sometimes called pen 'n' paper role-playing. Live-action role-playing is called often larping, and virtual role-playing includes role-playing in persistent on-line worlds such as MUDs and MMORPGs.

[3] See e.g. Kaprow 1966 and Boal 2002 for direct sources, and Morton 2007 and Harviainen 2008 for role-play approaches.

[4] Mackay (2001) has proposed a five-layered version, dividing the diegetic framework into three layers depending on the style of parole used in them. Kellomäki (2004) has a model similar to Mackay's with four layers of interaction: social, game, narration and characters.

3) Player-participants define the game world through personified character constructs, conforming to the state, properties and contents of the game world.

Depending on the platform and methodology used, the possible participant roles include player, game master, actor, live musician, system administrator et cetera. The player role is a special case among these, since presence of a participant in a player role is a logical requirement for a "game". Role-playing as defined in this paper is not possible without any players with personified characters; this distinction is made in order to separate role-playing from various forms of collaborative storytelling.

The rules 1, 2 and 3 also define role-playing: All gaming conducted according to them is role-playing, while the gaming not based on them is not. Thus, it can be said that role-playing is a game of formal make-believe. Though the game world is fluid and and undergoing a constant re-definition process, the re-definitions are restricted by the current state of the game world; thus, the process of constant iteration does not allow completely arbitrary or random changes (see also Kellomäki 2004). This iterative nature is necessary for the ludic, gamelike experiences created in role-playing, since it moves the focus from creating fiction externally to acting within it. The existing fiction provides the constraints and opportunities making the experience meaningful as a game. The game master and the character are structures that are used to establish the limits of definitional power in the game. As restrictions of rules give meaning to ordinary gameplay, in role-playing the restrictions of defining power give meaning to acting within the game world. These restrictions also differentiate role-play from make-believe.

I also present four optional, additional rules that often complement the first three rules. These are not definitional criteria of role-playing, but they are used so commonly that their descriptive value warrants the inclusion here. The possibilities of additional rules are endless, but these are probably the most typical and descriptive of them.

i) Typically the decisive power to define the decisions made by a free-willed character construct is given to the player of the character.

ii) The decisive defining power that is not restricted by character constructs is often given to people participating in game master roles.

iii) The defining process is often governed by a quantitative game ruleset.

iv) The information regarding the state of the game world is often disseminated hierarchically, in a fashion corresponding with the power structure of the game.

There are infinite ways of dividing the power to define in role-playing games. The ways of doing the division begin from the dictatorial and omnipotent game master, ending in a completely collective system lacking any ultimate authority (see Svanevik 2005). These divisions are sometimes changed during the game, for instance the game master role might move from participant to another, or some participant might be given the decisive defining power within certain areas or events of the game. Player-participants are also often given more power than declared in rule three.

Additionally, these three endogenous rules (based on Loponen & Montola 2004, Montola 2003) differentiate certain forms of role-playing from each other:

t1) In tabletop role-playing the game world is defined predominantly in verbal communication.

l1) In larp the game is superimposed on physical world, which is used as a foundation in defining the game world.

v1) In virtual role-playing the game is superimposed on a computational virtual reality, which is used as a foundation in defining the game world.

By this definition, role-playing conducted in internet chats, for instance IRC-roleplaying, is usually not virtual role-playing but a form closer to tabletop role-playing. If the chat is a part of a larp staged in physical world, chatting is part of larping, and if it is a part of virtual world, it is part of virtual role-playing. Virtual role-playing requires a computerized virtual representation of reality (typically textual or graphical): It should be noted that due to this, all virtual role-playing games are governed by a quantitative ruleset (iii) to some extent, since all virtual worlds are mathematical rule systems.

While rules 1, 2 and 3 defined role-playing, rules i-iv provide typical, descriptive additions to the first three rules. However, the latter rules are not powerful in defining role-playing. Rules t1, l1 and v1 can be combined with rules 1, 2 and 3 in order to define certain subforms of role-playing, so they are also definintive in nature.

Though game rules are often seen as mathematical, logical or algorithmic systems, the structures of a game can actually be classified into quantitative and qualitative structures, depending on whether they can be reduced into numbers and or not. In sports striving for aesthetic value – such as ski jumping and ice dancing – the qualitative activities are quantified by referee boards who transform the qualitative part of the performance into points.

The rules of role-playing (1, 2, 3) are obviously qualitative and non-algorithmic. In this sense role-playing differs from the majority of games. Sometimes, especially in tabletop role-playing, the game master acts as the quantifying entity, by evaluating characters' actions and determining the dice rolls the players must make in order to have their characters succeed. Character discussions and non-contested actions usually are handled within the qualitative system, while all-out combat is often very quantitative, especially within the rules-oriented tabletop role-playing cultures. Role-playing does not need the quantitative part to work, but performing qualitative actions is necessary for the process of game world definition.

There are infinite ways of dividing the power to define in role-playing games. The ways of doing the division begin from the dictatorial and omnipotent game master, ending in a completely collective system lacking any ultimate authority.

Salen and Zimmerman (2004) differentiate the game rules into three categories: operational rules, constitutative rules and implicit rules. Operational rules tell the players how the game is supposed to be played, while the constitutative rules define the logical and mathematical system underlying the operational rules. Implicit rules are the unwritten social rules governing the play. Just like the social gaming important to a Poker process, the rules of role-playing pose a problem to Salen and Zimmerman's classification system, being constitutative but qualitative, and implicit but still somehow operational.[5] Using the division of Björk and Holopainen (2003) above, the rulesets used as a basis for role-playing are endogenous rules, as are these rules of role-playing process.

3. Role-Playing and Goals

A layered structure similar to the rules exists for goals as well.[6] However, role-play typically has no inherent endogenous goals at all. The rules of role-playing only provide the structure for the activity, but give no end condition or an objective. Classical tabletop role-playing rulesets and virtual worlds sometimes implicitly offer some pursuits for players to follow, usually involving character power development or survival. These are rarely true endogenous goals either: as no one can win or lose in role-playing, the emphasis of the action is not even focused on the game frame.

The most central goals that provide role-play with content are defined and accepted within the diegetic frame, by players defining the world and characters. This distinction is one of the key issues in the discussion whether role-playing games should be defined as games or not.

- "I want to have fun in this game" – exogenous.
- "I want to explore Norwegian refugee politics in this game" – exogenous.
- "I want to become the mightiest wizard in the kingdom" – diegetic.
- "I want to play the man tragically failing in his quest of becoming the mightiest wizard in the kingdom" – exogenous.

The contradiction of the goals in different frames is a common gratifying element in role-playing. Just as a spectator enjoys a tragical experience brought to her by actors on the stage, a role-player enjoys creating one for herself.

The endogenous goals made explicit in the written system of a role-playing game only become a meaningful part of the role-playing process, if the players interpret them into the game world as diegetic goals. The most traditional role-playing games intentionally leave the endogenous goals undefined or vague, and even when they are explicated clearly, player troupes often disregard them entirely.

In some exceptional role-playing games there are explicit endogenous goals that are critical for the game as a whole. Examples of these include many "Forge-style" games such as My Life with Master (Czege 2003) and Circle of Death style larps (Tan 2001) such as Killer (Jackson 1981). While My Life with Master is intended to follow a certain story arc

[5] The tacit knowledge of how to play Poker is not communicated in the written game rules, but the players still communicate that social maneuvering is a legitimate and important part of the play.

[6] I have discussed the role-playing goals in deeper detail in Montola (2005), in the particular context of role-playing within virtual worlds.

practically every time it is played, ending up in the death of the master in the hands of his minions, Killer is a very gamist assassination game where players really try to win the game.[7] My Life with Master and Killer feature endogenous goals such as the following:

- "When minion's love for the villagers has grown strong enough, slaying the master becomes her goal" – endogenous.
- "The player whose character kills the most enemy characters is the winner" – endogenous.

As I have discussed earlier (Montola 2005), the endogenous goals dominate the contemporary online role-playing game design culture. The role-playing players occasionally translate the endogenous goals into diegetic goals. The following example is from (the original version of) Star Wars Galaxies.

- "By completing the jedi quests and collecting enough experience points, the character becomes a jedi" – endogenous.

The value of the endogenous goals is derived from the players' exogenous goals. If a role-player's aim is to have a good role-playing experience, such an endogenous goal is only valuable if she can translate it into a diegetic goal as well. If it cannot, it might just be ignored.

The goals of the social level vary immensely from one gaming culture to another; sometimes the explicit dissonance of social and diegetic goals is a source of enjoyment, while often diegetic character success is teamed with social pursuit of success in the game. As role-playing does not take place in the domain of ordinary life, tragic experiences can be highly pleasurable.

The exogenous goals are not restricted to entertainment – the normative claim of fun being the only purpose of role-play (e.g. Laws 2002, Duguid 1995) is simply erroneous. In a more constructive approach, Mäkelä & al. (2005) propose a list of six gratifications that warrant further study: entertainment, learning, meaning, aesthetic appreciation and social and physical benefits.

4. THE ELUSIVE GAME WORLD

Ryan (2001, 91) sums up the concept of world with four features, defining it as a connected set of objects and individuals, a habitable environment, a reasonably intelligible totality for external observers and a field of activity for its members. In role-playing the world construction can be seen as a textual[8] process, where different actors produce elements that are in the process combined into new texts (Aarseth 1997, Kellomäki 2004).

The earlier discussion on the game world of role-playing games has discussed it both with a collective (Hakkarainen & Stenros 2002, Pohjola 1999, Heliö 2004) and a subjective (Montola 2003, Andreasen 2003, Loponen & Montola 2004) emphasis. In this paper, I call the collective structure a "game world", as it is ludologically proper term to describe the arena where the game is played, while the subjective structure is "diegesis", a subjective view created by interpreting input from the other participants and environment, complemented by the participant's own creative additions.[9]

Player perceptions on the game world are constructed in interpersonal textual interaction. As Ryan (2001) explains, cultural background and

Just as a spectator enjoys a tragical experience brought to her by actors on the stage, a role-player enjoys creating one for herself.

imagination are used in building a world based on textual inputs.

> "The idea of textual world presupposes that the reader constructs in imagination a set of language-independent objects, using as a guide to the textual declarations, but building this always incomplete image into a more vivid representation through the import of information provided by internalized cultural knowledge, including knowledge derived from other texts."

As I have discussed earlier (Montola 2003, Loponen & Montola 2004) the problems inherent to communication mean that every player has a

[7] There are many curious similarities between Killer and My Life with Master, despite the fact that Killer can be considered extremely gamist role-playing game while My Life with Master is an explicitly narrativist one. (See Kim 1998 for discussion on gamism, narrativism and simulationism).

[8] Even though Aarseth (1997) differentiates cybertexts from hypertexts by requiring cybertexts to have a computational element in their creation, he still brings up role-playing activities as "oral cybertexts".

[9] What I call game world has also been called a shared imaginary space (SIS). According to Mäkelä & al. (2005) the imagined spaces (IS) of the participants overlap to create the shared imaginary space; Hence, their imaginary

different reading of the game world provided by other players. In addition to the reading of the game world, every player complements her perception of the game world by never-expressed internal ideas and feelings. This internal element combined with the reading constitutes participant's subjective diegesis, which is the end result created by the player in the process of playing: The subjective diegesis is both the primary product created in the role-play and the transient object of aesthetic value.[10] No participant of the process can ever understand the game world completely, as parts of it are unaccessible – created by other players but never voiced aloud.

The interactive process[11] of arbitration producing the diegeses and the game world is usually based on negotiation and cooperation rather than on struggle or contest. Usually this arbitration process is implicit, but explicit negotiation is used to reconcile radical differences in player diegeses. Perhaps counter-intuitively, the imaginary and arbitrary nature of the game world is the force guiding the players to cooperate in diegesis construction. Though conflict is often simulated in the game frame, it stems from the diegetic frame.

The exogenous goals are not restricted to entertainment – the normative claim of fun being the only purpose of role-play is simply erroneous.

Game master[12] and game mechanics are the two central methods created specifically in order to avoid the struggle on the level of form, in order to keep it on the level of game content. Typically the conflict begins from the game world, potentially escalating to game frame and occasionally even to the social frame. This happens if the players first need rules to solve the conflict between characters, and then if the players begin to argue over the rules as the conflict escalates.

If game world construction is looked as a communication system, it can be seen as an interpretation loop of three basic activities:

1. Interpreting outside input into the subjective diegesis
2. Making changes into the diegesis
3. Communicating the changes to other participants

This cycle of three activities is a theoretical model; in practice all these functions are performed simultaneously. In larp, for instance, player walking on a street constantly changes the diegesis (by moving herself), while getting new input (seeing new things) and communicating the change to other players (who see her moving. In tabletop role-playing this decision-making model appears more clearly, elaborating the continuous cycle of iterative reinterpretation of the world in the communication loop of the game.

To keep up the loop of interpretation the players must be able to understand the world they are defining and re-defining. They have to understand the diegetic laws of nature and the state of the diegetic world in order to uphold the logic of the game world, constructing its future based on its properties, state and history. In order for the game world to work as a place or a space, the world needs not to be "realistic" but sensible; the laws of nature can be very different to ours.[13] In Juul's (2003, 117) classification of game worlds this means that the game world has to be coherent – which means that there must be nothing that would prevent a person from imagining the world in any detail. Only extremely experimental games can be

space is equivalent to my diegesis. The idea of a shared imaginary space contains an oxymoron, as no imaginary thing can ever be truly shared.

[10] Sandberg (2004) discusses the idea of a "first-person audience", with the idea that only the role-player can properly understand and appreciate her own subjective creation.

[11] My use of term "interaction" denotes that A can affect B's way of affecting A in a non-predetermined and non-trivial fashion, and vice versa (as opposed to Costikyan's (2002) trivial definition). Indeed, this decision excludes the single-player computer games: This paper discusses role-playing as a social process, requiring two sentient participants.

[12] Game master's role originated from the role of a wargame referee. In wargames, the struggle is supposed to take place between gamers on the game level, not between people fighting over rules on the social level – including a referee facilitated this process.

[13] An innovative example of ruleset portraying the genre of the diegetic world as well as its laws of nature is *Amber: Diceless Role-Playing*. The author Erick Wujcik (2004) emphasized that the game is not diceless due to "some obscure theoretical reason", but rather to capture the feel of Roger Zelazny's *Amber* books. "In the original books nothing ever happens by chance; every time something seems to happen by chance, it is revealed that someone was manipulating the events behind the scenes. In *Amber* the theme should be the same, hence dice are not needed". In many cases such as this, the game world physics are mixed with genre elements: reading the rules it is impossible to tell how mechanics of probability work within the world of *Amber*.

made in abstract, iconic or incoherent worlds. It is difficult or even impossible to role-play in worlds such as the ones portrayed in *Super Mario Bros* or *Chess*.[14]

It would be a simplification to say that the use of an artefact (such as a virtual space or physical reality) as the basis of game world would restrict the use of player imagination, though the artifact provides fairly strong initial definitions for many diegetic elements. However, as I argue that role-playing is a process of social interaction taking place in an imaginary game world, it should be emphasized that in role-playing process elements explicit in the artifact are often re-defined when they are interpreted into players' diegeses. As Ryan (2001) puts it, the children playing make-believe select an actual object x_1 and agree it represents a virtual object x_2. Then the players imagine themselves as members of the world in which x_2 is actual. An action is legal when the behavior it entails is appropriate for the class of objects represented by x_2. A legal action generates a fictional truth.

This re-definition happens in an arbitration process governed by the possible rules and instructions of the game, and is based on the divisions of defining power used in the game. In larp, the player does not need to physically fly in order for his character to do so. By comparison, neither needs the virtual avatar to fly in virtual world for the role-played character represented by the avatar to do so.

These re-definition practices are also cultural. Many role-player communities in virtual worlds habitually pretend to use and handle plot-related make-believe objects that cannot be represented as virtual artefacts by limited game architectures (Montola 2005). Some larpers prefer to have as direct connection between physical reality and diegeses as possible, while others have no problems treating latex swords as metal swords. (See Loponen & Montola 2004 for a semiotic analysis).

Claiming that the role-playing worlds have to be coherent is not to say that the role-playing game world needs to be complete – actually, as fictional worlds they are always incomplete, since it is not possible to define every imaginable piece of information in a coherent world (Juul 2003, 111). Distinction is certainly theoretical especially regarding larps, since the physical world is always infinitely detailed anyway.

McCloud (1993) discusses the way sequential images of comics are understood though the process of *closure*. While a comic book is composed out of still, juxtaposed images, the reader fills in the lacking elements in the process of reading, creating the impressions of time and movement, also filling in elements not shown in the images. A smiley is closed into a smiling face in a fashion similar to the way a spectator watching a movie closes the room where the characters are discussing. The movie image is not closed with impressions of cameramen and studio equipment, but with walls and landscapes extrapolated from the ones shown on screen.[15] Even without any visual evidence, a spectator uses her earlier experience to assume that the news anchor has two legs, even though they are not shown on the screen.

In role-playing, a semi-conscious closing process is crucial, as players are constantly dealing with an incomplete representation of the game world. In the first phase of the interpretation loop, the players make assumptions on the world, extrapolating and interpolating their diegeses based on the explicit game discourse.

The requirement for a coherent world can be seen in the definition of role-playing by Björk and Holopainen (2005): "Players have characters with at least somewhat fleshed out personalities. The play is centered on making decisions on how these characters would take actions in staged imaginary situations."[16] Unless very significant closures are made by the players, the world of Chess is too incomplete to allow the players to take meaningful actions or make sensible decisions. For most players, the world of Chess is too abstract to even allow logical closures: Even though we know there are bishops and kings, it is hard to know whether priests and princes exist as well.

Due to their nature that is based on arbitration, imagination and closure, the game worlds of role-playing can be very free and complete compared to worlds created in other games or in static media. Every imaginable element can be described in any

[14] *Chess* can be used with role-playing in several ways. For instance the players might construct diegeses imagining a match between Kasparov and Karpov, or, they might use some pieces as their personalized character constructs. Role-playing within the world of *Chess* refers to the latter alternative.
[15] Some movies, of course, break this fourth wall by intentionally showing filming crews or by having actors talk directly to the watchers.
[16] Ryan (2001) calls essentially the same thing as mental simulation. According to her, simulation can be described as a form of counterfactual reasoning by which the subject places herself in another person's mind. "If I were such and such, and held beliefs p and q, I would do x and y", she illustrates.

detail. In a movie the amount of available information regarding the diegetic world is very limited in comparison. Players' possibilities of affecting any of the features of the game world are not restricted by artificial limitations such as the scope of the ruleset or the programming of the virtual space, but all these limitations are purely diegetic.

In rule iii I proposed that the game world defining process is often governed by quantitative ruleset. While one function of the ruleset is to enable players to pursue some interests in the game frame, it is also a valuable method of providing participants with a logical structure for game world re-definition. Juul (2003) claims that while rules are not dependent on fiction of the game, the fiction is dependent on the rules. Among other methods, rulesets and genre and style conventions are frequently used to provide tangible frameworks for simulating the alternate logic of the game world (see Montola 2003, Stenros 2004, Kim 2006).

Some larpers prefer to have as direct connection between physical reality and diegeses as possible, while others have no problems treating latex swords as metal swords.

5. POWER STRUCTURE

On the Caillois' (1958, 13) continuum ranging from formal play (ludus) to free play (paidia), role-playing resides somewhere in the middle ground. Spontaneous make-believe with little game master moderation is highly paideic, while complicated rule systems allow meticulously formal ludus games as well. This is one reason why discussing role-playing games is sometimes difficult: Many different styles exist.

Just like the rule and goal structures, the power structures of role-playing can be analyzed using the broad division to exogenous, endogenous and diegetic frames. Exogenous power is the participant's power to influence the game from outside of the game; more importantly, the exogenous power is not defined within the game system. Endogenous power is power given to the player by the various rules of the game. Diegetic power is the power the character has, restricted by the game world. As all endogenous and diegetic rules and goals are subordinate to exogenous rules and goals, endogenous and diegetic power is subordinate to exogenous power. The voluntariness and willfulness of the participants are necessary to create the magic circle of play (Huizinga 1938, Salen & Zimmerman 2003) where the endogenous and diegetic structures exist.

Often the structure of power to influence diegesis is left very implicit and based on cultural conventions. Beginning role-players are often not even aware on the fact that the power structure could be made purposefully different, having often derived their understanding of these conventions from the implicit discourse of role-playing rulesets and local larping communities. One reason for this is that describing the power system in detail is a meticulous task, as has been demonstrated by the attempts to create global role-playing campaigns, where characters could be seamlessly moved from the domain of one game master to another.[17]

- These examples illustrate the exogenous, endogenous and diegetic activities that may to exert power over diegeses:
- Proposing a change to the rules of the game – exogenous.
- Showing other players a movie influencing their perceptions of the game world – exogenous.
- Moving a queen two squares diagonally on the game board – endogenous.
- Taking a combat action to swing an enemy with a sword – endogenous.
- Swinging a person with a sword – diegetic.
- A colonel character issuing a military order to her troops – diegetic.

It should be noted that the very same action can be a display of diegetic and endogenous power, depending on how it is conducted in the game. In the fourth example above the power to swing an enemy with a sword is derived from the explicit game system rules, while the fifth example is derived from the diegetic facts that the character has a sword in hand and the target is within her reach. Even the latter case is then perhaps resolved on the endogenous level, but the difference has relevance when we try to analyze the facts that

[17] Organizations like *Camarilla* (White Wolf) and *RPGA* (Wizards of the Coast) have created extremely detailed rule systems for this, utilizing thorough exogenous and endogenous rules to determine who can affect the diegeses and how. They also feature exogenous and endogenous penalties for infractions.

empower the participant to propose a change into the diegeses.

Both the game masters and the players can use exogenous, endogenous and diegetic power to re-define the game world. They both play characters in the world, the both often have rules-based privileges over the diegesis and the both can change the others' understanding of the game world with extra-ludic methods as well. Endogenously granted powers can be classified to two groups; to power granted by the rules system of the game and to power granted by the rules of the role-playing process. An example for comparison:

- Taking a combat action to swing an enemy with a sword for d10 points of damage – endogenous.
- Game master declaring that it begins to rain – endogenous.

Sometimes the power use in the three layers is contradictory. The larper displays poor sportsmanship by physically outrunning another player whose character should be quicker in the frames of game and diegesis. In tabletop role-playing the same conflict is displayed if one player outwits another player with character of low intelligence score. The endogenous rules of casino Poker are able to cope with the situation where one player walks out of the room in the middle of the game (as she is considered to have taken a break or forfeited the game) but if she cheats by marking the cards, the game encounters a crisis it is unable to solve within its own formal system.[18] The role-players often implicitly consent to giving a game master the social, exogenous authority to reconcile many potential crises (Brenne 2005, Fine 1983).

The recognized division of power to define game world is a key element in giving the touch of game to role-playing. Juul (2003) points out that rules do not only restrict the options players have in game, but they also give meaning to actions conducted within it. The same applies to limitations of defining power: it can be said that limits of the player options – whether they take the form of ruleset or a game masterial authority – make the player choices meaningful.

In tabletop role-playing the power division between participants is rarely exact. Typically the players are mostly restricted to using their characters' diegetic power and a limited, explicitly defined repertoire of endogenous options – but the scope of this restriction is ambiguous. Sometimes the players are also allowed to define their characters' relatives, friends and property, while a strict gaming culture might restrict their defining power to the conscious decisions made by their characters (see Boss 2006 and Kellomäki 2004). Even the power to define the character's mental activities is sometimes restricted by rules discussing diegetic forces such as fear or telepathy.

One very typical endogenous power division grants the player the ultimate authority on her character's feelings and thoughts, rules-dependent authority on the quantitative attributes of the character, and limited power to define relatively inconsequential stylistic elements related to physical objects in the game world. All these powers are endogenous, since they are defined on the endogenous level, either explicitly or (usually) implicitly.

Spontaneous make-believe with little game master moderation is highly paideic, while complicated rule systems allow meticulously formal ludus games as well.

On the other hand, in on-line role-playing games the game interface typically gives the player only the power to move his avatar and engage in actions such as chatting, fighting, trading and crafting. However, the role-player communities often grant their participants further diegesis-defining powers, such as making up objects not existing in the game database.

As a diegesis is an imaginary world constructed in collective arbitration process, its contents can be in explicit contradiction with the virtual or real environment used as the foundation in its construction. This means that all diegetic elements need not be represented with virtual artefacts. Just as a larp vampire might control shadows or turn invisible, the virtual role-players deal with non-existent items and intangible actions. A barfight or a sex scene might be staged with emotes, leaving it ontologically unclear if anything actually happened in the virtual reality. Or, a character might act as if she had an ID card though none exists within the game architecture. (Montola 2005.)

[18] Rather, the problem is solved within the social frame or the frame of law.

Defining and restricting the player power is a ubiquitous feature[19] in the field of games, but not in the fields of narrative and performative arts. In the chapter about rules and goals I included the demand that in role-playing the player-participants of the game define the game world through personified character constructs, conforming to the state, properties and contents of the game world. This third rule is critical, since dropping the personified character constructs shifts the activity in the field of regular gaming, and dropping the restrictions in the defining power would change the activity into collaborative storytelling.

6. INFORMATION AND POWER

As role-playing games are seen as communication constructs, information is the basic building block of the imaginary game world. It is trivial that a player cannot incorporate a game element into her diegesis, if she is unaware of its existence. As mentioned above (and in Loponen & Montola 2004 and Montola 2003), no participant of a role-playing game can have an access to all information present in the game.[20]

The three-layered division of power addresses the power use based on social frames, which is quite consciously done in the phase two of the interpretation loop. There is still one very significant form of power use in the game: closure.

As discussed above, closure the semi-conscious process of adding detail to the interpretation. I call this process semi-conscious, since we generally do this unconsciously – when we interpret stick figures as people (McCloud 1993) – but can also make creative decisions when doing closures. External input can be interpreted into a diegesis in very different ways, to the extent where role-playing game masters often explain genre expectations and playing style recommendations to the players, in order to manage the filling processes. Making light-hearted interpretations in a horror game[21] is a perfect example of this kind of power use – one that is often used passively but can be used willfully as well.

The continuous use of interpretational power occasionally leads into a conflict, which occurs when the participants find that their understandings of the game world contradict each other.[22] In those cases an explicit negotiation reconciling the differences in the diegeses is required, typically leading into re-definitions of the diegetic past and present. (See Loponen & Montola 2004.) Of course all the interpretational differences do not force the game to be halted, though they sometimes disrupt the gameplay seriously. As an example these problems occur commonly when the game participants do not share a common level of historical lore that would be needed to play in a particular historical game setting.

The role of the closure process is critical especially in the traditional tabletop role-playing, where the players have a lot of leeway in interpreting the verbal cues on the state and properties of the game world. However, this process is constantly significant in all the forms of role-playing. Basing game on the actual world or a virtual reality diminishes the need for inventing new game elements. Still, even elements such as character reactions and social developments are created in a closure process.

Using a real (l1) or virtual (v1) world as the basis of diegesis restricts the player choices powerfully: spontaneously making up a café or a person requires disregarding the physical or virtual artifacts by arbitration process (as discussed above). However, the elements not currently present – such as diegetic history or distant places – are commonly improvized and made up during the game. Often this kind of elements are defined or at least approved by game master prior the game, but during the role-play the player may need additional information. In those cases, the players often define (and re-define) the game world by inventing diegetic elements in a fashion very similar to tabletop gaming.

[19] It can be argued that in *Tetris* the player power is not restricted, as the player is allowed to manipulate the blocks as efficiently as possible. However, the computational system of *Tetris* includes a multitude of features disabling the best methods of placing the blocks in neat rows.

[20] Fatland (2005) has noted that before a larp is played, the larp game masters' work is to establish a pre-diegesis, a starting point of the larp. This is the final point where any individual may access all the information regarding the game; as soon as this information is given to the players, the unified game world is shattered into as many diegeses as there are people accessing (parts of) the information.

[21] This kind of interpretational resistance is common in all media consumption. Laughing can be used as a strategy for refuting fear caused by a horror movie.

[22] I have earlier (Loponen & Montola 2004) claimed that as long as the players' subjective diegeses are equifinal – i.e. the diegeses produce indistinguishable consequences – the crisis can be averted. The equifinality is lost when the players notice a contradiction, and the differences must be reconciled. Often this reconciliation is lead by the game master, with exogenous and endogenous power given to her by the players.

While the closure process is a democratic[23] structure in the sense that it forces all the game participants into a mutual arbitration of the diegetic truth, the information management is also commonly used as a power allocation tool. The distribution of information is presented in the fourth optional rule, since it an omni-present variable that is implemented very differently in different games and role-playing cultures. In one end of the scale is the style where the players are only allowed the knowledge their characters have (see Pettersson 2005), while in the other end of the scale the game masters do everything practically possible to provide the participants with all information possible (see Fatland & Wingård 1999). Even in the role-playing styles where flow of information is free between players, the characters are usually only expected to use information that they have acquired diegetically.

The information distribution is a structure that considerably influences the power use by different participants in the game. Especially in tabletop role-playing games the game master is often allowed the privilege of accessing all available game information. This does not mean that game master is omniscient regarding the state of the game world, but she may possess the right to even ask the players to provide hidden information regarding their characters' emotions, plans and reasonings.

Much of the game master's social power in the arbitrations concerning the state of the game world is derived from this information access. As the participants tend to act in the fashion that keeps the diegeses similar and the illusion of a collective game world intact, information is an important requirement for the defining process. If a player cannot be sure on whether someone else has already defined an element of the game world, defining it risks a contradiction. This structure is also problematic in larps, where the players often need to make up things in order to complement their characters' fictional histories during the game.

7. THE PERSONIFIED CHARACTER

It seems that the requirement of character is the lowest common denominator of various definitions of role-playing (e.g. Björk & Holopainen 2005, Pohjola 2004, Mackay 2001, Fatland & Wingård 1999, Fine 1983); only Hakkarainen and Stenros (2002) leave it outside the core of their definition – and even they rely on it heavily in explanatory sections of their model.

However, the term has many different meanings, so it is often unclear what the authors actually mean with it. A "character" may indicate a group of quantitative attributes within the formal ruleset, a representation of the player in the game world or a fictitious person in the game world.

The first meaning is derived from the wargaming history of role-playing, where the hero characters fought battles along the rank'n'file soldiers with improved, heroic characters. Allegedly the first version of Dungeons & Dragons was a game about how these heroes became heroes in the first place (Pettersson 2005).

The second, representational view is common to virtual world thinking, where the character is used sometimes synonymously with "avatar". Typically the avatar is not perceived as having a distinct personality of its own, but is seen as an extension of the player, the player's body within the game world. Sometimes the avatar is seen to include only the visual and physical aspects of the character, but occasionally the game mechanics are attached to that as well.

The meanings above are not essential for this paper; the first of them needs to be refuted for this discussion because I earlier declared that rule iii is optional, and the latter because specifically personified character constructs are central to role-playing.

This leaves us with the the word "character" meaning a diegetic person; a combination of physical, social and mental properties, as for example Lankoski (2004) has discussed (based on Egri (1965)).

I see the character as player's *diegetic identity*, along the lines drawn by Hakkarainen and Stenros (2002). Their definition draws on the postmodern identity theory[24], seeing character as a set of roles bound together by fiction. A role[25] is "any subject position within a set discourse, an artifical closure

[23] Democratic in the sense that it tends to give similar amounts of power to all participants. It should be noted that democracy is not necessarily a desirable feature in the aesthetics of role-playing. (cf. Svanevik 2005 and Pohjola 1999.)

[24] This kind of an approach has been encouraged within the film and literature studies earlier. Quoting Smith (1995, 20-21): "James Phelan has pointed out that any 'talk about characters as plausible and possible persons presupposes that we know what a person is. But the nature of the human subject is of course a highly contested issue among contemporary thinkers.' While this would be regarded as a truism by most contemporary theorists of film and literature, only a fraction of the voluminous literature on personal identity to which Phelan alludes has been drawn upon."

[25] Some Scandinavian authors (Fatland & Wingård 1999, Brenne 2005) occasionally use the word "role" synonymously with "character", due to the linguistic influences of the local languages.

articulating the player within the diegetic frame of the game or in a real-life situation". The character is "a framework of roles through which the player interacts within the game, and for which she constructs an illusion of a continuous and fixed identity, a fictional "story of self" binding the separate, disconnected roles together".

In the postmodernist view of Hakkarainen and Stenros, the role-played character is just as fictitious and non-fictitious as the player's "normal identity". The only difference of character and person is constructed solely by the fact that one is constructed within a frame of game while the other is not. As Hakkarainen and Stenros reject the idea of stable identity, embracing only the shifting roles bound together by personal fiction, they conclude that actions performed by character are actions performed by the player herself, acting within "fiction". The logical consequence of endorsing postmodernism would be that just as character is not a character compared to "real identity", game is also no longer a game compared to non-game. While this relativism can – and should – be questioned, a slightly more modern interpretation of this character model is a viable depiction of how a diegetic identity is constructed.[26]

The diegetic identity approach essentially equates the character with the player, with the claim that the player creates the character by pretending to be someone else. In this Hakkarainen and Stenros refute the idealistic approach of many idealist immersionists[27], who have claimed that the character is a separate and external entity to be adopted for the duration of the game. To say that the character is the player also means that all characters exhibit human thinking; even when the character is a rock, a tree or an ancient elf, it is anthropomorphized for the purposes of the play. A homo sapiens cannot replicate the identity or the thinking of a dog. This approach also refutes the claims of complete or perfect character immersion, as pretension is self-conscious activity somewhat aware of both pretended fiction and the existence outside it; it has been argued that the players essentially pretend to believe that they are their characters (Pohjola 2004).

Harviainen (2005) has proposed a view on the concept of character that can be placed between the idealist immersionist and the one presented by Hakkarainen & Stenros, writing:

> "A role-playing character and its player's sense of self exist in a state where each is influenced by the other. The character derives new information from the player and is, when necessary, spontaneously expanded to new directions by him. At the same time, the player experiences new things with the character acting as both a mask enabling events not normally possible for the player and as a filter through which the player experiences only the parts of the game events he deems necessary (or just interesting)" (Harviainen 2005).

In his characterization Harviainen retains some of the immersionist idealism, seeing that the sociocultural mask that is a character provides the player with some genuine agency enabling her to perform actions or accessing information that could not be done without it. Harviainen's approach is not in contradiction with the postmodern character view of Hakkarainen and Stenros, except for the fact that it is based on the modern understanding of an identity.

It is important to understand that a diegetic identity and a movie character are fundamentally different structures. The movie character is an external entity interpreted by the spectator, and thus it can have properties that the watcher could not have invented herself. A movie character may have quicker wits and broader vocabulary than the spectator has. Role-players need to use rule systems and distanced, descriptive playing styles to portray such characters: instead of telling a good joke, a tabletop role-player might just describe that her character tells a good joke, and perhaps even roll a die to justify the goodness of the joke in the game frame.

Another difference is that while characters of the static media are presented in the context of a story world, role-playing characters are presented in the context of a game world. Goldilocks is defined by her adventure: It is difficult to imagine her in another story. The context of the narrative provides Goldilocks with her Goldilocks-like qualities. For the players of role-playing characters, the world full of opportunities and potentials is the significant context, and much more central than the story.[28]

[26] Fine's (1983) view is that players do have a real identity, which is bracketed during the role-play. Whether this experience is illusionary or not is not central to this discussion; the point is that diegetic and "real" identities are constructed in a similar fashion.

[27] Such as Pohjola (1999), who later (2004) changed his stance.

[28] Paul Czege's (2003) My Life with Master is one exception to this rule.

Only in retrospect the narrative context becomes central. When role-players reminisce the careers of their characters afterwards, they do narrativize the played histories. Indeed, often the game masters intentionally plan the intrigue[29] in a manner that is likely to produce appealing stories (see Heliö 2004).

Just like the concept of identity in general, the concept of diegetic identity can be seen from various angles. The multiple faces of the character have different functions in the role-playing process.

Looked as a collection of roles bound together by personal fiction, the character acts as a proxy for the player, differentiating the exogenous success of the player from the diegetic success of the character (see Montola 2005). Physical body cannot be entirely excluded from this personal fiction; quite oppositely it it is an important foundation in identity building. Even though the diegetic story of self may be a tragedy, the player's exogenous story of self can be a success story. This personified construct serves as the basis of identification within the game, allowing diegetic decision-making, which Björk and Holopainen (2005) characterize as the essential element of role-playing.

Seeing the character as the player's presence in the game world implies that the character acts as the eyes, ears and hands for the player in the game: the character is the focal point of the player's diegesis and a game token she uses to affect her surroundings.

Finally, the character is a measure of player's power being a combination of mental and physical attributes, personal history and social relationships. Defining the character as an archmage or a mafia boss draws quite clear boundaries of actions allowed for the player and what kind of consequences they might have.

8. CONCLUSION

The multitude of role-playing cultures makes defining and describing them very problematic. The differences of, for example, performative, competitive and immersionist role-players are vast. The view presented here is centered to the Nordic scene of tabletop and live role-playing, but my aim has been to accommodate a broader range of role-playing activities.

When role-playing is discussed from the angle of ludology, it is relevant to contemplate the position of role-playing activities as games. Juul (2003) provides six requirements for what he calls a classic game. They are fixed rules, variable outcome, valorization of outcome, player effort, player attachment to outcome and negotiability of extra-ludic consequences. Based on these criteria, Juul argues that "pen and paper role-playing games are not normal games because, with a human game master, their rules are not fixed beyond discussion". In this paper I have presented the invisible rules of role-playing, which are fixed "beyond discussion". Admittedly, the three rules presented here are very open, and do not make a good game ruleset on their own.

As I have demonstrated earlier (Montola 2005), role-playing does not inherently require valorization of outcomes either. With valorization Juul (2003, 34) means that the outcomes of the game are assigned positive and negative values according to their desirability. In role-playing the typical priority is the diegetic importance of diegetic outcomes, while the valorization of game frame outcomes is highly ambiguous depending on players' exogenous goals. In fact, role-playing mindset usually means that the activities taken in the game frame are far from optimal, which is in contradiction with both valorization of and player attachment to game outcome.

The more important thing to understand how ludological approaches can be succesfully used to further the understanding of role-playing games. The intent of this paper is to clarify that if role-playing is a game, what kind of a game it is, and if it is looked at ludologically, what reservations should be applied.

ACKNOWLEDGEMENTS

During the writing of this paper I received a plenty of valuable criticism, ideas and comments from various people, such as J. Tuomas Harviainen, Simo Järvelä, Petri Lankoski and Jaakko Stenros. The work done for this paper was funded by The Integrated Project on Pervasive Gaming as well as the Finnish Cultural Foundation. Draft version was presented in the Playing Roles –seminar (March 20th, 2006, Tampere).

[29] Aarseth (1997) uses "intrigue" to denote "a secret plot in which the user is the innocent, but voluntary, target (victim is too strong a term), with an outcome that is not yet decided – or rather with several possible outcomes that depend on various factors, such as the cleverness and experience of the player". In other words, intrigue is the planned structure of potential plots that might be realized during the game. Fatland's (2005) larp fabula pretty much equals Aarseth's intrigue.

REFERENCES[30]

1) Aarseth, E., 1997, *Cybertext. Perspectives on Ergodic Literature.* Baltimore: John Hopkins University Press.

2) Andreasen, C., 2003. The Diegetic Rooms of Larp. In M. Gade, L. Thorup & M. Sander, eds. *As Larp Grows Up. Theory and Methods in Larp*. Copenhagen: Projektgruppen KP03.www.laivforum.dk/kp03_book

3) Bartle, R., 2004, *Designing Virtual Worlds.* Indianapolis: New Riders.

4) Björk, S. & Holopainen, J., 2003. Describing Games. An Interaction-Centric Structural Framework. In M. Copier & J. Raessens, eds. *Level Up – CD-ROM Proceedings of Digital Games Research Conference 2003.* www.digra.org/dl/db/05150.10348

5) Björk, S. & Holopainen, J., 2005, *Patterns in Game Design.* Massachusetts: Charles River Media.

6) Boal, A., 2002, *Games for Actors and Non-Actors. Second Edition.* Routledge: London. First edition in 1992.

7) Boss, E. C., 2006. Collaborative Roleplaying: Reframing the Game. In *Push* vol. 1, 2006, 13-35.

8) Brenne, G. T., 2005, *Making and Maintaining Frames. A Study of Metacommunication in Laiv Play.* Master's Thesis for University of Oslo.

9) Caillois, R., 1958, *Man, Play and Games*. Chicago: Free Press. Ref. 2001 version.

10) Costikyan, G., 2002. I Have No Words & I Must Design: Toward a Critical Vocabulary for Games. In F. Mäyrä, ed. *CGDC Proceedings* 9-33. Tampere: Tampere University Press.

11) Czege, P., 2003, *My Life with Master.* Ref. the 2004 Finnish translation *Kätyrin osa*. Elimäki: Arkkikivi.

12) Duguid, B., 1999. I Know What I Like. In *Imazine Rolegaming Magazine #34.* Originally published in Interactive Fantasy #3, 1995.

13) Egri, L., 1965. *The Art of Creative Writing.* New York: Kensington Publishing.

14) Fatland, E. & Wingård, L., 1999. Dogma 99. A Programme for the Liberation of LARP. International version. Ref. the 2003 version in Gade, L. Thorup & M. Sander, eds. *As Larp Grows Up. Theory and Methods in Larp*. Copenhagen: Projektgruppen KP03. www.laivforum.dk/kp03_book

15) Fine, G. A., 1983, *Shared Fantasy. Role-Playing Games as Social Worlds*. Chicago: University of Chicago Press.

16) Hakkarainen, H. & Stenros, J., 2002. The Meilahti School. Thoughts on Role-Playing. In M. Gade, L. Thorup & M. Sander, eds. *As Larp Grows Up. Theory and Methods in Larp*. Copenhagen: Projektgruppen KP03. www.laivforum.dk/kp03_book

17) Harviainen, J. T., 2005. Corresponding Expectations. Alternative Approaches to Enchanced Game Presence. In P. Bøckman, & R. Hutchison, eds. *Dissecting Larp. Collected papers for Knutepunkt 2005.* http://knutepunkt.laiv.org/kp05

18) Harviainen, J. T., 2008. Kaprow's Scions. In Montola, M. & Stenros, J., eds. *Playground Worlds. Creating and Evaluating Experiences of Role-Playing Games.* Jyväskylä: Ropecon.

19) Heliö, S., 2004. Role-Playing: A Narrative Experience and a Mindset. In M. Montola & J. Stenros, eds. *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination*, Helsinki: Ropecon. www.ropecon.fi/brap

20) Huizinga, J., 1938, *Homo Ludens. A Study of the Play Element in Culture.* Ref. 1955 edition. Boston: The Beacon Press.

21) Jackson, S., 1981, *Killer. The Game of Assassination.* Steve Jackson Games. Referred to the 4th edition, 1998.

22) Juul, J., 2003, *Half-Real. Video Games Between Real Rules and Fictional Worlds.* Doctoral Dissertation for IT University of Copenhagen.

23) Kaprow, A., 1966, *Assemblage, Environments & Happenings.* New York: Abrams.

24) Kellomäki, J., 2004, *Simulaatio ja kerronta – roolipeli ergodisena järjestelmänä.* Master's Thesis for University of Helsinki.

25) Kim, J. H., 1998. The Threefold Model FAQ. In www.darkshire.net/~jhkim/rpg/theory/threefold/faq_v1.html

26) Kim, J. H., 2006. Understanding Genre in Roleplaying. www.darkshire.net/~jhkim/rpg/theory/genre/definition.html

27) Lankoski, P., 2004. Character Design Fundamentals for Role-Playing Games. In M. Montola & J. Stenros, eds. *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination*, Helsinki: Ropecon. www.ropecon.fi/brap

28) Laws, R. D., 2002, *Robin's Laws of Good Game Mastering.* Steve Jackson Games.

[30]All Internet references validated in April 2008.

29) Loponen, M. & Montola, M., 2004. A Semiotic View on Diegesis Construction. In M. Montola & J. Stenros, eds. *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination*, Helsinki: Ropecon. www.ropecon.fi/brap

30) Mackay, D., 2001, *The Fantasy Role-Playing Game. A New Performing Art.* London, McFarland.

31) McCloud, S., 1993, *Sarjakuva – näkymätön taide.* Helsinki, Good Fellows 1994. Finnish translation of Understanding Comics – The Invisible Art.

32) Montola, M., 2003, *Role-Playing as Interactive Construction of Subjective Diegeses.* In M. Gade, L. Thorup & M. Sander, eds. *As Larp Grows Up. Theory and Methods in Larp*. Copenhagen: Projektgruppen KP03. www.laivforum.dk/kp03_book

33) Montola, M., 2005. Designing Goals for Online Role-Players. In S. de Castell & J. Jenson, eds. *Changing Views: Worlds in Play. Proceedings DVD of DiGRA conference*, June 16.-20. Vancouver, Simon Fraser University. www.digra.org/dl/db/06276.39565.pdf

34) Montola, M. 2007a. Breaking the Invisible Rules. Borderline Role-Playing. In J. Donnis, L. Thorup, & M. Gade, eds. *Lifelike*. Copenhagen: Projektgruppen KP07. www.liveforum.dk/kp07book

35) Montola, M., 2007b, Tangible Pleasures of Pervasive Role-Playing. In Baba, A. (ed.), *Proceedings of DiGRA 2007 Situated Play Conference* 178-185. September 24.-28. The University of Tokyo. www.digra.org/dl/db/07312.38125.pdf

36) Morton, B., 2007. Larps and their Cousins Through the Ages. In J. Donnis, L. Thorup, & M. Gade, eds. *Lifelike*. Copenhagen: Projektgruppen KP07. www.liveforum.dk/kp07book

37) Mäkelä, E.; Koistinen, S.; Siukola, M. & Turunen, S., 2005. The Process Model of Role-Playing. In Bøckman, P. & Hutchison, R., 2005, *Dissecting Larp. Collected papers for Knutepunkt 2005.* Oslo, Knutepunkt 2005. http://knutepunkt.laiv.org/kp05

38) Pettersson, J., 2005, *Roolipelimanifesti*. Jyväskylä: Like.

39) Pohjola, M., 1999. The Manifesto of the Turku School. In M. Gade, L. Thorup & M. Sander, eds. *As Larp Grows Up. Theory and Methods in Larp*. Copenhagen: Projektgruppen KP03. www.laivforum.dk/kp03_book

40) Pohjola, M., 2004. Autonomous Identities. Immersion as a Tool for Exploring, Empowering and Emancipating Identities. In M. Montola & J. Stenros, eds. *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination*, Helsinki: Ropecon. www.ropecon.fi/brap

41) Ryan, M.-L., 2001, *Narrative as Virtual Reality. Immersion and Interactivity in Literature and Electronic Media.* Baltimore: John Hopkins University Press.

42) Salen, K. & Zimmerman, E., 2004, *Rules of Play. Game Design Fundamentals.* Massachusetts: The MIT Press.

43) Sandberg, C., 2004. Genesi. Larp Art, Basic Theories. In M. Montola & J. Stenros, eds. *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination*, Helsinki: Ropecon. www.ropecon.fi/brap

44) Smith, M., 1995, *Engaging Characters. Fiction, Emotion and the Cinema.* New York: Oxford University Press.

45) Stenros, J., 2004. Genre, Style, Method and Focus. Typologies for Role-Playing Games. In M. Montola & J. Stenros, eds. *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination*, Helsinki: Ropecon. www.ropecon.fi/brap

46) Svanevik, M., 2005. The Collective's Little Red Book. A Step-by-Step Guide to Arranging Larps the Collective Way. In P. Bøckman, & R. Hutchison, eds. *Dissecting Larp. Collected papers for Knutepunkt 2005.* http://knutepunkt.laiv.org/kp05

47) Tan, P., 2001, *Tensions in Live-Action Roleplaying Game Design.* Master's Thesis for the MIT. Available in http://web.mit.edu/philip/www/chapters/thesis.pdf

48) Wujcik, E., 2004. Personal discussion. The 26th of July 2004, Espoo.

Markus Montola (M.Soc.Sc.) is a game researcher and a doctoral candidate in University of Tampere, Finland. After working for 3.5 years in a pervasive games project, he is now funded by a grant from the Finnish Cultural Foundation and focuses on his doctoral dissertation on role-playing and pervasive gaming. He co-edited *Playground Worlds* (2008) and *Beyond Role and Play* (2004) with Jaakko Stenros. During the last 20 years, he has tried out most of the various forms of role-playing. He is a member of the Main Editorial Board of the IJRP. *www.iki.fi/montola*

CHAPTER ONE

Games and Pervasive Games

Markus Montola

Pervasive games are a curious form of culture. They exist in the intersection of phenomena such as city culture, mobile technology, network communication, reality fiction, and performing arts, combining bits and pieces from various contexts to produce new play experiences. The family of pervasive games is diverse, including individual games ranging from simple single-player mobile phone games to artistically and politically ambitious mixed reality events. Some of these games seek to pass time for a few minutes while waiting for a bus, whereas others create persistent worlds that go on for months and where players can adopt alternate identities and engage in intricate gameplay. Some games use high-end technology, while others can be realized with no technology at all.

In order to understand pervasive games, we have to start by discussing games and play, and how *pervasive* games relate to other games. Johan Huizinga is often considered the forefather of game studies, based on his philosophical and anthropological work conducted back in the 1930s. He discusses play as something happening outside *ordinary life*. Huizinga's play is a ritual *activity* that takes place under rules that are separate from everyday reality. Huizinga describes play as a

> *. . . free activity standing quite consciously outside "ordinary" life as being "not serious", but at the same time absorbing the players intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings, which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means. (Huizinga, 1938)*

After Huizinga, Katie Salen and Eric Zimmerman (2004) picked up the idea of game being separate from everyday life, adapting the concept of *magic circle* from Huizinga's work. The magic circle of a game is the boundary separating the ordinary from ludic and real from playful (see Figure 1.1).

While Huizinga stressed that play happens in a certain dedicated area at a certain dedicated time, Salen and Zimmerman read magic circle much more metaphorically, as a conceptual boundary of game and real, as "shorthand for the idea of a special place

FIGURE
1.1

"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," writes Huizinga (1938). In Japanese *sumo wrestling* the magic circle is particularly prominent.

in time and space created by a game." As they point out, this boundary is not always an absolute one:

> *The boundary between the act of playing with the doll and not playing with the doll is fuzzy and permeable. Within this scenario, we can identify concrete play behaviors, such as making the doll move like a puppet. But there are just as many ambiguous behaviors, which might or not be play, such as idly kneading its head while watching TV. There may be a frame between playing and not playing, but its boundaries are indistinct. (Salen & Zimmerman, 2004)*

Conflicts staged within the magic circle are *artificial* in some sense. When boxers fight in the boxing ring, their conflict is artificial. Though the punches, the pain, the damage, and possibly even the motivation are real, the fight is given an artificial form negotiated by rules. Within the magic circle, different rules apply; lying, backstabbing, betrayal, and limited violence may be acceptable, whereas in ordinary life the same actions would result in serious repercussions (see Lastowka, 2007). According to Gregory Bateson (1955), the difference is in *metacommunication*.[1] Implicit metacommunication frames

ordinary actions and playful actions differently. Even though a *boxing* punch is a punch, it is viewed differently than a punch on a street. Quoting Bateson (1955):

> *The statement "This is play" looks something like this: "These actions in which we now engage do not denote what those actions for which they stand would denote."*

Erving Goffman (1961) discusses a similar idea, saying that games are enclosed within a metaphorical *interaction membrane*. The membrane selects, filters, and transforms events, actions, and properties outside the game. The game of *Monopoly*, for example, is not, or at least should not be, influenced by players' wealth or social status. These properties are excluded from the game. Other games, such as *Texas hold 'em*, filter outside properties more selectively: The player wealth has a limited influence on gameplay.

Taking the *artificial conflict* as the backbone of their definition, Salen and Zimmerman (2004)[2] define game as "a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome."

Looking at this in detail, game is a system, not an activity, an event, or a physical object. However, it is inseparable from the players, who are needed to engage in the artificial conflict: A chessboard is turned into a game system as the players engage in conflict and start to enact the rules in order to reach an outcome. All games are not "won" or "lost," but this definition requires them to produce an outcome.

For comparison, Jesper Juul replaces conflict with effort in his definition. Artificiality is present in his definition through the optionality and negotiability of outcomes. He still requires valuation of outcomes (though not quantifiable valuation) and requires that players feel attached to the outcomes.

> *A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels attached to the outcome and the consequences of the activity are optional and negotiable. (Juul, 2003)*

As we compare these two definitions, we can say that they represent similar thinking, and both can also be combined with Salen and Zimmerman's idea of boundaries of game, expressed through the metaphor of the magic circle. Curiously, we should note that none of the three aforementioned approaches to games and play mentions *fun*. Even though most games are played for entertainment, excitement, and enjoyment, the purposes of games and play include everything from pleasure to learning and from artistic expression to societal exploration.

Roger Caillois (1958) classifies playful activities on an axis ranging from free play, *paidia*, to formal play, *ludus*. Paideic activities include very informal playful activities, such as *children's play*, *make-believe*, riding a *rollercoaster*, *pretend play*, and *mimicry*, wheres ludic activities are well defined and somewhat formal forms of play such as *chess* or *basketball*. A citation from Caillois shows how broad the scope of playful activities is:

> *At one extreme an almost indivisible principle, common to diversion, turbulence, free improvisation, and carefree gaiety is dominant. It manifests a kind of uncontrolled fantasy that can be designated by the term paidia. At the opposite extreme, this frolicsome and impulsive exuberance is almost entirely absorbed or disciplined by a complementary, and in some respects inverse, tendency to its anarchic and capricious nature: there is a growing tendency to bind it with arbitrary, imperative, and purposely tedious conventions, to oppose it still more by ceaselessly practicing*

> *the most embarrassing chicanery upon it, in order to make it more uncertain or attaining its desired effect. This latter principle is completely impractical, even though it requires an ever greater amount of effort, patience, skill, or ingenuity. I call this second component ludus.*

It is notable that Salen and Zimmerman, and especially Juul, focus their definitions on ludus rather than paidia, stressing the role of rules in games. These contemporary ludologists define games as rule systems, whereas Huizinga discusses play as "free activity." This book focuses on pervasive games, and thus ludus is dominant in our thinking. However, as forthcoming chapters will show, paideic elements are not only central to many pervasive games, but pervasive activities rich in paideic elements have been around for a long time. This stance toward paidia sets us slightly apart from most ludologists, who craft their definitions especially in order to inform about the design and study of computer and console games.

Although all definitions of games have been thoroughly criticized from various perspectives, we can take these fairly established models as a basis for looking at how pervasive games are *different* from games as defined by Juul, Salen, and Zimmerman.

Magic Circle as a Contract

The metaphoric magic circle discussed earlier is a ritualistic and contractual boundary, which is most often based on a somewhat implicit agreement. The reality of a game is different only if both the participants of play and the society outside recognize the playground as something belonging outside of ordinary rules. Games are not entirely free, at least not in contemporary society: Many forms of violence are unacceptable even if they take place within a game contract. A game using the rules from the movie *La decima vittima* (1965) could not be applied in isolation, as a mutual contract or interaction membrane does not protect a murderer against legal repercussions. Similarly, engaging in bloody fisticuffs in a hockey rink can land the participants in court.

When Huizinga discussed playful activities 70 years ago, the cultural positions of games, sports, gambling, and children's play were different from today. For instance, games were largely multiplayer activities, and very few people played games for a living. Juul stresses that his definition of game applies to "classic" games and that many recent games break some of the criteria used in his definition.[3] According to him, the era of classic games lasted until the 1960s; games before that tended to conform to a certain model, but newer game genres such as computer games and role-playing games broadened the concept of game.

Even though the concept of a magic circle is the most fitting for classic games, it is a useful metaphorical tool when trying to understand most kinds of games. Boxers might be serious about punching each other as hard as possible, but the seriousness is different from beating each other up on a street. Ritualistic practices and dedicated zones are typical for games; if a player of *World of Warcraft* watches TV while playing, she still separates ludic from ordinary, fictitious from actual, and game from everyday life. Eva Nieuwdorp (2005a) considers this to be a difference in *semiotic domains*; for a player the transition from the lifeworld domain to the domain of a game is clear.[4]

Cindy Poremba (2007) further emphasizes the way the magic circle extends to the rules of socially acceptable behavior. One of her examples is the party game *Twister*,

which involves close physical and social interaction. The redefined social conventions of the magic circle provide the players with an alibi for intimacy, as they can always dismiss the events of *Twister* as "just a game."

The idea of a magic circle of gameplay has recently faced criticism. According to Daniel Pargman and Peter Jacobsson (2006), the magic has gone: For hardcore players, gaming is an everyday activity that no longer happens in a reality of its own. The "proper boundaries of time and space" are not relevant in the age of computer gaming, where a gamer might spend a day playing a game while simultaneously engaging in several other tasks as well. Similarly, Thomas M. Malaby (2007) argues that games are not separate from other everyday experiences: "Any game can have important consequences not only materially, but also socially and culturally (in terms of one's social network and cultural standing)." Already Huizinga (1938) noted that games build communities, secret societies of players, and thus spill in to the ordinary.

In his ethnographical study of tabletop role-players, Gary Alan Fine (1983) looked into discourse that takes place during gameplay. Using Goffman's (1974) frame analysis as a basis, he found that role-playing takes place in three distinctive and usually clearly separable discoursive frames, which can help understand how the magic circle exists as a metaphorical boundary.

In Fine's *primary framework,* the players discussed entirely game-external matters, ranging from eating pizza to arriving late at a game session. In the *secondary framework,* the players discussed game issues, such as the hitpoints of elven rogues, using game terminology from combat rounds to experience levels. And in Fine's *tertiary framework,* the players discussed the game world, things that exist within the *diegetic*[5] reality of the role-playing game. One of Fine's key observations is that players move between these frames swiftly, intuitively, easily, and often. Even though his transcripts seldom show any explicit frame shifts, the frame-distinguishing metacommunication is clear in implicit patterns of speech, gestures, and mannerisms.

Fine's primary framework includes everything that happens outside the game and everything outside the magic circle or the interaction membrane. The second and third frameworks exist within it. If a participant steals money from another participant in the primary framework—outside the magic circle—she commits a crime, which is likewise resolved in real life outside the magic circle. However, if a halfling rogue steals money from an orc warrior in the tertiary framework, the crime does not exist outside the magic circle. The playing contract states that players should not bring disputes through the magic circle, in either direction, and doing so is often socially frowned upon (see also Sihvonen, 1997). It does happen from time to time, but such mixing of the diegetic world and ordinary life is usually seen as bad sportsmanship.

Following this kind of thinking, we understand the magic circle as a metaphor and a ritualistic contract. The function of the isolating contractual barrier is to forbid the players from bringing external motivations and personal histories into the world of game and to forbid taking game events into the realm of ordinary life. While all human activities are equally real, the events taking place within the contract are given special social meanings.

Blurring the Magic Circle

It is clear that a game of *Killer* does not "proceed within its own proper boundaries of time and space according to fixed rules and in an orderly manner"—quite the opposite.

The magic circle of *Killer* is intentionally blurred in many ways: The game is played wherever the players go. During the weeks of the game, the players must stay alert at all times, watching signs of danger. They can freely choose when to look for other players, and they might accidentally stumble upon their victims. The pleasure of playing is largely derived from the interactions of the game and ordinary life, sharing a secret with other players, and trying to avoid witnesses when conducting murders.[6]

We argue that this way of breaking out of the proper boundaries of time and space makes pervasive games fundamentally different experiences that can utilize a novel set of aesthetics for creating engaging and meaningful experiences.

This book uses the following definition of pervasive games:[7]

A pervasive game is a game that has one or more salient features that expand the contractual magic circle of play spatially, temporally, or socially.

Pervasive games are games, even though the contract that forms them is different from the ones defined by Juul, Salen, and Zimmerman. In pervasive games, the magic circle is *expanded*[8] in one or more ways: The game no longer takes place in certain times or certain places, and the participants are no longer certain. Pervasive games pervade, bend, and blur the traditional boundaries of game, bleeding from the domain of the game to the domain of the ordinary.

Nieuwdorp (2007) divides the ways of understanding pervasive games into technological and cultural approaches. The technological perspective looks at how games utilize pervasive computing, whereas the cultural perspective focuses on the game itself and how it relates to the ordinary world.[9] We have intentionally chosen the cultural perspective, as we believe it better suits a book that discusses theory, design, and cultural significance of pervasive gameplay. Naturally, moving away from technology-based definitions causes some games to fall out of the scope and others being included.

Spatial Expansion: Whole World as Playground

Huizinga positions play within dedicated areas and proper boundaries that separate it from the ordinary. Increasingly often this ritualistic spatial separation needs to be seen metaphorically: A console gamer plays alone in a small semiotic sphere of a single-player game, whereas the spatial boundaries of play-by-mail *chess* are strictly defined by the conceptual game board. Still, most gamers are conscious of the areas where games are played: The socially constructed ludic space does not have to be a physical one.

When discussing spaces as social constructions, it is clear that people are perceived to inhabit many spaces simultaneously and alternatively. A player of *Super Mario Bros* shifts between and simultaneously inhabits the two-dimensional game world with mushrooms and tortoises, her playing environment, and also the ordinary world. A player can simultaneously go for a mushroom in the game world and talk with her friend about everyday matters.

Pervasive gamers inhabit a game world that is present within the ordinary world, taking the magic circle wherever they go. Unlike nonpervasive games, which seek to be isolated from their surroundings, pervasive games embrace their environments and contexts (see Figure 1.2).

Space needs to be understood broadly; in addition to physical architecture, pervasive games can appropriate objects, vehicles, and properties of the physical world into the

FIGURE
1.2

Players of *Manhattan MegaPUTT* used the whole of Manhattan as their mini-golf track in the Come Out and Play 2006 festival.

game. As anything residing in the physical space where the game takes place can be included in the game, it can be said that talking about game-specific tokens or props (such as footballs, chessboards, and cards of a collectible card game) is inappropriate in pervasive games: Even though the main interface to the game might be a mobile phone or a water gun, the random environment plays its part in the game as well. Bo Kampmann Walther (2005) notes that in pervasive games, the concept of *game entity* becomes complicated, as it is very hard to determine whether something holds relevance for the game. It is hard to determine whether an elevator is "a token of game's passage from one level to the next connected through a network of sensor technology; or is it simply an element of the building's non-pervasive construction," he writes.

To illustrate spatial expansion in a simple way, it is easy to add spatial expansion to the traditional game of *tag* by entirely removing the spatial boundaries of the playground. Allowing players to run wherever they want keeps the basic game mechanism intact, but also changes it dramatically, as players can use their surroundings in infinite ways, ranging from running away to taking a bus or hiding somewhere. When the game commences, no one can predict which places will be included in the play: This inevitably leads to surprises, as the play area is unknown. The environment can change, and it can also be dangerous.

Pervasive games can exploit aesthetics from run-down factory areas to high-class restaurants, but they can also reach beyond physical space: The expansion can also be created through expansion in cyberspace. Pervasive games can invade all sorts of virtual environments, ranging from message boards to virtual realities. Game-related discussions and role-play can take place among bystanders on the Internet just as in the physical world, and you can even stage a treasure hunt within a virtual reality (see Brown, 2007). Many pervasive games experiment with augmented reality, as such an interface could be a perfect way of adding game content to the physical-world.

All games combining physical spaces and cyberspaces are not pervasive, only those that take the game to unpredictable, uncertain, and undedicated areas. Few pervasive games employ any persistent three-dimensional virtual worlds.[10]

Temporal Expansion: Renouncing the Play Session

In their approach to discussing games as systems, Jussi Holopainen and Staffan Björk define the concepts of *game instance*, *game session*, and *play session* as follows:

> *A game instance defines the complete collection of all components, actions, and events that take place during the playing of single game. A game session is the whole activity of one player participating in such a game. A play session is the uninterrupted stretch of time when one player is actively playing a game. (Björk & Holopainen, 2005)*

For a nonpervasive, unexpanded game, this kind of conceptual discussion is valid: Players play *Monopoly* or *Super Mario Bros* for a while and then take a break and resume later. Sometimes these sessions might overlap if players engage in several activities simultaneously, and quite often there might be dozens of very short subsequent play sessions as players freely mix gameplay with everyday small talk, switching between Fine's frames rapidly.

However, these "proper boundaries of time" can hardly explain the way *Killer* is played. The ideas of game instance and game session remain relevant, but distinguishing play sessions is impossible. Everyday life and gameplay are merged for the duration of the game instance; still, it would be pointless to claim that the whole duration of the game instance was part of one play session. In that case, a play session may include sleeping, working, and talking with nonparticipants. The game rather moves from the center of attention to periphery and back again. An assassin trying to kill her brother during a family dinner is not having an "uninterrupted stretch of playing a game," but is rather in an in-between state trying to fit together the ordinary world and the game objective.

The players may also lose their power to decide when to play intensively and when not to. While typical gameplay requires the players to volunteer in order to participate, *Killer* works differently: In the beginning of the game instance, the player volunteers to participate in all possible intense gameplay during the duration of the play. The consent to play is acquired in advance, but the exact times of play remain uncertain, ambiguous, and hard to define. In a fashion strictly contradictory to Huizinga's magic circle, the proper temporal boundaries of play are *uncertain* to participants (see Figure 1.3).

Social Expansion: Playing with Outsiders

The direct consequence of temporal and spatial configurations used in pervasive games is that outsiders tend to get involved with pervasive games. Outsider participation can come in many shapes and sizes, ranging from spectatorship to full participation. Nonparticipants, who come in contact with players situated within their personal magic circles, may be seduced by the game and enter the magic circle or shrug off the encounter as a run-in with a weirdo.

Killer features one of the simplest forms of outsider involvement: Players seek to *avoid* involving bystanders in their game. As most sets of rules penalize assassins who

FIGURE
1.3

A rigged blender has just exploded. This illustration of temporally expanded gameplay is from Steve Jackson's *Killer: The Game of Assassination*.

conduct murders with witnesses present, the players have a clear incentive to keep the game to themselves. Bystanders are challenges and obstacles, but the players are not expected to overtly interact with them.

Cruel 2 B Kind takes a slightly more extrovert position, as the players need to interact constantly and actively with people they hope will be players in order to succeed in the game. Players need to give their murderous compliments to everyone they suspect could be participating in the game in order to hit their targets: Only the victim knows if he has been hit.

Even stronger forms of social blurring exist, done in the fashion of Augusto Boal's (2002) *invisible theater*. Invisible theater is prescripted political drama that is performed in a public space without any visible labels of being drama, thus luring outsiders to participate. Richard Schechner (2002) discusses *dark play*, where some of the players do not know they are playing. These paideic activities involve risk, deception, and thrill. For example, one of Schechner's informants said that she played a form of *Russian roulette* in traffic by crossing streets without pausing to see whether cars were coming. Both *invisible theater* and *dark play* are based on omitting the metacommunicative message declaring them nonordinary. Pervasive games can use similar solutions, providing

FIGURE
1.4

***Big Urban Game* was a board game that was played on a citywide board in Minneapolis and St. Paul. Most of its interaction with outsiders took the form of spectatorship. In this picture, *Big Urban Game* is played in the middle of everyday street traffic.**

outsiders with differing amounts of information and different positions ranging from passive spectators to full player participants.

The definitions of game and play typically stress the voluntary and artificial nature of play. Blurring the social boundary of games compromises these properties, as a bystander cannot willingly decide whether to witness a water-pistol assassination or not. This makes the use of bystanders an attractive, versatile, powerful, and dangerous way of designing games.

Due to the lack of voluntariness, the *unaware participants*[11] are *not* players. They are not shielded by the *protective frame* of playfulness: Michael J. Apter (1991) asserts that people engaged in play are protected by a psychological barrier providing a feeling of confidence saying that no harm can come to them from participating in play. However, the unaware participants are in a different position, as they are unaware of the semiotic domain of the game, and thus interpret game-related events within the semiotic domain

of ordinary life. Thus, a foolish *Killer* player pointing an authentic-looking gun at an unaware outsider would be treated as a real, scary, armed threat.

The unaware participants also lack the *lusory attitude* (Suits 1990) toward the game: Unlike aware game players, unaware participants do not limit their actions according to any game rules. Lacking the lusory attitude, an unaware police officer encountering the said *Killer* player would take her down with real violence.

Rethinking Play for Pervasive Games

As pervasive games can be played anytime, anyplace, and by anyone, game actions are often inseparable from nongame actions. A player of *Killer* might be drawn into the game wherever she goes and whatever she does, and this possibility also influences all her behavior. If she sees a suspicious character out of a window, she might choose to postpone doing her grocery shopping in order to avoid a possible assassination attempt. In a sense, avoiding gameplay is part of the gameplay.

This is again a clear difference compared to nonpervasive games, which often rely on explicit interfaces. *Chess* moves are explicitly defined maneuvers on the board, and there are even clear rules on when a decision has been made. The official *Laws of Chess*[12] provide extremely detailed rules on how the physical act of moving a piece must be conducted and how the physical action exactly relates to changes in the game state. For example, if a player deliberately touches a piece on the chessboard without giving prior notice of merely adjusting its place on the grid, she must use her turn to move that particular piece. Similar rules also apply to casually played, friendly board games, even though the meticulous formalism is replaced with friendly negotiation or aggressive bickering.

Games with more physical resolution systems, for example, *basketball*, also define and control the physical acts of playing as precisely as possible. Even though there is no turn-taking in *basketball*, acceptable and unacceptable actions are carefully defined, and acting in a wrong way is penalized: Rules may come from oral tradition or they can be defined very formally,[13] but the intent is to reduce the complex physical action to a playable sport by limiting the legal forms of action. While *chess* has a limited number of possible game states, there is no limit to the possible game states of *basketball*. Also, it is impossible to exactly reproduce any past state of a *basketball* game.

Even though some level of uncertainty is an essential part of any game, pervasive games are even more unpredictable than regular games. Just like there is a qualitative difference between *chess* and *basketball*, there is a qualitative difference between *basketball* and *Killer*. Anything and everything can influence the state of a pervasive game: The concept of a "game move" is meaningless in relation to *Killer*, as it is impossible to distinguish game actions and ordinary life actions. In the semiotic domain of the game, all actions are game moves; in the semiotic domain of everyday life, none of them is.

Jane McGonigal (2006a) addresses this ambiguity of game moves with the idea of *infinite affordances*: Players can use any property in their environment to conduct infinite variations of game moves. Donald A. Norman's (1988) idea of affordance refers to "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used [. . .] A chair affords ("is for") support and, therefore, affords sitting." In games such as *basketball* and *Leisure Suit Larry in the Land of Lounge Lizards* the affordances are limited; while a basketball affords dribbling and throwing, a proficient adventure gamer tries to pick up everything for further

use. In a pervasive game the affordances are unlimited, as any object can hold game significance, whether incidental or designed, and whether or not the participants realize it.[14]

Goffman (1961) discusses the *rules of irrelevance*, determining things that are irrelevant for the game. For instance, the players are "willing to forswear for the duration of the play any apparent interest in the esthetic, sentimental, or monetary value of the equipment employed," as such physical and social properties of objects are not essential for the rule system of the game. Expanded games tend to abolish many of the typical rules of irrelevance applied in games. Most games forbid using external resources to win the game, but *Killer* does not: If you own a car, you can use it to play more efficiently. If you build fences around your house, you will be a bit safer in your garden. Ultimately, nothing is irrelevant to *Killer*; even your favorite foods make a difference to anyone trying to poison you. Outside of the mere scoring schema, *Killer* can never be understood as a state machine, as the game is always infinitely complex, and the possible inputs and states of the game system are endless.

Some games use events in the real world to determine progress in a game. In the Web-based *Hollywood Stock Exchange*[15] game, the players buy virtual stocks in Hollywood films. Ultimately, the worth of these investments is determined in real-world box offices. The films are not just thematic fillings or even random generators, but something that can be researched, evaluated, and predicted. While all the explicit changes in the game database are done in cyberspace, the game can be played through reading newspapers with Hollywood coverage. As ordinary world information invades the magic circle of *Hollywood Stock Exchange*, play easily overlaps with everyday life.

Even though *Hollywood Stock Exchange* is not a very pervasive game for a typical player, an extreme player can turn it into a highly pervasive experience. For example, if the player acquires secret information about Hollywood events, she can gain a competitive edge. Then again, it is possible to boost the value of your shares by spreading gossip. In addition, if directors, producers, critics, and actors enter the game, their work can directly influence box office success.

Pervasivity is not strictly a function of rules and game design, but playing styles can also make a substantial difference.

Emergent Gameplay

Looking at *Killer* again, the most rudimentary way of playing is just murdering the target with one of the predetermined weapons. However, as the game supports infinite affordances, the players are free to choose their own goals and utilize a wide array of methods in order to meet them. As stylish kills are highly appreciated, a gameplay experience might include anything from choosing a wig to disguise oneself to scaling a wall in order to spy on the target.

Pervasive games often produce *emergent gameplay*. The combination of infinite affordances and unpredictable environment leads to surprising coincidences and occurrences (see e.g. Reid 2008). These occurrences often lead to intensive and fun game experiences, which have not been planned by any designer or participant.

If we use *Killer* to illustrate the idea of emergence, we can imagine a situation where a player falsely assumes a bystander to be a player stalking her. When the outsider approaches the player in order to ask to borrow her mobile phone for a call, the player gets a real gameplay experience, even though she is playing a multiplayer game alone.[16]

Sometimes the emergent events can turn into very detailed and extended events, and as the players are unaware of whether or not the event is a planned part of the game, emergent events also often feel very authentic, realistic, and surprising. Players of many pervasive games (McGonigal, 2003b; Montola & Jonsson, 2006; Stenros, Montola, Waern, & Jonsson, 2007c) have considered instances of emergent play among the best parts of their experiences.

Between the Real and the Artificial

As pervasive games are games blurring the traditional boundaries of games, they also need to be studied as nongame phenomena. As discussed further in later chapters, pervasive games are closely related to many other phenomena blurring the boundary of real and fiction. *Candid camera* is a perfect example. It catches unaware participants in public places and surprising times, and persuades them to address game-like challenges. For the unaware participant, the game is not a game, and thus anyone interacting with an unaware participant is also outside the magic circle to some extent. When a *Killer* player takes a taxi to pursue a victim, the money, the ride, and the traffic are as real as ever.

When the three expansions of pervasive games are taken to extremes, the magic circle starts to lose its meaning as a contractual boundary between ludic and ordinary. Extreme temporal expansion leads to ordinary life becoming a pervasive game. The same happens with space if the ordinary world is seen primarily as a game world: There cannot be a game world without the ordinary world. And, finally, a game where everyone is only an unaware participant is no longer a game.

Professional sports are a practice perfectly illustrating the way games can lose their playfulness. The empiric results presented by John H. Kerr (1991) show that professionals tend to participate in games in a serious, goal-oriented manner, whereas amateurs play for the pleasure of play itself. For a professional who practices *cycling, soccer*, or *swimming* full time in order to earn a living, play is no longer separated from the sphere of the ordinary. If success in a game is a necessity in order to earn a living, the play is motivated by results instead of the process of play. This is a clear step outside both Huizinga's definition of play and Apter's protective frame of playfulness: A conflict motivated by material gain is much less artificial than playing for pleasure alone.[17]

For professional gamblers, athletes, and gold farmers,[18] the metaphor of the magic circle loses its meaning as a ritualistic separator of ordinary and playful, becoming only a representation of a code of conduct within the game. In terms of Fine's frames, the secondary and tertiary frames of gameplay have different rules, and disputes in them do not move to the first frame: A player of *EVE Online* is legally[19] allowed to extort other players, scam them, and steal their credits within the game, even if she subsequently sells them on eBay. However, if such activities are done professionally, the act of playing the game is only contractually isolated from ordinary life. Labor is labor, whether it is done in a factory, soccer field, or virtual reality (this is discussed further in Chapter Thirteen).

The temporal, spatial, and social expansions are not the only possible expansions of the magic circle; using the same conceptual framework, we can say that gambling games, professional sports, and persistent world games feature *legal–economical expansion*. These games have legal and economical consequences reaching beyond the magic circle.

Immediate Experiences

Any taste, sight, smell, sound, or touch in the world can be given a new meaning, thus making them parts of a pervasive game experience (Ericsson, 2003). The way pervasive games include nongame reality in gameplay allows *doing things for real* during the game. In *Killer,* the pleasure of sneaking is in the sneaking itself, not in an elaborate simulation of sneaking. Chasing, exploring, puzzle solving, and running can be done for real.

Holistically thinking, a game is still a mediated event (for mediation, see, e.g., de Zengotita, 2005), but individual occurrences and activities during the play can create seemingly immediate experiences (Montola, 2007). If a bypasser opens a discussion on weather, the discussion is as real and direct as discussions ever get. If an assassin goes hiking with her school class, the experience of hiking is only mediated through the context of school, even though she is still participating in a temporally expanded *Killer* game.

Looking at the immediacy through the glasses of semiotics, we can say that the experience of immediacy is partially created by an *indexical relationship*[20] between the physical world and the game world. Sneaking in *Killer* is accomplished indexically through the act of sneaking; the sneaking player has a direct relationship with the sneaking assassin. Many other games rely on a *symbolic relationship*, where the player action and game world action are connected through a contract or convention; in a board game, you would play a sneaking card to symbolically convey the act of sneaking. Finally, some games use an *iconic relationship*, where the player and the game world are connected through similarity, like when you push the "up" arrow in order to sneak ahead in digital games.

These relationships are two directional; the *Killer* player also experiences the game world indexically as the trees and buildings of the physical world are directly constructed into the game world. Instead of seeing the icons conveying the psychedelic world of *Super Mario Bros* or interpreting the symbolic descriptions of an adventure game, the player of a pervasive game can access the game world indexically.[21] It should be noted that symbols and icons are also used to construct *Killer* diegeses: Fruit can represent pistols and daggers both through similarity and through rule conventions (see Figures A.2 and 2.2).

Indexicality is not exclusively a property of pervasive games. While a *boxing* match could be seen as an elaborately symbolic and iconic representation of a fight, it is also a highly indexical struggle where a punch to the face is represented by a punch to the face. However, pervasive games open up the design space of indexicality for activities ranging from begging and exploring to lying and traveling.

As designers have noted this attraction, *reality fabrication* has also become a method for pervasive game design. Fabrication[22] is created to appear as the ordinary world to the player, but it often takes a sharp turn, suddenly changing into a game experience as the player realizes game elements in the fabrication.

A very simple element of fabricated reality takes place if an assassin asks her target on a date in order to kill him in a particularly nasty way. Only after the victim tastes the poison in his drink and notices that the assassin slipped out on her way to restroom does he comprehend the encounter with fabricated reality. Only the sour taste of vinegar conveys the metacommunication that retroactively frames the whole date as a *Killer* game event.

Conclusions

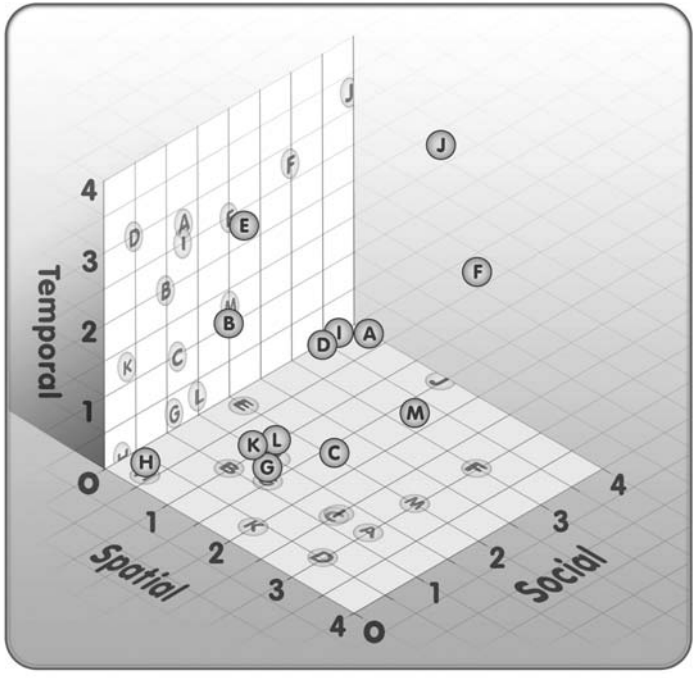
The contracts of pervasive games are different from the contracts of traditional, nonexpanded games. The magic circle is not an isolating barrier distinguishing the ludic from the ordinary, but a secret agreement marking some actions as separate from the ordinary world. While all human actions are real, those that happen within the contract of a game are given a special social meaning.

In conclusion, we can see that there is a twofold dynamic between the playful and the ordinary that provides pervasive games a reason to exist: Both play and ordinary life can benefit from the blurring of the boundary.

Pervasive games can take the pleasure of the game to ordinary life. Wherever the players move, they know that the game is on, and this sensation eventually colors their whole experience of the ordinary. At times the experience is in focus; at times it drifts into the periphery of attention.

Pervasive games can take the thrill of immediacy and tangibility of ordinary life to the game. Many people consider uncontrolled and unsafe pervasive games exciting and thrilling: It is fun to do cool things for real. Being successful in real-world challenges is

FIGURE **1.5**



All 13 cases described in this book utilize the expansions differently. Classic games are located near zero, while the value of four indicates an expansion strong enough to question the ludic status of the piece. A: *Killer*, B: *The Beast*, C: *Shelby Logan's Run*, D: *BotFighters*, E: *Mystery on Fifth Avenue*, F: *Momentum*, G: *PacManhattan*, H: *Epidemic Menace*, I: *Insectopia*, J: *Vem gråter*, K: *REXplorer*, L: *Uncle Roy All Around You*, and M: *The Amazing Race*.

an extremely gratifying experience, as the players know that there is no simulation or rule system making the challenge artificially easy.

As the magic circle of a pervasive game is a blurry, porous structure, it is often hard or impossible to clearly differentiate the ordinary and the ludic. This makes pervasive games interesting and fun to play: The ludic and ordinary powerfully complement each other. As game designer Martin Ericsson (2003) has pointed out, this makes pervasive games very different from computer games:

> *The unique, extreme traits of mobile devices call for extreme gaming. This is the skydiving, wreck diving, rock climbing, street boarding of the imagination. The player of an extreme enchanted reality game needs to traverse the urban landscape efficiently, confront constant unexpected resistance, face real physical challenges, engage in character-driven social engineering, challenge her perceptions of the world and learn to follow rules very different from those society teaches her. Not quite the activities we associate with computer gaming today.*

In the following cases and chapters we put this theoretical discussion to use (see Figure 1.5). We discuss what pervasive games look like, how they feel like to play, how to create them, and what their position in the wider societal environment is.

Notes

1. Goffman (1974) uses the term *keying* for this metacommunication. A *boxing* match is a fight keyed as a contest.
2. Plenty of definitions for *game* exist. Both Juul (2003) and Salen and Zimmerman (2004) have done thorough comparative analyses of them before ending up with the definitions used in this chapter.
3. A "classic" game is a problematic concept. The way it excludes games recognized as such in natural language, simply because they fit the definition poorly, is suspect. Also, it is bold to claim that the definition is appropriate for all games through the ages up until the 1960s.
4. Similarly, Harviainen (2007) points out that for pervasive games, a *common interpretative framework* is more relevant than the magic circle.
5. We use *diegesis* to denote a world presented in fiction, whether that fiction has the form of a painting, a play, or a game. Everything that exists within a diegesis can be called diegetic.
6. Salen and Zimmerman (2004) call games blurring the magic circle "invasive games." Other academics who have contributed to discussion on games with blurred boundaries include T. L. Taylor and Beth Kolko (2003), as well as Jane McGonigal (2003a,b).
7. This definition has been discussed earlier in Montola (2005) and in Montola, Waern, and Nieuwdorp (2006). Staffan Björk (2007) has also published an alternate version, where ambiguity of interaction or interface is included as a fourth central defining criterion.
8. Things tend to get tricky when you apply a metaphor to another, so many words could be used to discuss what exactly happens to the magic circle in pervasive games—instead of "expanding," we could also discuss "bending," "blurring," "twisting," or "obfuscating." Sometimes the "expanded magic circle" has been interpreted in unintended ways, so we want to clarify that not all expanded games are such variants of unexpanded ones, even though some are (e.g. *Jagd nach Mr. X* is a pervasive street version of *Scotland Yard* board game). Also, we do not intend to imply that a player could exit the circle by traveling far enough or that the magic circle would be applied "evenly" or "consistently" throughout the gaming area (cf. Brown, 2007).
9. Works based on technological perspectives include Schneider and Kortuem (2001), Lindley (2005), and Walther (2005).

10. *Sanningen om Marika* being an interesting exception with its expansion to *Entropia Universe*.
11. Boal (2002) calls unaware participants *spect-actors*—spectators who also participate. Boal stresses that even if the spect-actor decides not to act, she is still an active participant choosing to remain passive.
12. E.I.01A *Laws of Chess* by World Chess Federation FIDE. In www.fide.com/component/handbook/?id=124&view=article, ref. September 24, 2008.
13. The *Official Rules of the National Basketball Association* illustrate how complex this can get. www.nba.com/analysis/rules_index.html, ref. September 24, 2008.
14. There has been some controversy over whether affordances are natural, learned, or cultural. After all, a rug affords lying on to a dog, but a basketball does not afford dribbling to a baby. Norman's (2007) revised stance is that affordances are about the communication between a designer and a user: A good industrial designer makes the affordances perceivable to the user. Affordances are also about relationships of agents and objects, as a chair does not afford sitting for an infant or an elephant. In many pervasive games the player challenge is to discover and utilize game-relevant affordances in an environment—whether these affordances are incidental or designed intentionally.
15. Similar games include *Monopoly Live* (players try to predict which hotels cabs frequent in London) and numerous fantasy sport leagues (build a team of real athletes and compete with others based on sport statistics).
16. Neil Dansey (2008) discusses emergence through the concept of *apophenia*. Apophenia is experienced by people who "mistakenly ascribe meanings to coincident occurrences which are unrelated or accidental," for example, when a horoscope strikes a chord with everyday life or when one sees a distinct shape in the clouds. According to Dansey, apophenic events cannot be designed directly, as deliberate occurrences are not unrelated or accidental. Nevertheless, he advocates designing ambiguity that creates *potential* for genuine apophenia.
17. Apter and Kerr look at play phenomenologically and talk about a playful mindset rather than an externally observable category of action. Essentially, they state that a participant in a soccer game can be in a playful or serious mindset, depending on her goals, motivations, and attitudes.
18. A gold farmer is a person playing an online game in order to sell the goods earned for real money. At the time of writing, a stereotypical gold farmer operates from China or Russia, spending the majority of his waking hours killing monsters in *World of Warcraft* in order to sell the gold to players in Western Europe and America (see, e.g., Dibbell, 2007; Steinkuehler, 2006).
19. This is our sincere belief. There has been no court case.
20. The semiotic concepts of index, symbol, and icon come from Charles S. Peirce (1876, 1885) and discuss how signs convey meaning. Symbols, such as words, convey meaning through convention. Icons, such as pictures, convey meaning through similarity. Finally, indices convey meaning through a direct relationship: The mercury in a thermometer is an index of heat, for example. Peirce's index is sometimes interpreted narrowly as a causal or spatiotemporal relationship, but we use a broader view on the concept, based on direct connection and (relative) lack of arbitrariness. See Chandler (2006) for more on semiotics, Loponen and Montola (2004) for use of this trichotomy in representation of game worlds, and Bergman and Paavola (2003) for Peirce's collected definitions of index. See Grayson and Martinec (2004) for further analysis of indexicality and perceived authenticity.
21. As always, physical signs represent mental ideas and constructions. Just like the words printed in a novel represent a fictional diegesis, the indices of the physical world are used to construct the *Killer* game world.
22. Goffman (1974) sees fabrication as the "intentional effort of one or more participants to manage activity so that a party of one or more others will be induced to have a false belief about what it is that is going on." His view is modernist in the sense that he assumes that there is something true that is falsified in fabrication. In this book, we assume that fabrication is indeed asymmetrical: The fabricator's perspective indeed differs from the fabricated perspective. Whether one of the views is more "true" or even more complete than the other remains a (postmodern) philosophical issue.

References

Compiled from *Pervasive Games: Theory and Design*, 279-298. Hyperlinks confirmed January 5th, 2009.

Apter, M. J. (1991). A structural-phenomenology of play. In J.H. Kerr & M.J. Apter (Eds.), *Adult play: A reversal theory approach.* Amsterdam: Swets & Zeitlinger.

Bateson, G. (1955). A theory of play and fantasy. *Psychiatric Research Reports*, 2.

Bergman, M., & Paavola, S. (Eds.), (2003). The commens dictionary of Peirce's terms: Peirce's terminology in his own words. www.helsinki.fi/science/commens/dictionary.html

Björk, S. (2007). Changing urban perspectives: Illuminating cracks and drawing illusionary lines. In F. von Borries, S. P. Walz, & M. Böttger (Eds*.), Space time play. Computer games, architecture and urbanism: The next level* (pp. 276 – 279). Berlin: Birkhäuser.

Björk, S., & Holopainen, J. (2005). *Patterns in game design.* Hingham, MA: Charles River Media.

Boal, A. (2002). *Games for actors and non-actors* (2nd ed.). London: Routledge. First published in 1992.

Brown, D. (2007). *Pervasive games are not a genre! (they are a sub-genre).* Master's Thesis, Georgia Institute of Technology. www.avantgaming.com/papers/dakota_brown_appropriative_games.pdf

Caillois, R. (1958). *Man, play and games.* Chicago: Free Press.

Chandler, D. (2006). *Semiotics: The basics*. London: Routledge.

Dansey, N. (2008, April). Facilitating apophenia to augment the experience of pervasive games. Presented in *Breaking the Magic Circle* seminar. Tampere, Finland.

De Zengotita, T. (2005). *Mediated. How the media shapes your world and the way you live in it.* Bloomsbury.

Dibbell, J. (2007 17). The life of the Chinese gold farmer. www.juliandibbell.com/texts/goldfarmers.html. *The New York Times Magazine.*

Ericsson, M. (2003). Enchanting reality: A vision of big experiences on small platforms. In M. Copier & J. Raessens (Eds.), *Level up. Digital games research conference proceedings.* 4 – 6 November. Universiteit Utrecht, Utrecht: DiGRA 2003.

Fine, G. A. (1983). *Shared fantasy: Role-playing games as social worlds.* Chicago: University of Chicago Press.

Goffman, E. (1961). *Encounters: Two studies in the sociology of interaction.* Indianapolis: Bobbs-Merrill.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience.* Boston, MA: Northeastern University Press.

Grayson, K., & Martinec, R. (2004). Consumer perceptions of iconicity and indexicality and their influence on assessments of authentic market offerings. *Journal of Consumer Research*, 31, 296 – 312.

Harviainen, J. T. (2007). Live-action role playing environments as information systems: An introduction. *Information Research*, 12 (4).

Huizinga, J. (1938). *Homo ludens: Versuch einer bestimmung des spielelements der kultur.* Published originally in 1944. Ref. English translation (1955): *Homo ludens: A study of play element in culture.* Boston, MA: Beacon Press.

Juul, J. (2003). *Half-real: Video games between real rules and fictional worlds.* Doctoral Dissertation, IT University of Copenhagen.

Kerr, J.H. (1991). Sport: Work or play?. In J.H. Kerr & M.J. Apter (Eds.), *Adult play: A reversal theory approach*. Amsterdam: Swets & Zeitlinger.

Lastowka, G. (2007). Rules of play. Ref. rough draft dated at October 16, 2007, in http://terranova.blogs.com/RulesofPlay.pdf. Also presented in *AoIR 8.0* conference.in Vancouver, October 2007.

Lindley, C. A. (2005). Game space design foundations for trans-reality games. In *Proceedings of the 2005 ACM SIGCHI international conference on advances in computer entertainment technology.* ACE 2005, ACM. http://portal.acm.org/citation.cfm?id_1178569

Loponen, M., & Montola, M. (2004). A semiotic view on diegesis construction. In M. Montola & J. Stenros (Eds.), *Beyond role and play: Tools, toys and theory for harnessing the imagination* (pp. 39 – 51). Vantaa: Ropecon, www.ropecon.fi/brap

Malaby, T. M. (2007). Beyond play: A new approach to games. *Games and Culture*, 2 (2), 95 – 113.

McGonigal, J. (2003a). "This is not a game ": Immersive aesthetics & collective play. Digital arts & culture 2003 conference proceedings. *DAC 2003*. Melbourne, Australia. www.seanstewart.org/beast/mcgonigal/notagame/paper.pdf

McGonigal, J. (2003b). A real little game: The performance of belief in pervasive play. In M. Copier & J. Raessens (Eds.), *Level up. Digital games research conference proceedings.* 4 – 6 November. Universiteit Utrecht, Utrecht: DiGRA 2003.

McGonigal, J. (2006a). *This might be a game: Ubiquitous play and performance at the turn of the twenty-first century*. Doctoral Dissertation, University of California, Berkeley.

Montola, M. (2005). Exploring the edge of the magic circle: Defining pervasive games. In *DAC 2005 Conference Proceedings.* IT University of Copenhagen. www.iki.fi/montola/exploringtheedge.pdf

Montola, M. (2007a). Tangible pleasures of pervasive role-playing. In A. Baba (Ed.), *Proceedings of DiGRA 2007 Situated Play Conference* (pp. 178 –185). University of Tokyo. www.digra.org/dl/db/07312.38125.pdf

Montola, M., & Jonsson, S. (2006). Prosopopeia: Playing on the edge of reality. In T. Frizon & T. Wrigstad (Eds.), *Role, play, art: Collected experiences of role-playing* (pp. 85 – 99). Stockholm: Föreningen Knutpunkt, http://jeepen.org/kpbook

Montola, M., Waern, A., & Nieuwdorp, E. (2006). *The domain of pervasive gaming.* IPerG Deliverable D5.3B. www.pervasive-gaming.org/Deliverables/D5.3b-Domain-of-Pervasive-Gaming.pdf

Nieuwdorp, E. (2005a). The pervasive interface: Tracing the magic circle. In: *Proceedings of DiGRA 2005 Conference: Changing views —Worlds in play.* Vancouver: Digital Games Research Association. www.digra.org/dl/db/06278.53356.pdf

Nieuwdorp, E. (2007). The pervasive discourse: An analysis. *ACM Computers in Entertainment*, 5 (2).

Norman, D. A. (1988). *The psychology of everyday things*. New York: Basic Books.

Norman, D. A. (2007). *The design of future things.* New York: Basic Books.

Pargman, D., Jacobsson, P. (2006). The magic is gone: A critical examination of the gaming situation. In M. Santorineos (Ed.), *Gaming realities: A challenge for digital culture* (pp. 15 –22). Mediaterra 2006 Festival. Fournos Centre for the Digital Culture.

Peirce, C. S. (1867). On a new list of categories. In J. Hoopes (Ed.), *Peirce on signs: Writings on semiotic by Charles Sanders Peirce* (pp. 23 – 33). Chapel Hill, NC: University of North Carolina Press, Originally published in *Proceedings of American Academy of Arts and Sciences* 7, May 1867.

Peirce, C. S. (1885). One, two, three: Fundamental categories of thought and of nature. In J. Hoopes (Ed.), *Peirce on signs: Writings on semiotic by Charles Sanders Peirce* (pp. 180 – 185). Chapel Hill, NC: University of North Carolina Press.

Poremba, C. (2007). Critical potential on the brink of the magic circle. In: A. Baba (Ed.), *Proceedings of DiGRA 2007 situated play conference* (pp. 772 –778). University of Tokyo. www.digra.org/dl/db/07311.42117.pdf

Reid, J. (2008). Design for coincidence: Incorporating real-world artifacts in location-based games. In: *Proceedings of ACM International Conference on digital interactive media in entertainment and arts*. Athens, Greece: DIMEA.

Salen, K., & Zimmerman, E. (2004). *The rules of play: Game design fundamentals.* Cambridge: MIT Press.
Schechner, R. (2002). *Performance studies: An introduction.* Ref. Second Edition (2006). London: Routledge.
Schneider, J., & Kortuem, G. (2001). How to host a pervasive game: Supporting face-to-face interactions in live-action roleplaying. In *Workshop on designing ubiquitous computer games.* September – October. Ubicomp 2001. Atlanta.
Sihvonen, T. (1997). Pieni johdatus live-roolipelaamisen psykologiaan. In N. Vainio (Ed.), *Larppaajan käsikirja*. Suomen live-roolipelaajat, Tampere.
Steinkuehler, C. (2006). The mangle of play. *Games and Culture*, 1 (3).
Stenros, J., Montola, M., Waern, A., & Jonsson, S. (2007c). *Momentum Evaluation Report*. IPerG Deliverable 11.8 Appendix C. www.pervasive-gaming.org/Deliverables/D11.8-Appendix-CMomentum-Evaluation-Report.pdf
Suits, B. (1990). Construction of a definition. In K. Salen & E. Zimmerman (Eds.), (2006): *The game design reader: A rules of play anthology*. Cambridge: MIT Press.
Taylor, T. L., & Kolko, B. (2003). Boundary spaces: Majestic and the uncertain status of knowledge, community and self in a digital age www.itu.dk/~tltaylor/papers/TaylorKolko-Majestic.pdf. *Information, Communication & Society*, 6 (4), 497 – 522.
Walther, B. K. (2005). Atomic actions – Molecular experience: Theory of pervasive gaming http://portal.acm.org/citation.cfm?id_1077258. *Computers in Entertainment,* 3 (3).

Image credits:
1.1 *Sumo.* Photographer Alisdair McDiarmid.
1.2 *Manhattan MegaPUTT.* Photographer Amanda Bernsohn.
1.3 *Killer: The Game of Assassination.* Illustrator Denis Loubet, Steve Jackson Games.
1.4 *Big Urban Game.* Photographer Frank Lantz.
1.5 Illustrator Jani Nummela.

Pers Ubiquit Comput (2011) 15:3–12
DOI 10.1007/s00779-010-0307-7

ORIGINAL ARTICLE

A ludological view on the pervasive mixed-reality game research paradigm

Markus Montola

Received: 17 June 2009 / Accepted: 15 December 2009 / Published online: 25 June 2010

Abstract During the last 10 years, numerous mixed-reality game prototypes have been built and studied. This paper is a game studies attempt at understanding the findings of that research. First, this paper will look into the paradigm of pervasive mixed-reality game research, analyzing how these games have been produced and studied. Then, there is an overview of some central, reoccurring findings of that paradigm that is written with the intent of generalizing lessons of individual experiments. Finally, there is a discussion on research methodology, analyzing how this type of research could better validate the findings that have to do with play experiences and game design.

1 Introduction

Since the turn of the millennium, a number of *pervasive mixed-reality game* prototypes have been developed and built in various research projects. This paper looks at that game genre from the perspective of game studies, analyzing the experiences produced by these games and seeking to understand the loose research paradigm that has produced them.

A paradigm denotes a "set of assumptions, concepts, values, and practices that constitutes a way of viewing reality for the community that shares them".[1] This paper is a study of a number of papers belonging to a loose paradigm that has produced and studied numerous pervasive mixed-reality games in the context of technological human–computer interaction research. Some paradigmatic properties of this research include: (a) interest in mixed-reality technologies, (b) common conceptual background in HCI research, (c) innovation as a central value, and (d) methodological practices revolving around exploratory prototypes. If these properties appear self-evident, that fact is exactly due to their paradigmatic nature.

Game studies is a multidisciplinary field of study and learning, with games and related phenomena as its subject matter [46]. In the core of game studies, there is the young discipline of ludology, study of games *as games*, instead of e.g. games as narratives, games as performances, or games as a way of applying emerging technologies.

This paper is about looking the mixed-reality pervasive game paradigm from outside. In order to understand the ludological value of this research, we need to forget about what's important in HCI for a moment and analyze what is important for understanding these games as games: How are these games experienced by players, what is relevant in designing for those experiences, and what kind of methodological requirements does the game studies analysis pose on prototype research.

On the other hand, this paper is also a comparative study of research papers. Exploratory prototype research faces two hazards related to validity and reliability. First, it is hard to tell whether a given finding is closely related to the prototype and the particular test setup. If a feature is problematic in a fast-paced street game for kids, the result might not apply to a tourist guide game for seniors. Second, the research often uses small test audiences (even below $n = 10$), which makes quantitative generalization difficult. By cross-examining findings from various prototypes and research groups, we can try to generalize findings. When results are mutually supportive, we can increase the

M. Montola (✉)
Nokia Research, Tampere, Finland
e-mail: markus.montola@uta.fi

[1] According to the 2004 edition of *The American Heritage Dictionary of the English Language*.

validity and reliability of our knowledge.[2] When the results are contradictory, we can look at the contradictions, in order to gain a deeper understanding of the underlying phenomena.

After looking into some typical research findings on player experiences, this paper looks at the methodological issues that are relevant for ludological understanding of exploratory game prototypes. In particular, we look into how technological novelty, serious research setups, and immature technologies influence the research of play experiences.

2 Pervasive mixed-reality games

The object of this study has been limited to games that are pervasive and that utilize mixed-reality interactions. This delimitation was chosen because a large number of comparable studies exist, and I believe that future research will benefit from a critical synthesis of earlier work.

This paper builds on author's earlier definition of *pervasive games*[3] [40, 42] as games that "expand the magic circle of play socially, spatially or temporally".

The so-called *magic circle of play* is a social and cultural contract that separates ordinary life from play, communicating a way of understanding events that happen within the circle. For example, the meaning of a boxing match comes from the idea that the fighting activity, when it takes place within certain spatial, temporal, and social boundaries, is not interpreted only as violence but is transformed into acceptable behavior—while the very same boundaries transform a polite discussion into unacceptable behavior [see 32].

The concept of magic circle has evolved gradually. Huizinga [27] came up with the voluntary nature of play and its spatio-temporal separation from ordinary life. Bateson [4] and Goffman [22, 23] discussed how meta-communication frames the way playful interactions are interpreted: e.g. how the context of a boxing match frames the meaning of violent action. Suits [57] discussed how engaging in play is about restricting one's own behavior, and Apter [1] discussed how the framework of game protects the participants during play. Finally, Salen and Zimmerman [52] established the term magic circle to denote this structure.

The magic circle is a social structure in the sense that it is constructed in the act of play by players and outsiders—both the spectators and the boxers affirm the playful nature of the events happening during the boxing match. The play process both erects the magic circle and is confined by it. The circle is also a cultural structure: The ritual practices establishing a boxing match as a playful activity draw upon cultural conventions.

Pervasive games differ from the usual games in that they reject the confines of a classic magic circle: They are not played on an established playground, they are played at surprising times, and they tend to involve outsiders. Pervasive games often blur the boundary of game and ordinary life so much that it is hard to tell where the game starts and ordinary life begins.

The pleasures of pervasive gaming are twofold [42]. On one hand, pervasive games can take the pleasure of game to ordinary life: Whatever the players do, they know that the game is on and can surprise them at any time. On the other hand, pervasive games can take the non-safety of ordinary to the game: as the game is connected to the player's everyday context, the game can feel much more real and tangible than a purely isolated game.

This definition of pervasivity does not establish a clear-cut categorization but rather forms a scale of various properties: games that are played on the streets among outsiders always exhibit at some pervasivity [25, 35]. Features such as blurred play sessions [5], interacting with outsiders [8], and designing for coincidence [50] can make the experience of pervasivity much stronger. Thus, pervasive game is an umbrella concept that includes location-based and location-aware games, ubiquitous games, alternate reality games et cetera.

In here, I use *mixed-reality games* to denote games that utilize various mixed-reality setups, as discussed by Milgram and Kishino [39]. Many games feature augmented reality [10] or augmented virtuality [7]. A few games feature numerous play modes that can be placed differently in the continuum of virtuality [35]. However, the largest category would seem to be the games that are situated between Milgram and Kishino's "real environment" and "augmented reality". These games augment reality in a minimalist fashion; for example *REXplorer* [3] combines GPS with a paper map and self-reported positioning and uses no AR graphics.

From the players' perspective, it is not necessarily relevant whether the overlay of game world and physical world is implemented though hardware and software: The *PacManhattan* [31] players and game controllers use a map-street overlay similar to *Can You See Me Now?* [7], but it is questionable whether it is (technologically speaking) a mixed-reality system: The *PacManhattan* players report their positions to game controllers by mobile phones, who then update the game map manually.

[2] The relatively detailed referencing practice of this paper is used in order to stay away from speculation and rely more on results derived from the various prototype studies.

[3] The etymological origins of the term are in pervasive and ubiquitous computing, where any game using pervasive or ubiquitous technologies can be called "pervasive game" or "ubiquitous game" [see 47].

The majority of the games studied in this paper happen to be *event games*; games that are staged at defined social events where people go play. Typically, such events last from an hour to a day, and the game area varies between a city block to the whole city. Amusement parks, cruise liners, and tourist offices may stage event games on a daily basis, but from the players' perspective they are special events to be attended.

This distinction is relevant in relation to *service games* that are subscribed for months, or *product games* which players purchase and play whenever they want.[4] Due to the high cost and fragile nature of the custom hardware used in many of these games, few prototype games are staged as services, and even fewer are staged as products. The service examples include *Songs of North* [30], *Feeding Yoshi* [5], and *Mythical* [29]. Product games are even fewer, as most of these games require dedicated hardware that is expensive to build.

Event games are particularly useful format for new technologies and interaction practices, as they can be powerfully controlled by the game organizer, and a large number of people can use limited hardware.[5]

These games are all research prototypes, motivated by technological [3, 6–8, 10, 12, 14, 15, 25, 28, 35, 53, 60], game design [8, 10, 21, 28, 30, 51], and educational [3, 19, 25] research, as well as by artistic goals [7, 8, 10]. The goals of the implementation have a strong influence on the research; projects that are created for art tend to have much larger test audiences than projects that are created for technology. Games staged for studying game design tend to focus on enjoyable and novel gameplay, while educational games stereotypically focus on conveying some subject matter to players.

2.1 A brief portfolio of games

The following portfolio of brief game examples should illustrate the similarities and differences of pervasive mixed-reality games.

Can You See Me Now? [7] was a chasing game, where some players played virtual characters running on the map and the others were runners on the actual streets. The aim of the street runners was to catch the PC players on the overlay map. The feeling of runner presence was augmented by audio feeds, allowing the PC players to hear the breath, voice, and surroundings of the runners.

REXplorer [3, 59] is a tourist guide leading the players around the old town of Regensburg. On their way, the players use mobile phones to communicate with spirits of the original residents of the town. At river Danube, the players are able to communicate with a salt trader, for instance, who tells about the life of the salt traders in historical Regensburg. Players are free to navigate their way through Regensburg by picking quests from the spirits and following them around.

Feeding Yoshi [5] was a location-based long-term WiFi game played as a part of everyday life; players trade fruit with each other and feed them to cute "yoshi"-creatures. The yoshis are represented by secure wireless networks, while open networks represent plantations where fruit can be grown. The players plant virtual seed at plantations, grow fruit, trade them, and finally feed the yoshis. The game exploits the WLAN stations as a random environment where players operate.

Epidemic Menace [20, 21, 35] was a mixed-reality game, where two teams competed in preventing an epidemic in a campus area. As the virus was invisible, they had to use augmented reality technology to see the virus. The basic dynamic of the game revolved around various play modes afforded by different gaming devices. For example, the HQ players were able to use a "satellite" map to coordinate field workers, who could use their short-range devices to exterminate viruses.

In addition to these four games, I have looked into numerous games ranging from mobile phone prototypes [29, 30, 48] to pervasive live-action role-playing games [43, 55] and from educational children's games [2, 19, 51] to early technology prototypes [12, 53]. Furthermore, this paper has also been informed by a few pervasive games that lack mixed-reality technologies (e.g. *PacManhattan*) or mixed-reality games that are rather weak in their pervasive qualities (e.g. *Epidemic Menace*). Two games under scrutiny, *Mogi* [33, 34] and *Botfighters* [11] were long-running commercial service games. References to such games are used when their results are applicable to pervasive mixed-reality games.

3 Play experiences of pervasive mixed-reality games

The studies discussed in this paper often discuss how players experienced the prototype games, what features were appreciated, and how gameplay should be designed. The majority of studies report that the test audiences were pleased with their play experiences, and in many cases they would like to play more [see 2, 3, 7, 8, 10, 12, 14, 21, 35, 60]. None of the studies present un-appreciative overall opinions.

Roughly speaking, the central reported pleasures revolve around novelty, physicality, sociality, and new technology.

[4] The event game/service game/product game—thinking was used collectively in IPerG project (http://www.pervasive-gaming.org), but it has not been published in this form before.

[5] Somewhat comparable development can be seen e.g. in movie distribution, from movie screenings (event) to television (service) and video cassette distribution (product).

In this paper, we focus on a few largely social findings due to their practical design value: social framing and awkwardness, limited view on game world, and local and global experiences.

3.1 Social framing and awkwardness

Unlike regular play described by Huizinga [27], a pervasive game does not "proceed within its own proper boundaries of time and space according to fixed rules and in an orderly manner". Pervasive games break these boundaries, moving play away from its usual place in the (Western) culture, into the domain of ordinary life. While doing so, pervasive games also expand socially, involving outsiders in play.

Many studies indicate that players feel uneasy while playing these games that take play out of its culturally established place. Uneasiness has been reported in games that require obvious gestures [3], role-playing [41], equipment [5, 25], sound effects [3], or acting in a "ridiculous" manner [20]. Interestingly, both dangerous and highly surveyed areas of the city can make players feel uncomfortable [5].

We can use Goffman's [23] theory of social frames to understand this awkwardness: different social frames apply to different situations and acting out of frame causes awkwardness. For example, a CEO takes the role of a patient when visiting her physician. All reasons of awkwardness listed above support the use of Goffman's model in understanding the phenomenon: Visible play with devices and gestures causes awkwardness especially when it is clearly observable but also inexplicable for the spectator. In highly surveyed and dangerous areas of the city, the feeling can be amplified by danger of intervention by the people claiming control over the area.

When the reason for strange behavior is obvious and culturally accepted, the embarrassment caused by out of frame action is less significant: In carnivals, such as bachelor and freshman parties, acting against the usual frames is a source of enjoyment. While games can be utilized to defy this social threshold [see 49], it remains powerful and meaningful. Indeed, acting playfully or even ridiculously against social conventions is pleasurable in many in pervasive games [see 31, 38, 41].

Feeling of multiplayer presence is central for mitigating awkwardness, as the ongoing game serves as an alibi for acting against the social frame and thus mitigates social pressure [41]. Maintaining such an alibi in a spatially expanded game requires constant reassurance that others are still playing.

Researching this awkwardness with research playtests is challenging, since they often take place in what Apter [1] calls a serious (*telic*) mindset instead of a playful (*paratelic*) one. As the playtesters are given game equipment, briefed about the game and the research, and the tech support staff tweaks the technology, the study may often impose a serious disposition toward the game. If the players were playing the game spontaneously or out of their own initiative, they would probably approach the experience in a more playful mindset.

Apter's reversal theory states that when people in paratelic mindset get aroused, they experience excitement: For example, the arousal caused by reaching a record score in *Tetris* is highly exciting, while playing on a too easy level is boring. But, according to Apter, the dynamic is reversed for telic activities: Anxiety is caused by an arousing goal-oriented task, people in a telic mindset rather prefer low arousal and relaxation that follows.[6]

This issue of play attitude, rather than details of gameplay or technologies used, is a likely reason for why games such as *PacManhattan* [31] and *Go Game* [38] are enjoyable forms of play, even though the aforementioned studies have found it problematic to take play out of its established cultural slot.

Inspiring a playful attitude is no easy task, as any professional entertainer can tell, and inspiring it depends strongly on cultural factors. As spatially expanded games lack the Huizingan separation of play and ordinary life, they will need to develop and use other methods, possibly such as costumes [10, 31, 35], to inspire and maintain playfulness. One way to cope with the lack of architecture is the physical, bodily behavior: the players tend to gather in groups, facing inwards, and use their own bodies to arrange momentary magic circles for playing [24, 41].

Taking play out of its culturally established place causes tension, which players try to mitigate by establishing their own ad-hoc zones of play. The feelings inspired by that such tension depend largely on the players' stance toward the play activity.

3.2 Limited view on game world

As pervasive play is dispersed spatially, socially, and/or temporally, it is often impossible for a single player to observe the entire game. While this might at first appear problematic, this limited view on the game world seems to often be a highly enjoyable feature. Players seem to enjoy game setups, where their perception of the game world feels limited to a small part of the entire game. Such feeling of limited perception seems to be a thrilling element that

[6] Apter's reversal theory can of course be criticized. Its main ambiguity relates to the concepts of "telic" and "paratelic", and how they relate to, for example, people who genuinely love their work. For such cases, Csíkszentmihályi's [16] flow theory may be more appropriate. Nevertheless, playful attitude (and lack of it) is a central part of game experience.

inspires players to immerse into the game. As long as the players do not know what exactly there is in the game, they do entertain themselves with their own imaginations and assumptions.

A typical way of creating the feeling of a limited view on game world can be done through providing each player an experience of being a small part of a bigger whole. Whether it is about task-division [21], competition [5], team play [21], interdependent tasks [41], or a general feeling of being connected to a game that reaches beyond their immediate senses [8, 10], players seem to enjoy playing small parts in big pervasive games. Especially, the setups combining headquarters and street players have been explored [7, 31, 35, also 8 and 56].

One reason for the enjoyment is that players in such games feel that their actions and successes bear more relevance than it does in a single-player game—a collaborating team or a larger progress of the game depends on player success [see 41]. Another reason is that the game world seems lively and exciting when there is much happening around the individual player, and players feel that they can, but do not have to, explore it all.

Another way of inspiring the feeling of a limited view is through designing for coincidental and emergent play, which has often been reported as enjoyable. Players mistaking outsiders for players often get this kind of strongly memorable experiences; for example some players of *Go Game* [37] and *Prosopopeia* [43] have reported accidental encounters with outsiders among the best parts of the game. Some games have intentionally and successfully fostered such interpretations of non-game related people and places [see 8, 50, 56, cf. also 17].

Reid [50] and Dansey [17] discuss design guidelines for creating games that foster emergence and ambiguity.[7] Reid, for example, proposes that the designers should observe and document incidences in the play area in advance, in order to design play around typical occurrences. Based on earlier research,[8] the coincidental experiences can be classified in three categories, all of which have produced highly enjoyable experiences:

- *Actual coincidences*: players of *Prosopopeia* encountered a random outsider on the graveyard and had a game discussion that turned out to be one of the most appreciated parts of the game. [43]
- *Calculated coincidences*: in one mission of *Prisoner Escape from the Tower*, the player has to look for a virtual tower guard from the area where tower guards usually patrol. Success does not require seeing an actual guard, but it is quite likely that the players do see them in the course of the mission. [50]. Similarly, *Uncle Roy All Around You* told the player to follow the black-haired woman, counting on the likelihood that one is always in vicinity. [8]
- *Fabricated coincidences*: in *Go Game,* the players complete tasks around the town, which often involve outsiders. Sometimes, however, the people pretending to be outsiders are actually informed actors, who "coincidentally" happen to have a helpful stance toward the players [37]. Such fabricated coincidences also increase the likelihood of actual coincidences, as players start to assume that some outsiders are pretenders.

As emergence and coincidences seem to be enjoyable play experiences, it is interesting to note that the instances of emergence seem to never arise from the game technology, but from the social and physical contexts of play. The parts of gameplay that only involve direct manipulation of a mobile device are highly controlled and unlikely to generate coincidences.

When the player does not know where the game ends and where it begins, it is easy to feel and imagine that everything around the player is connected to the game. This "show a little, let them imagine the rest"—strategy resonates with some classic strategies of storytelling. For this particular reason, the horror movies often prefer to show a glimpse of a moving shadow rather than a good view at a horrible monster: Vivid imagination more than makes up for the lack of visual input. Pervasive games can do the same with the game world, by showing a small glimpse but telling that there is much more to be seen. Just like coincidences, this feeling can also be fabricated: *Momentum* game masters used various Internet channels to portray non-player characters, contributing to the feeling of a large and lively game world with many unseen players [56].

The players appreciate the feeling of being small parts of big game worlds, and that a limited perception on the game world and emergent play contribute to such feeling. The feeling is based on perception, instead of the actual fact of the matter.

3.3 Local and global experiences

The experiences produced by pervasive mixed-reality games are tightly connected to the way the local physical, social, and cultural environment is utilized in the play. Based on the games studied, we propose a four-layer categorization on localization levels of location-aware games, based on how they can be distributed.

[7] Here, I discuss coincidentally emerging play experiences. For player cultures and behaviors emerging in long-term play, see [33, 34].

[8] Inspired by Reid [50] especially, who presents a categorization to *natural*, *social,* and *feigned coincidences*.

- *Physical games* require indivisible objects and places to function.[9] They can utilize prepared scenography [8], theatrical costumes and props [10], local augmented reality [25] and custom hardware [43]. These games are difficult to scale and restage, and there is a risk of damage to the physical equipment. Physical games are usually event games.
- *Local games* utilize the particular cultural and geographical context they were made for. Tourist games [e.g. 3, 18] are an excellent example, as they must connect tightly to their environment.
- *Global games* are made to work everywhere as long as the basic wireless infrastructure is present. Global games often work with GPS [26], Bluetooth proximity [48], WLAN proximity [5], or cell positioning (*BotFighters*[10]). Global games tend to be service games.
- *Glocal games* are games that also utilize local surroundings, but their content, gameplay and technology are developed in a flexible manner that allows localization and local content creation. They must be set up and run locally, but that process can be done efficiently, bringing local flair and physical environment to the game [see 9].

The localization level of the game has profound significance for the production, technology, business and play experiences of the game. While physical and local games are very hard to scale for large audiences, global and glocal games usually have to use less predictable and less intuitive[11] technologies, such as GPS, cell positioning, or WLAN positioning. The intuitiveness and the ease of development and production are central causes why it appears that non-professionally created pervasive games are often physical or local (e.g. *geocaching*, *treasure hunts*, *scavenger hunts*, *assassin games* et cetera [see 44 for the games]).

Seamful design [see 13] can be used as a way of dealing with uncertainty caused by unintuitive and unpredictable nature of such technologies. For example, *Treasure*[12] [2, 14] utilizes seamful design through clearly displaying uncertainty to players and utilizing as a game element: Players play with GPS and WLAN, collecting virtual coins by getting close in terms of GPS, and cashing their findings in zones with strong WLAN signal. In the context of *Treasure*, technological ambiguities are as much a part of the activity as blizzards are a part of mountain climbing.

Physical and local games can mitigate the wireless unintuitiveness without seamful design, through drawing upon the precise buildings and cultural contexts instead: *REXplorer* for example deals with GPS shadows and uncertainties through telling player to go to a particular landmark (instead of, say, certain coordinates) and using landmarks for self-reported positioning to confirm the player locations [3]. In a similar fashion, *Prisoner Escape from the Tower* instructs the players to avoid the Yeomen guards, as some of them carry Bluetooth beacons that catch the prisoners in contact. But as Reid [50] discusses, the point of the game is not in avoiding the beacons but in avoiding the guards: Not all guards even carry beacons, but the fear motivates players to avoid them anyway. All ambiguities are interpreted as strokes of luck by the players.

Glocal design seems to be a possible way of circumventing the problems of both global and local designs, offering both tangibility and scalability through localization. The open issue is: How to create global games that manage to exploit local environmental and cultural properties efficiently? The manpower required for localization of glocal games can be cut down through automation and user-created content. Automation can utilize various point of interest databases. User-localized content has not been sufficiently explored, considering the wide success of *geocaching* as a leisure activity.

Combining the localization modes can create powerful experiences (in the fashion of limited views on the game world). The global puzzle game of *Perplex City* concluded in a highly physical treasure hunt in England. While most players only participated online, and a precious few managed to join the physical treasure hunt, the play modes supported each other through added meaning: Online puzzles were given meaning by the actual treasure hidden in the forest, while the forest treasure hunt was a visceral culmination of a game that had lasted for several years. Finally, the stories told by the treasure hunters lived on in the internet, enriching the global game, providing the global player base a mediated experience the physical events. [44, cf. also 41].

The localization level influences the player experiences of pervasive mixed-reality games. Global games often need

[9] This kind of physicality does not correlate with the physical dangers of pervasive mixed-reality games. Instead, the distinguishable physical risk factors include playing in traffic [5, also 11], playing intensively [3], strong motivation to succeed [26], unclear communication between organizers and players [55], staring at the screen while playing [14] and using obstructive AR equipment [25]. One particularly interesting way of lowering the physical risk is designing game mechanics that require players to keep track of physical landmarks [see 3, 14] and other players [see 24].

[10] While the game design and basic technology of *BotFighters* were global, its reliance on mobile operator services made it glocal in practice—it had to be launched separately everywhere.

[11] This unintuitiveness is partially derived from the fact that these technologies and playing with them are relatively new thing for the laymen, and partially from the fact that due to their relative newness, the wireless technologies are prone to ambiguity, malfunction, and unpredictability. Both of these factors are likely to change in the future.

[12] A.k.a. *Bill*.

to deal with un-intuitiveness of wireless technologies through e.g. seamful design, while local games can use local environment for the same task.

4 Methodological implications

While the previous chapter looked into some common game experience findings of pervasive mixed-reality game research, this chapter goes into methodological implications of this research. Again, this chapter is based on interest in gaming activities and hence discusses research methodology for studying game experiences. The primary purpose of staging the prototypes and conducting evaluations has often been something else, e.g. field-testing prototype hardware. This discussion only applies to game research findings.

4.1 Novelty value

It is well established that the new forms of physical gameplay and playing with new technology are fun. Pervasive game playtesters often compliment the novelty of the technology and gameplay [35]. If you give people a novel device and let them toy with it for an hour, they are quite likely to enjoy the experience just because playing with new toys is fun.

Thus, the novelty may cloud the judgement of playtesters: They are unable to provide reliable data on whether this kind of gameplay is enjoyable because it is new or whether the enjoyability derived from the other properties of the game. For example, the testers of *Treasure* found their interest in the game growing during the testing day [2], but half of the *Feeding Yoshi* [5] players found their interest dropping after a few days of play.

Different games approach novelty in different ways: While the playtime for a typical digital game is somewhere between 10 and 100 h, classic games like *chess* and *soccer* run out of novelty long before the player can even start to master them. Basing a game on novelty value works for event games for tourists and theme parks, where short play time and lack of replayability are not problems. In tourist games, the environment itself is the central novelty; thus, location-based games need to utilize the cultural value of the environment (instead of, for example, forcing the users to revisit places for several times [3, 51] or taking the players' attention entirely to the gaming devices).

Nevertheless, the issue of novelty value should be considered in all evaluations of fun in games. As the individual game instances of the longest contemporary service games last for several years (e.g. MMORPGs), it is critical to measure the enjoyability of the games in relation to time. Assessing the long-term viability of a game requires long-term studies.[13] Finding out how pervasive gaming would influence player lifestyles on the long run would require even longer play periods [see 11, 33, 34].

4.2 Studying fun in a serious manner

Some of the prototypes [2, 10, 14, 21, 25] studied have been evaluated in prototype play test settings focused on the evaluation, while others [3, 7, 8, 51, 56] have been evaluated in public trials with "real" and often paying audience.

From the user study perspective, this difference is central. The latter audiences are gathered based on actual interest on the game instead of the research, they expect to receive a technologically stable experience that has been perfected much farther. Compared to the first group, the people of the second group participate in the trials in self-defined groups; they come to play with their friends instead of random participants of the trial.

When trying to gauge whether something is "fun", these differences are critical. Playing with one's friends at a leisurely pace in a festive environment is very different compared to playing with other informants in a clear research setting. While traditional video games are usually play tested in laboratory environments, applying the same methodology on pervasive games is problematic: These games are all about contextual interaction with one's physical and social surroundings. The strong hypothesis is that the exactly same prototype can be experienced very differently, depending on how, where and when it is staged.

4.3 Researching games with immature technology

Games offer a challenging environment for testing new technologies. While an emergency call requires one successful positioning, a pervasive game may require thousands of positions every minute—and with a much better accuracy. Games also place requirements on battery life and robustness of the technology.

The downside is that exploratory prototypes seldom run flawlessly [e.g. 7, 8, 10, 21, 28, 29, 45, 51, 54].[14] Indeed, early prototypes are not even meant to be stable and robust: It

[13] Pervasive game trials running for more than 2 weeks are few. See [56] for a 5-week event-service hybrid, [5] for a month-long service and [29] for a week-long period of a persistent service. In addition to trials, see [11, 33, 34] for studies of player cultures that have evolved over long periods.

[14] These studies discuss or hint at technological problems during evaluations. Many others [such as 43] disregard problems and focus on findings that were likely to be unaffected by glitches. Based on informal discussions with researchers, it should be said that numerous other prototypes could be added to the list. The studies listed here deserve to be commended for pointing out their technological challenges.

is often more sensible to focus on fixing problems as they emerge than on testing the prototype until it runs flawlessly.

From the ludological perspective, the problem is that technology research is often interested in functional aspects of user experiences, while game research is interested in hedonic and emotional gameplay experiences. The frequent breakdowns, disconnections, ambiguities, and glitches are problematic especially when evaluating the latter.

In addition to stopping the play and thus hindering the playful experience, the glitches cause *confusion* in players [6, 8, 29, also 28]. The confusion in turn hinders their efforts on learning to use new technologies and how to play in new way, which can lead to players never playing the game as intended, and quitting the trials short.

The inherent ambiguities make wireless technologies challenging to use even when they function properly, and the distributed nature of pervasive games makes repairs difficult, as the players are not co-located with the tech support staff.

Thus, it can be said that using immature technologies, especially immature hardware, is a risky way of prototyping that should be avoided whenever possible [see 28, also 58]. Of course, immature technologies are sometimes necessary, for example for creating experiences that are genuinely dependent on such technologies.

In order to succeed in the game research evaluation, the designers should always have contingency plans for critical technology malfunctions. For example, the ludological research on *Momentum* was saved by the game designers' two contingency plans for prototype development problems, one to be used in the case where some functionalities were not delivered, and another for almost no prototype technology at all [56].

Stacking too many research questions and technological requirements on one prototype can also make it significantly harder to create proper designs [28]. Requirements can serve as creative constraints, but they can also hinder the designer work considerably.

5 Conclusion

In this paper, I have discussed the research paradigm of pervasive mixed-reality games research, identified a few typical play experience findings of that paradigm, and finally discussed some methodological challenges concerning hedonic play experiences.

The three reoccurring themes identified here—social framing and awkwardness, enjoyability of limited view, and importance of localization level—are just some of the basic themes. Other research questions, largely unanswered by this research paradigm, include for example:

- How do players experience the physical exercise in pervasive mixed-reality games?
- How to design pacing in unpredictable environment?
- What kinds of game challenges do these games present to players, and how to balance them?
- How is story content experienced in spatio-cultural context?

As there are already evaluations from numerous pervasive mixed-reality games, it has become more challenging to make new gameplay observations from small tests. It seems that a more comprehensive understanding of earlier research would have benefited many studies [see also 28], especially when creating hypotheses that would help build a big picture on how people experience these games.

From the ludological viewpoint, the central question is whether to explore new territory, or to find out more about known issues. In the former case, exploration could be more adventurous and take bolder risks through creating something genuinely new, even for tiny evaluation groups. In the latter case, more attention should be paid to identifying the research issues in the context of earlier studies and creating larger trial setups allowing more general results.

At the time of writing of this paper, it would seem that the ludological understanding of these games would benefit the most from an experimental large-scale game created for real customers with a focus on play experiences. A comparable example can be found from alternate reality games, where one exemplar, *The Beast*, gave direction to the entire genre [see 36]. In the field of location-aware gaming, the importance of *BotFighters* [see 11] has been similarly significant.

Having said all this, it needs to be added that the research done in the HCI paradigm is also immensely valuable for the development of pervasive mixed-reality games. For instance, various studies discuss how to design around technological problems [e.g. 2, 6, 7, 25], which is pivotal for developing successful games. All pervasive mixed-reality games benefit greatly from the new engineering innovations, as well as from the thorough understanding of the relevant technologies.

Acknowledgments This paper was written at Nokia Research Center. I want to thank the entire User Experience and Design team for their help—especially Hannu Korhonen, Juha Arrasvuori and Jussi Holopainen. Further thanks to Barbara Grüter, Johanna Koljonen, Annakaisa Kultima, Frans Mäyrä, Jaakko Stenros and Annika Waern for comments and discussions.

References

1. Apter MJ (1991) A structural-phenomenology of play. In: Kerr JH, Apter MJ (eds) Adult play. A reversal theory approach. Swets & Zeitlinger, Amsterdam
2. Barkhuus L, Chalmers M, Tennent P, Hall M, Bell M, Sherwood S, Brown B (2005) Picking pockets on the lawn: the development

of tactics and strategies in a mobile game. In: Lecture Notes in Computer Science 3660
3. Ballagas R, Kuntze A, Walz SP (2008) Gaming tourism: lessons from evaluating REXplorer, a pervasive game for tourists. doi: 10.1007/978-3-540-79576-6_15
4. Bateson G (1955) A theory of play and fantasy. In: Salen K, Zimmerman E (eds) The game design reader. A rules of play anthology. The MIT Press, Massachusetts
5. Bell M, Chalmers M, Barkhuus L, Hall M, Sherwood S, Tennent P, Brown B, Rowland D, Benford S, Capra M, Hampshire A (2006) Interweaving mobile games with everyday life. doi: 10.1145/1124772.1124835
6. Benford S, Rowland D, Flintham M, Drozd A, Hull R, Reid J, Morrison J, Facer K (2005) Life on the edge: supporting collaboration in location-based experiences. doi:10.1145/1054972.1055072
7. Benford S, Crabtree A, Flintham M, Drozd A, Anastasi R, Paxton M, Tandavanitj N, Adams M, Row-Farr J (2006) Can you see me now? In: ACM transactions on computer-human interaction, vol 13, no 1, pp 100–133
8. Benford S, Crabtree A, Reeves S, Flintham M, Drozd A, Sheridan J, Dix A (2006) The frame of the game: blurring the boundary between fiction and reality in mobile experiences. doi:10.1145/1124772.1124836
9. Bichard J, Brunnberg L, Combetto M, Gustafsson A, Juhlin O (2006) Backseat playgrounds: pervasive storytelling in vast location based games. doi:10.1007/11872320_14
10. Bichard J, Waern A (2008) Pervasive play, immersion and story: designing interference. doi:10.1145/1413634.1413642
11. Bjerver M (2006) Player behaviour in pervasive games—using the city as game board in botfighters. Master's Thesis, Royal Institute of Technology, Stockholm
12. Björk S, Falk J, Hansson R, Ljungstrand P (2001) Pirates! using the physical world as a game board. doi:10.1007/978-3-7643-8415-9_91
13. Chalmers M, MacColl I (2003) Seamful and seamless design in ubiquitous computing. In: proceedings of workshop at the crossroads: the interaction of HCI and systems issues in UbiComp
14. Chalmers M, Bell M, Brown B, Hall M, Sherwood S, Tennent P (2005) Gaming on the edge: using seams in pervasive games. doi: 10.1145/1178477.1178533
15. Cheok AD, Fong SW, Goh KH, Yang X, Liu W, Farzbiz F (2003) Human pacman: a sensing-based mobile entertainment system with ubiquitous computing and tangible interaction. doi: 10.1145/963900.963911
16. Csíkszentmihályi M (1975) Beyond boredom and anxiety. The experience of play in work and games. Jossey-Bass Publishers, San Francisco
17. Dansey N (2008) Facilitating apophenia to augment the experience of pervasive games. In: breaking the magic circle seminar. University of Tampere, April 2008
18. Ericsson M (2003) Enchanting reality: a vision of big experiences on small platforms. In: Copier M, Raessens J (eds) Level up. Digital games research conference 4–6 November 2003 proceedings. Universiteit Utrecht, Utrecht
19. Facer K, Joiner R, Stanton D, Reid J, Hull R, Kirk D (2004) Savannah: mobile gaming and learning? In Journal of Computer Assisted Learning 20. Blackwell
20. Fischer JE, Lindt I, Stenros J (2006) Final crossmedia report (part 2): epidemic menace II evaluation report. IPerG deliverable D8.8. http://www.pervasive-gaming.org/press1.php
21. Fischer JE, Lindt I, Stenros J (2007) Evaluation of crossmedia gaming experiences in epidemic menace. In Magerkurth C et al. (eds) Proceedings of the 4th international symposium on pervasive gaming applications
22. Goffman E (1961) Encounters: two studies in the sociology of interaction. Bobbs-Merrill, Indianapolis
23. Goffman E (1974) Frame analysis. An essay on the organization of experience. Northeastern University Press, Boston
24. Grüter B, Oks M (2007) Situated play and mobile gaming. In: Baba A (ed) Proceedings of DiGRA 2007 situated play conference
25. Herbst I, Braun AK, McCall R, Broll W (2008) TimeWarp: interactive time travel with a mobile mixed reality game. doi: 10.1145/1409240.1409266
26. Hielscher J, Heitlager J (2006) Wanderer—location independent GPS game. In: Proceedings of the 3rd international workshop on pervasive gaming applications. http://www.ipsi.fraunhofer.de/ambiente/pergames2006/final/PG_Hielscher_Wanderer.pdf, pp 55–60
27. Huizinga J (1938) Homo Ludens. Versuch einer Bestimmung des Spielelements der Kultur. Ref. English translation (1955) Homo Ludens. A study of play element in culture. Beacon Press, Boston
28. Koivisto EMI, Ollila M (2006) How to fail: mobile game design in a research project involving software prototype development. In Game Design & Technology Workshop '06
29. Korhonen H, Saarenpää H (2008) Mythical mobile evaluation report. IPerG Deliverable D13.5. http://www.pervasive-gaming.org/press1.php
30. Lankoski P, Heliö S, Nummela J, Lahti J, Mäyrä F, Ermi L (2004) A case study in pervasive game design: the songs of north. doi:10.1145/1028014.1028083
31. Lantz F (2009) PacManhattan. In: Montola M, Stenros J, Waern A (eds) Pervasive games: theory and design. Morgan Kaufmann, Burlington
32. Lastowka G (2007) Rules of play. Ref. draft dated October 16, 2007
33. Licoppe C, Inada Y (2005) Emergent uses of a multiplayer location-aware mobile game: the interactional consequences of mediated encounters. In: http://www.parishine.com/FTreport/mobile/ppt/SpeakersPapers.pdf
34. Licoppe C, Inada Y (2008) Geolocalized technologies, location-aware communities, and personal territories: The Mogi case. doi: 10.1080/10630730802677905
35. Lindt I, Ohlenburg J, Pankoke-Babatz U, Ghellal S (2007) A report on the crossmedia game epidemic menace. ACM Computers in Entertainment, vol 5. No. 1, Article 8
36. Martin A, Thompson B, Chatfield T (eds) (2006) Alternate reality games white paper. IGDA. http://igda.org/arg/whitepaper
37. McGonigal J (2003) A real little game: the pinocchio effect in pervasive play. In DiGRA 2003 conference. http://www.digra.org/dl/db/05097.11067.pdf
38. McGonigal J (2006) This might be a game: ubiquitous play and performance at the turn of the 21st century. Dissertation, University of California
39. Milgram P, Kishino F (1994) A taxonomy of mixed reality visual displays. In IEICE transactions on information systems, vol E77-D, No. 12 (Dec 1994). http://vered.rose.utoronto.ca/people/paul_dir/IEICE94/ieice.html
40. Montola M (2005) Exploring the edge of the magic circle. Defining pervasive games. DAC 2005 conference, December 1–3. IT University of Copenhagen
41. Montola M (2007) Tangible pleasures of pervasive role-playing. In: Baba A (ed) Proceedings of DiGRA 2007 situated play conference. September 24–28. The University of Tokyo, Tokyo, pp 178–185
42. Montola M (2009) Games and pervasive games. In: Montola M, Stenros J, Waern A (eds) Pervasive games: theory and design. Morgan Kaufmann, Burlington
43. Montola M, Jonsson S (2006) Playing on the edge of reality. In: Frizon T, Wrigstad, T (eds) Role, play, art. Collected experiences

of role-playing. Föreningen Knutpunkt, Stockholm. http://jeepen.org/kpbook, pp 85–99
44. Montola M, Stenros J, Waern A (2009) Pervasive games: theory and design. Morgan Kaufmann
45. Montola M, Waern A (2005) Prosopopeia evaluation report. IPerG Deliverable D11.4 (unpublished)
46. Mäyrä F (2008) An Introduction to Game Studies. Games in Culture, Sage, London
47. Nieuwdorp E (2007) The pervasive discourse: an analysis. In ACM computers in entertainment, vol 5, no. 2
48. Peitz J, Björk S, Saarenpää H (2007) Insectopia: exploring pervasive games through technology already pervasively available. doi:10.1145/1255047.1255069
49. Poremba C (2007) Critical potential on the brink of the magic circle. In: Baba A (ed) Proceedings of DiGRA 2007 situated play conference. September 24–28. The University of Tokyo, Tokyo, pp 772–778
50. Reid J (2008) Designing for coincidence. Incorporating real world artifacts in location-based games. doi:10.1145/1413634.1413643
51. Reid J, Clayton B, Melamed T, Hull R, Stenton P, Peirce A, Gidlow C, Holmes S (2008) The design of prisoner escape from the tower: An Interactive location aware historical game. In Tate's 2008 Handheld Conference. http://tatehandheldconference.pbwiki.com/Escape+from+the+Tower
52. Salen K, Zimmerman E (2004) The rules of play. Game design fundamentals. MIT Press, Massachusetts
53. Schneider J, Kortuem G (2001) How to host a pervasive game: supporting face-to-face interactions in live-action roleplaying. Ubicomp 2001, Atlanta
54. Stenros J, Montola M, Waern A (2007) Post mortem interaction. social play modes in momentum. In: Donnis J, Gade M, Thorup L (eds) Lifelike. Knudepunkt 2007, Copenhagen, pp 131–145
55. Stenros J, Montola M, Waern A, Jonsson S (2007) Momentum Evaluation Report. IPerG Deliverable D11.8C. http://www.pervasive-gaming.org/press1.php
56. Stenros J, Montola M, Waern A, Jonsson S (2007) Play it for real. Sustained seamless life/game merger in momentum. In: Baba A (ed) Proceedings of DiGRA 2007 situated play conference. September 24–28. The University of Tokyo, pp 121–129
57. Suits B (1990) Construction of a definition. In: Salen K, Zimmerman E (eds) The game design reader. A rules of play anthology. The MIT Press, Massachusetts
58. Waern A (2009) Information technology in pervasive games. In: Montola M, Stenros J, Waern A (eds) Pervasive games: theory and design. Morgan Kaufmann, Burlington
59. Walz SP (2007) Pervasive Persuasive Play: Rhetorical Game Design for the Ubicomp World. In: Fogg BJ, Eckles D (eds) Mobile persuasion: 20 Perspectives on the future of behavior change. Stanford Captology Press, Palo Alto, pp 101–108
60. Wetzel R, Lindt I, Waern A, Jonsson S (2008) The magic lens box: simplifying the development of mixed reality games. doi:10.1145/1413634.1413719

Prosopopeia: Experiences from a Pervasive Larp

Staffan Jonsson
Swedish Institute of Computer Science
Box 1263
SE-164 29 Kista
+46-8-6331500
staffanj@sics.se

Markus Montola
Hypermedia Laboratory
University of Tampere
FI-33014 Tampere
+358 44 544 2445
markus.montola@uta.fi

Annika Waern
Swedish Institute of Computer Science
Box 1263
SE-164 29 Kista
+46-8-6331618
annika@sics.se

Martin Ericsson
Interactive Institute
Box 24081
104 50 Stockholm
+46-8-7832450
martine@tii.se

ABSTRACT
Live action role playing, *Larp*, is a play genre that so far has received little attention from the game studies community. However, the Live action role playing community is perhaps the most interesting role play community of all in its intense focus on role-taking, improvisation, and immersion. Furthermore, Larping has been extensively used for serious purposes, both for crisis training and psychological treatment.

In this paper, we focus on *Pervasive Larp*, Larp events that are staged in the real world and where both the people and the objects of the real world have a direct role in the game. This is a relatively novel variant of Larping, which poses higher demands on technology support than traditional Larps. We report on the experiences from designing and staging *Prosopopeia*, a pervasive Larp event based on an alternate reality aesthetics. In this game, every design choice was informed by the wish to keep the game as close to reality as possible. We conclude that the approach is indeed both possible and promising, and identify some suggestions for improvements.

Categories and Subject Descriptors
K.8.0 [**Personal Computing**]: General – Games

General Terms
Design, Experimentation, Human Factors.

Keywords
Pervasive Game, Pervasive Computing, Alternate Reality Game, Live Role Play.

1. INTRODUCTION
Live action role playing, *Larp*, is a play genre that so far has received little attention from the game studies community. The primary reason for this is that these games are not computer games. In addition, contemporary Larping is primarily a hobbyist activity, played in closed areas with little or no technology at all.

This might be a mistake, as the Larp community consists of dedicated and highly skilled role players. Studying Larp is a useful way to understand how computer-based role playing can be extended and enhanced. In addition, there are numerous examples of serious usages of Larping, for psychological treatment, management or crisis training.

A domain of special interest is that of pervasive Larp, Larps that are played over vast areas and integrated with ordinary life. This form has great potential for both more casual forms of role-play as well as for serious applications. It also poses high demands on technology support. We have previously discussed the general requirements on technology support for pervasive Larp [18]. In this article, we discuss a specific design approach to pervasive Larp which we call *Alternate Reality* Larp. These games are designed to blend seamlessly into the real world in every detail, including the choice of locations, technology and other props, the story line and the model for role playing. We describe the experiences from designing and staging one such Larp event, and conclude that it is a promising genre but that also needs further development.

2. BACKGROUND
2.1 Larp
Modern Larp for leisure and entertainment (Larp) stems from two origins. One origin is the tradition of reenactment groups focusing on the study and recreation of historical events or specific time periods. The other origin can be traced to tabletop role-playing games. In the early eighties some groups of players, influenced by improvised theatre, started to perform their adventures in 'real life', thereby inventing the modern form of 'Live Action Role Playing' or Larp. The development of modern roleplaying activities has been very rapid. What started as a sub-culture played in Tolkienistic world of fantasy, modern Larp culture includes contemporary and modern history Larp, conceptual Larp (where the focus lies a emotion or moral dilemma, rather than on reenactment) and improvisational theatre. Merging with the earlier tradition of psychodrama [3], Nordic Larp is also rapidly transforming into a form of educational gaming, used in particular in youth schools.

Although Larping is in some ways similar to other forms of role play (such as online role-play), Larp places the adoption of a role as the genre's central focus: in Larp, the primary enjoyment comes from acting and thinking like somebody else. In comparison to table-top role-playing, much more of the game

http://dx.doi.org/10.1145/1178823.1178850

experience is created by the players themselves and their ability to act out their role.

Role-players [5,15] have provided useful analyses of role-playing styles designers and players strive for in Larp. *Dramatist* Larp values the way the game action creates satisfying storylines. *Gamist* Larp focuses on setting up a fair challenge for the players. Finally, *simulationist* and *immersionist* styles focus on resolving game events based solely on game-world considerations with somewhat different foci, immersionism having a particular focus on character play. The distinction of these playing styles was originally born from the hobbyists' observation that different players preferred strongly different playing styles, and these preferences need to be addressed in the design. In the normative player debates especially immersionism and gamism have often been considered as opposing playing styles, since "playing to win" has often interfered with an immersionist approach.

2.2 Pervasive Gaming

The term 'Pervasive Games' is typically used to denote games that use computer or internet technology to blend virtual game experiences with game experiences in the physical world. In previous work [10,12] we have also used the term to denote games that take place in the ordinary world and where gaming and real life blend in interesting ways.

Our approach originates in Huizinga's classic analysis of play activity as a *voluntary* and *needless* activity [4]. Huizinga identified a set of properties of playing that are necessary for play to be perceived as such by the players: Play is *self-sufficient* in the sense that it is satisfying in itself and that the activity ends when that satisfaction has been reached, it is *set apart from ordinary life* both in locality and duration – it is played out within given limits of time and space. Finally, since play is governed by rules and challenges that are different from those of ordinary life, *the participants must agree* that the activities within the 'circle' are interpreted playfully as a part of the game, and not as part of ordinary life. Salen and Zimmerman use Huizinga's concept of play as their base for defining a concept of a 'magic circle of gameplay' [16].

Pervasive games are not organised this way. Pervasive games are *expanded spatially, temporally and/or socially*. They are typically played in physically unrestricted or undefined areas, where players constantly run across non-players that may be unaware of the ongoing game. Pervasive games enrich physical game space with virtual content (or vice versa, virtual spaces are adapted to physical phenomena), creating an enchanted space with unknown properties. Pervasive games stretch over time, blending game activities with everyday activities. The perhaps most controversial feature of pervasive games is that they can blur the distinction between players and non-players [13]. When players encounter people on the streets, they are often unsure of who is part of the game and who is not, and the game can offer roles to by-standers, of which they may only be partially aware.

The currently most well developed subgenre of pervasive games is the Alternate Reality Game (ARG) genre [7,8,17]. These are games that are based on hidden clues in the everyday world. Alternate reality games typically use a range of media technology to create the impression that the game content is 'real', and often include real-life events that the players can visit. The perhaps most well-known example is *The A.I. Game* [7] which initially made itself known to the players through a credit text in a movie trailer. The primary media for this game was a host of fake web sites, which contained clear indications that the content was realistic, but in fact fake and part of a riddle-based quest. Once players had found their way into the game, they could also be contacted in numerous ways, including email and postal mail.

3. PERVASIVE LARP

Whereas Larps traditionally are played in closed and heavily propped locations, recent years have seen examples of Larp set in the urban landscape [19]. Especially the World of Darkness campaigns have been taken to cityscape. But so far, city-based Larps have not sought to heavily interact with the surrounding world. The games are limited to their players – if the bartender is not wearing a sign of participation, he is treated like scenery.

As noted by Talvitie [19], pervasive Larps face a set of new challenges. These are closely related to the fact that pervasive Larps play on an expanded 'magic circle'. The first consideration in [19] concerns the reactions of surrounding people. The author recommends a 'hidden' approach, where the game remains unknown to non-players. This has been the normative approach of pervasive Larp to date, as is clear from the World of Darkness example, but as discussed in [13], pervasive games open up a host of options for interacting with non-players.

Players also need to be able to, at any point in time, get in contact with the game masters. The obvious solution is to make them bring a mobile phone. This is however not always desirable from the game design perspective, as a call to the game masters often will break the illusion and force the players to act out of character.

Game mastering is more important in pervasive larp than in ordinary Larp. Montola [9] argues that role-playing games can be designed to be chaotic or orderly. In pervasive Larp, in particular if we aim for full immersion in the ARG style, anything may be interpreted as game-related. This makes for an extremely chaotic event structure where basically anything in the environment can influence the players' image of what is the game and what is not. In order to give any sense to the experience, there is a need for strong integrative techniques. As demonstrated by decades of tabletop role-playing, live game mastering is one of the most powerful options available. One of the strongest reasons why pervasive Larp benefit from technological support is that there is a need for tools that enable the game masters to stay informed about player activities and influence them while the game is running.

Talvitie also brings up the simple fact that pervasive Larps are typically played in large areas where players both must find their way and also be able to get about. There is a significant risk that players get lost, in particular when a game is staged in an unknown city or part of a city. This was a major concern for the Blast Theory city-based game *Uncle Roy All Around You* [1], which required a large number of support personnel with the sole role of keeping track of where players were as they were playing the game. Again, this points towards the need for game masters to be able to supervise player activities.

Finally, Talvitie points towards the importance of selecting the right locations for different player activities. Again, he is primarily concerned with the issue of bystanders and their reactions to the gaming activity, but also about the safety for

players. As we will see from the *Prosopopeia* example, the choice of locations is central for the immersive effects in pervasive Larp; the well-chosen location will affect the mood and play style to fit the emotional and narrative content of the localized event.

4. PROSOPOPEIA

Prosopopeia [11] is a pervasive Larp series developed within IPerG[1] A first game design was staged in Stockholm in June 2005, with twelve players (eight men and four women) lasting for 52 continuous hours. The artistic orchestration was lead by Martin Ericsson, Staffan Jonsson and Adriana Skarped, while the technical and practical production was done in collaboration with IPerG project.[2] A sequel is currently being developed, to be staged in the fall of 2006.

The aim of *Prosopopeia* is to create a proof of concept for a pervasive Larp. The game structure builds upon and extends previous experiences from city-based Larp and pervasive gaming.

4.1 Storyline

Prosopopeia Bardo 1: Där vi föll[3] centered around a ghost story. The players played characters of authentic but now dead people who shared a common background: they had all been friends of a central character a woman now lost between life and death for unknown reasons. She had become a ghost, trapped between our world and the world beyond. As the game progressed, the players gradually understood that the reason was deeply connected to their characters, who all had wronged her in different ways.

For the players, the experience started by a late night phone call, where a strange distorted voice gave them instructions to visit a new age festival. While visiting the festival (which proved to be a real festival where nothing game-related happened) the players' phones rang again. This time the message was only a melody. This tune lead the players to identify a person at the festival playing the same tune on a portable record player, who in turn supplied them with a key to a public locker. This locker finally contained the introduction material to the game: files on 12 deceased persons, one character for each player.

This first event took place ten days in advance of the actual event. In the time between, the players were encouraged to read up on the background story and they were also contacted in by phone, and postal mail. Eventually, they received a synchronized phone call that called them to meet up in a particular place late at night. At this place, they were met by the archetypical mad scientist who hooked them up to a 'Burton bridge', a fictional device similar to some of the parapsychological devices built during the seventies to communicate with ghosts. Through this device, they were told, the ghosts of the dead characters would be able to possess them. p

After this event, the game was on: for 52 hours the players followed the trail of a previous failed agent Adam, discovering his hideouts in this world, finding and scanning through piles of old documents, hacking computers for encryption keys, running from guards and stealing their ghost communication equipment, and in general trying to solve their friend's death. The journey took them all the way from the modern, high tech suburb of Kista to rundown parts of the town; they visited cemeteries, factory ruins and rusty dock areas. Eventually they found the ghost haunting an abandoned mental hospital, traumatized by abuse after being locked in as a mental patient, when she in fact had been a gifted medium. As the player characters all had had part in her undoing, their efforts to find her and talk to her made her able to eventually let go, forgive, and pass to the world beyond. The game ended back in the original location, where the spirits were channeled out of the hosts.

5. An Alternate Reality Larp

The design of *Prosopopeia* was extremely consistent in its use of an alternate reality aesthetics. All the way through the choice of storyline and characters, the choice of locations and propping, the use of technology in disguise, and the model for role taking, the design was informed by the wish to make the game blend as seamlessly as possible into the ordinary world and the everyday activities of the players. In this section, we will briefly outline some of the central design decisions that made *Prosopopeia* an 'Alternate Reality Larp', to our knowledge the first of its kind.

5.1 The Prosopopeia Proposal

The introduction into *Prosopopeia* broke several standard rules for how Larp players are used to approach a game event. When signing up for the game, the players were directed to a web site which contained a very short introduction to the game, ending with a very simple instruction that read

> *"You should now do all you can to forget about this project until it contacts you again. This is the only time the game will be presented as such. From now on everything is real".*

This 'Prosopopeia proposal', the request to *play as if it was real*, was the only instruction the players got outside of the game. At the point in time when they accepted this request, the players had not been provided with any information about the story line of the game, the mode of game play, or the characters they were to assume. As described in the previous section, all such information was supplied 'in game', as part of the preparatory ARG phase of the event. The typical elements of Larp preparations were absent; the players were not asked to prepare their character, create any costumes, or make contacts with the other in-game characters. The only additional information the players had was that they had been recruited to a Larp event, and that the game could enter their lives at any time.

The border of game and ordinary was blurred also in the fashion the game background was constructed. In particular, the 'ghost' characters that the players were assigned were based on authentic dead people. This enabled the players to look up significant information about their characters on the web. Many elements in the fictional story were also adapted to or inspired by the historical backgrounds of these characters, which in effect meant that many important game events had already happened for real before the game began.

---

[1] Integrated Project on Pervasive Gaming, www.pervasive-gaming.org.

[2] Full credits: Martin Ericsson (lead design), Staffan Jonsson (production), Adriana Skarped (characters), Holger Jacobsson, Linus Andersson and Emil Boss (writing), Jonas Söderberg (sounds), Karl-Petter Åkesson and Pär Hansson (electronics, surveillance, wireless), and Martin Lanner, Johan Eriksson and Henrik Esbjörnsson (production assistants).

[3] *Prosopopeia Part 1: Where We Fell*

5.2 The Dramaturgy of Space

Prosopopeia was a spatially expanded game [10,12]. It was played in unforeseen areas, and as the players moved around and communicated with the (hidden) game masters, the game articulated these areas into the game.

In a city Larp such as *Prosopopeia* it is impossible to create scenography for the whole gaming area. The approach was instead to prop selected locations, where central scenes were to take place – the rest of the area was used as is.

In line with the ARG aesthetics of the game, the propped locations were selected to represent themselves. For example, the new age festival that the players visited during the preparatory phase was a real and very large new age festival. The possession scene was played out in SICS premises, which were portrayed as being exactly that. This propping style is called indexical propping [6].[4] The design intention was to enable the players to see each place and each prop in exactly the way it would look to an outsider, while player could recontextualise the observation within the game context. The intended effect to create a feeling where everything is prop and thus nothing is prop. One of the core themes of *Prosopopeia* was to encourage players to look at their everyday environment from a new perspective, finding game clues where none existed and interacting with ordinary world in a game-inspired, free fashion.

The use of indexicality in the cityscape allowed *Prosopopeia* interesting opportunities in designing the dramaturgy and the aesthetic of the space used in the game. Discovery and exploration were central themes. Many of the events in *Prosopopeia* took place in desolate urban areas, offering the players a tour into the blind spots of urban landscape. This aesthetic was borrowed from the urban exploration movement [14], for purposes of both adding dramatic tension to the gaming areas, and offering tangible physical action in cityscape. While an ordinary Larp design transforms a private place into a gaming area by the use of scenography, *Prosopopeia* looked for semi-public locations in the urban landscape that already suited the design of the game.

Urban exploration is often done in areas where an ordinary person is not allowed to go, and doing so may require avoiding security guards. *Prosopopeia* exploited this tension related to the forbidden feeling of these areas by introducing game master security guards patrolling some of these areas; for instance the players were expected to sneak into the mental asylum. Even though entering the asylum was legal – since it was rented for the game – the entering was given the tension of trespassing by the introduction of the in-game guard patrol.

5.3 The Possession Model of Role-Taking

One central idea put to test in *Prosopopeia* was a model for role-taking that enabled players to seamlessly alternate between acting as themselves and acting in character. Again, this was a necessary

requirement in order to achieve the seamless integration of the game with ordinary life: How else can you play a Larp in a city, when you at any time can meet somebody you know?

In *Prosopopeia* the players did not role-play characters, but acted as *themselves possessed by the ghost characters*. During the main event, the players had at any time the choice of playing themselves (the 'host', as the role was called within the game context), or as the possessing spirits. Furthermore, in order to succeed in the game, the players had to combine the knowledge and abilities from both roles. The possession model was expected to eliminate the players' need to step outside the game; whenever the game would excessively disturb the ordinary life, the player could quit playing the ghost and revert to playing himself within the game context.

5.4 Temporal Expansion

Prosopopeia merged 'in-game' time with non-playing time in several fashions. Most of this blending occurred before the main event, but through the use of the possession model game time became mixed with ordinary life also during the main phase.

During the preparatory phase the game was in a state of dormancy: players continued with their ordinary life activities expecting that the game could contact them at any time. The players were expected to remember the Prosopopeia proposal if something unexpected happened. When the dedicated game time started, the players were supposed to be ready to become possessed by the ghosts, and actively engage with the game

5.5 Interaction with Outsiders

Prosopopeia broke the limits of traditional games socially, by including outsiders into the game in several ways. Although this approach has been experimented in previous pervasive games [1,17], this is very unusual and also poses particular challenges in Larp [13].

The game used a combination of outsider involvement that has been used before in particular in *Uncle Roy All Around You* [1]. Some people were actively recruited to play outsider roles – the chief example of this was the guard team. Some outsiders that were recruited for minor tasks were themselves. For example, one person met up with the player team in the middle of the night to give them the key to a boat in a run-down harbour in central Stockholm.

[4] The alternatives to indexical propping are iconic propping and symbolic propping [6]. In a basic Peircean fashion iconic prop represents something similar and symbolic prop represents something symbolically connected. For example a plastic gun might be an icon of a metal gun, or a paper slip saying "gun" might be a symbol of a gun.

The players were also on several occasions encouraged to gather information from complete outsiders who were not aware of the game. In particular, each character in the game was also given a mission that involved interacting with bystanders. For example, one of the possessing spirits had regrets about the fact that he had abused homeless people when he was alive. He wanted to redeem this by sheltering a homeless person for a night. As the players were playing according to the possession model of role-taking, it was left to their discretion to what extent they actually carried these missions through.

6. GAME MASTERING

In order to perform runtime game mastering, three things are needed: a system for tracking and monitoring player activities and the events in their vicinity, a processing system which helps the game masters keep track of the input information and construct an overall picture of the ongoing event, and an actuating system which enables them to influence player activity. In tabletop role-playing and in very small Larps in closed spaces, all these three functions can be trivially performed by a small team of game masters present on location. By comparison, game mastering a pervasive Larp like *Prosopopeia* requires considerable technological support. Furthermore, both the surveillance and the actuation needs to be done either invisibly or within the narrative context of the game.

In *Prosopopeia*, surveillance was primarily accomplished through off-the-shelf equipment and direct monitoring. Web cameras were mounted in the most important game locations. Actuation was done primarily through direct interaction with the players through various communication channels, including SMS, recorded ghost phone calls, ICQ on a propped computer within the living quarters, and most notably the EVP machine discussed below.

6.1 The Role of Technology

One important aspect of the use of technology in pervasive Larp is that it must be disguised to fit into the narrative context of the game. In *Prosopopeia*, two pieces of technical equipment were built for this purpose. The most important was the 'EVP machine', an old reel-to-reel tape recorder which was rigged with a cellular phone connected to a ghost voice synthesizer to work as a communication channel to the 'spirit world'. The EVP machine is a good example of the principle of 'technology in disguise". It was designed to look and work like the recorders used by the parapsychologists of the seventies to record ghost messages. The EVP machine was portable (or rather, draggable), and on several occasions the player carried this device to different places around the city to communicate with the local ghosts. As the EVP machine was 'bugged', a microphone was mounted inside it that enabled the game masters to continuously listen in to the players' activities around the EVP, the machine provided a means for surveillance when the players were moving around outside of the main locations.

The second piece of technology in disguise was the 'Burton bridge'. The Burton bridge was used in the initial scene, when the players were possessed by the ghosts, and for the depossession scene. The players were instructed to lay down on the floor and listen to the sound played in head phones. The phones were connected to a strange-looking device rigged inside a large suitcase. The actual technology used consisted of a set of cheap

MP3 players that had been connected to a common off/on and volume control, so that all of the sound channels were synchronized.

7. EVALUATION

The *Prosopopeia* event has been extensively evaluated and the results of these evaluations inform how the game will be changed for the next event. In this section, we summarize the results of the evaluation.

7.1 Evaluation Method

The evaluation used a combination of quantitative and qualitative. As the evaluation was primarily a means to inform the second *Prosopopeia* game, the most important information was however gathered through qualitative means, in particular the very detailed feedback that the players' offered in their responses to the on-line survey. In the following sections, all quotes are taken from these surveys unless explicitly stated otherwise.

The following methods were used.

- During the event, the gamers were observed through video surveillance, and most of the communication between the players and the game masters, such as ICQ chats and email communication was recorded.
- A wrap up session was arranged immediately after the end of the event (this happened in the middle of the night).
- A follow-up questionnaire was distributed on-line. Of the twelve participants, ten persons (four women and six men) handed in the online questionnaire.
- One participant in the game was asked to take notes of the entire event in-game, and produced a kind of an 'ethnographic report' from the player perspective.
- Ethnographic observation and direct interviews with the game masters during the actual event.

Follow-up interviews and discussions with game masters and participants provided additional feedback.

7.2 Alternate Reality Aesthetics

All *Prosopopeia* players appreciated the alternate reality aesthetics elements, and considered them some of the best aspects in the game. In the oral debrief there was also a consensus

agreeing on the opportunities of these methods in the future game designs.

> "When we came to Electrum it was hard to know how much was play and how much was as if this would happen to us for real. I very much liked the idea of this happening to us for real which also made it very easy to play."

> "this I think is the best part, where you have no way of knowing if a person or experience is created with intent or not."

The value of the alternate reality aesthetics lies in the small coincidences with the real life that often spring up accidentally as the players interact with their environment.

> "It was especially interesting that on our way to meet the police ghosts, we got stopped by the real police. That gave that interesting feeling of signs being there, that the organizers couldn't have been planting."

Ericsson [2] argues that a Larp set in the real world should strive for maximal consistency between the game narrative and the complete experience of the player. The *Prosopopeia* informants seem to agree.

7.3 Social Expansion

Social expansion was one of the most controversial elements of the game. Most players valued this highly: of the ten participants that answered the questionnaire, six agreed completely with the statement 'It was fun and intriguing to play among people who were not themselves in the game". However, two participants disagreed with the statement, one partially and one totally.

Especially the ambiguity regarding to what extent other people were acting was a source of excitement. One player provided the following comment to the question 'how did it feel to interact with a person who was himself or herself, and yet had access to information and a role in the game?':

> "This was the best of it all! I would have liked us to be more like this as well. It would have been great to see how we would have handled it if would have accepted more of ourselves at the same time as we were obsessed. I very much liked the game being on the edge of being for real. I also thought all these people that we met handled it so well."

Players were also mixed on their opinions on whether they actually wanted to interact with people outside the game. Four players totally agreed with the statement 'I liked that the game forced us to make contact with people outside the game', whereas three players disagreed totally. Some players deliberately sought social expansion.

> "I spoke with some junkies about [two game master characters], hoping for some in-depth conversation as my character. Unfortunately, they where all in a hurry and did not want to talk, only sell some drugs."

7.4 Role-taking

As expected, the possession model of role-taking proved useful in order to deal with non-game contacts with friends during the game event.

> "When picking up stuff and printing some files at home, I put [my ghost-character] way back and just met with my flatmates as I do normally..."

The most serious non-game interactions were handled in an off-game fashion, even in the interaction with the other players. This would indicate that even when role-playing the 'player' instead of the 'ghost', some events cannot be handled as part of the game.

> "The first time I was only myself in front of the others was when I got a phone call regarding my dad who had been sent to hospital."

As benefits of the possession model, the players said that the outside interferences (though they disturbed character immersion) did not disturb the game but contributed to it.

> "One big advantage is that it doesn't feel 'wrong' to go out of character when you need to do something private, like removing your contact lenses or whatever. It's just the vessel 'taking over', and that works fine. Same thing with knowledge that I possess that the spirit doesn't. It also opens up interesting viewpoints on identity and acting."

> "You always have "off-thoughts", and it can be disturbing. But in this game it was OK since you were two souls in one body."

It can be concluded that the possession model is a good solution to many challenges of socially expanded Larping. However it is not a generic solution, since it is intervowen into the *Prosopopeia* metaphysics. As an example, its pros and cons provide valuable input into the creation of other role-taking models.

7.5 Gamist, Narrativist & Immersionist Play

Prosopopeia was designed to provide a combination of gamist, narrativist and immersionist play. This structure, where players are expected to solve gamist puzzles in character as a part of a fairly linear narrative, was chosen since it might suit a commercial, mass-marketed Larp-like pervasive game. The gamist orientation is easily adopted by new players, a narrativist orientation guarantees a certain experience for all the players, whereas the immersionist play is likely to appeal to the traditional Larper.

However, many players considered character immersion in *Prosopopeia* particularly challenging. The following factors contributed to the difficulty of ghost character immersion.

- *The problems and puzzles presented by the main story required player skills rather than ghost characters skills.* When communicating on the ICQ or manipulating the computer, the players relied on their real-life skills and not on those of the ghost character. Although this was a conscious design choice, the need for player skills interrupted immersion into the ghost character.

- *The mundane, urban environment.* Unusual physical environments and props, such as clothing, food, and scenery, help players to play immersively in a traditional Larp. As *Prosopopeia* used indexical propping in an everyday environment, the players tended to play themselves in ordinary world, rather than fictional people in fictional world.

- *Interference of the everyday social contacts.* Ghost character play was interrupted if the player encountered her ordinary social life during play. Even though the possession model facilitated the

transition from game reality to ordinary reality, these interferences momentarily refuted the ghost characters.

- *Pressing time-scheduled puzzle quest.* At certain points in the storyline, the players were lured into focusing their efforts entirely on gamist solving of the puzzles. This frequently caused the players to ignore the immersionist character play to enable full concentration on the task at hand.

> "I really loved the intense tempo, the feelings of fatigue and insecurity, the feeling of being herded along on a journey where I had absolutely no control over anything."

> "There was constantly so much "quest-stress" that we didn't have time to interact in or develop relationships, which was really sad."

The design intention underlying the gamist ingredients of the game was to allow the players really *do* stuff in the game. Whereas table-top role-players simulate sneaking by rolling dice, the players in *Prosopopeia* were expected to really sneak past the guards. In sharp contrast to many contemporary Larp events, *Prosopopeia* did not allow players to overcome obstacles through improvisation style play-acting and negotiation, the obstacles were portrayed as 'real', and had to be overcome for real.

7.6 Technological Augmentation

There players were completely discordant on their evaluation of the technology-enhancements used in the game. The statement "The technology worked well" was, on the average, neither agreed with nor disagreed with (average 3,00). On the other hand, the participants agreed slightly (average 2,6) with the statement "The technology contributed to the game experience". Based on the complementing comments, we can conclude that the technology was well designed, but that it could have worked better.

The players clearly preferred when the technology provided play opportunities, compared to such installations that were primarily experienced as special effects. The EVP machine was the most appreciated prop, since it was an integral part of the illusion which the players were able to handle themselves.

> "The tape recorder was great. Using "invisible" technology in that way really added to the experience and made you believe that the machine really worked."

> "The [reel-to-reel recorder] was excellent, it made it so much more close to reality. The technology was physical proof that this was actually happening and we weren't only playing a game."

Another piece of hardware with which the players could interact was the computer installed in the boat.

> "The computer at the boat gave us so much information and a feeling that Adam had been around the boat not too long ago."

By contrast, the 'Burton bridge' installation was seen as a flashy prop, since the players did not get to lay their hands on it.

> "Come on, build some tech that we actually get to use! The tape machine was perfect since we got to use it ourselves, the Burton bridge/giant tech-suitcase we never got close to, since it was guarded by [the scientist] who did all the fidgeting with it.…"

There was some general opposition of augmented Larp and/or Larp design driven by augmentation.

> "the tech-stuff was always in the way and became a burden to the game play instead of the support that I guess was meant to have given."

One of the reasons for this negative feedback was the low usability of the EVP recorder. The interaction model for the EVP machine was dictated by the narrative context of the game; when the fathers of EVP used roll-to-roll recorders to record the phenomena (in real history), the voices were incomprehensible, the work was full of tiresome rewinding, and the recorders were heavy and bulky instruments. This was actually appreciated by the players:

> "EVP machine is real piece of work. At the time it was stolen, my character felt that carrying it around must have been a stupid idea - I'm very glad to see that [I] was wrong on this."

In *Prosopopeia*, the plan was to make initially EVP very difficult to use, to give the players the feel on how it was used by the original inventors, but to gradually enhance its usability. This plan would seem like a reasonable compromise between the narrative context of the machine, and the need to provide a good player experience. However, there were some problems associated to the usage model that had not been foreseen. Unless the players connected a set of loudspeakers to the recorder (which they never did), the machine essentially provided a single-user experience. What had not been foreseen was that the players would adopt a play mode when they almost always played in the full group. This meant that the majority of the players would just be sitting around, waiting for one or two players to control the machine.

7.7 Game Mastering

Almost immediately when the event was running, it became obvious that the video data was practically useless. As the cameras were rigged in specific locations, their usefulness depended on where the players chose to be. The sound quality of the video recordings was also too low, so unless the players were in the immediate vicinity they could not be heard. In most situations, sound (voice dialogue, in particular) provides much more information about what players are actually doing than video.

The perhaps most serious problem with the adopted approach was that a constant feed (especially video) requires constant surveillance, in a way that is extremely taxing to realize during an event which lasts for several days.

In conclusion, it is not really worthwhile to spend the money and efforts needed to obtain good quality surveillance in a pervasive Larp. Although it is possible to achieve this type of surveillance for fixed locations, the *Prosopopeia* event showed that you must plan for players spending much time in *other* locations than the pre-planned ones. For mobile players, the quality of surveillance will by necessity always be low. Furthermore, most of the times players interact with each other and do nothing that require game master intervention. Although game masters may want to overhear such conversations, they are not strictly necessary for the game master role.

There is also a question of player integrity. Some of the players reported feeling as if 'being on Big Brother' even in this setup where supervision was largely ineffective. By introducing more effective surveillance we would trespass on an ethical boundary that we should think twice of crossing.

8. CONCLUSIONS

The *Prosopopeia* event shows that alternate reality Larp is a highly engaging and enjoyable form of gaming. But the event also showed that the genre poses some particular challenges. One such challenge is to create the same level of immersion into a role as is possible to achieve in traditional Larp. Another core challenge is to create better technology support for game mastering, while still keeping all player interactions within the narrative context of the game.

For Prosopopeia two, these challenges will inform both the game design as well as the choice of technology used in-game and for surveillance. In particular, some of the monitoring of player activities will be worked into the game as a player activity. Furthermore, players will be tracked in a more meaningful manner based on sensor and actuator technology. We will use technology that logs specific player activities (entering a specific room, or interacting with a specific object) rather than monitors their full behaviour.

9. ACKNOWLEDGMENTS

This project was carried as part of the IPerG project and funded by the IST FP6 programme and Vinnova. The authors wish to thank the full *Prosopopeia* design and production team, in particular Adriana Skarped, Linus Andersson, Emil Boss, Jonas Söderberg, Karl-Petter Åkesson and Pär Hansson.

10. REFERENCES

[1] Benford, S., Crabtree A., Reeves, S., Sheridan, J. and Dix. A. *Designing for the Opportunities and Risks of Staging Digital Experiences in Public Settings*. Proceedings of CHI 2006, forthcoming.

[2] Ericsson, M. *Enchanting Reality: A Vision of Big Experiences on Small Platforms*. DiGRA "Level Up" November Conference Proceedings, University of Utrecht, 2003.

[3] Fox, J. *The Essential Moreno: Writings on Psychodrama, Group Method, and Spontaneity*. Springer Publishing Company, 1988.

[4] Huizinga, J. *Homo Ludens: A Study of the Play-Element in Culture*. 1938. In English: Beacon Press 1971 (reprint).

[5] Kim, J. H. *The Threefold Model FAQ*, 1998. Available as www.darkshire.net/~jhkim/rpg/theory/threefold/faq_v1.html (Ref March 2006).

[6] Loponen, M., and Montola, M. *A Semiotic View on Diegesis Construction*. In Montola, M. and Stenros J. (eds.) Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination. 2004, 39-51. Available from www.ropecon.fi/brap (Ref March 2006).

[7] McGonigal, J. *This Is Not a Game: Immersive Aesthetics & Collective Play.* Digital Arts & Culture 2003 Conference Proceedings. 2003.

[8] McGonigal, J. *A Real Little Game: The Performance of Belief in Pervasive Play*. DiGRA "Level Up" Conference Proceedings, 2003.

[9] Montola, M. *Chaotic Role-Playing. Applying the Chaos Model of Organisations for Role-Playing*. In Montola, M. and Stenros J. (eds.) Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination. 2004, 39-51. Available from www.ropecon.fi/brap/ (Ref March 2006).

[10] Montola, M. *Exploring the Edge of the Magic Circle. Defining Pervasive Games*. Proc. Of Digital Experience: Design, Aestethics, Practice conference, Copenhagen, 2005.

[11] Montola, M. & Jonsson, S. *Prosopopeia – playing on the edge of reality.* Knutpunkt 2006, forthcoming.

[12] Montola, M., Waern, A., and Nieuwdorp, E. *Domain of Pervasive Gaming*. IPerG public report D5.3B, available as www.pervasive-gaming.org/downloadables/D5.3B.doc (ref March 2006).

[13] Montola, M., and Waern, A. *Participant Roles in Socially Expanded Games*. Int. workshop on Pervasive Games, Pervasive 2006 (forthcoming).

[14] Nilsson, E. *Exploring the urban: cosmopolitan practices and urban landscape*. in proceedings for "International Conference for Integrating Urban Knowledge and Practice Gothenburg, Sweden, 2005, available as http://www.urbanlife2005.com/proceedings/L/241_Emma_Nilsson.pdf (ref March 2006).

[15] Pohjola, M. *Autonomous Identities. Immersion as a Tool for Exploring, Empowering and Emancipating Identities*. In Montola, M. and Stenros J. (eds.) Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination. 2004, 81-96. Available from www.ropecon.fi/brap (Ref March 2006).

[16] Salen, K. and Zimmerman, E. *Rules of Play. Game Design Fundamentals*. MIT Press, Massachusets, 2004.

[17] Szulborski, D. *This Is Not A Game: A Guide to Alternate Reality Gaming.* New Fiction Publishing, LLC, 2005.

[18] Söderberg, J., Waern, A., Åkessson, K-P., Björk, and S., Falk, J. *Enhanced Reality Live Role Playing*, Workshop on Gaming Applications in Pervasive Computing Environments, Second International Conference on Pervasive Computing: Pervasive 2004, Vienna Austria, April 21-23, 2004. Available from http://www.ipsi.fraunhofer.de/ambiente/pervasivegaming/ (Ref March 2006).

[19] Talvitie, D. *A Manual for Urban Live-Action Roleplaying 0.3 beta*. In http://users.utu.fi/aletal/roolipelaaja/citygamer (ref. March 2006).

Tangible Pleasures of Pervasive Role-Playing

Markus Montola
University of Tampere
Kanslerinrinne 1
firstname.lastname@uta.fi
+358 44 544 2445

ABSTRACT
The traditional forms of role-playing include tabletop role-playing, larp and online role-playing. In this paper I describe a fourth form, pervasive role-playing, which often follows many conventions of larp, but break out of the magic circle of gameplay in order to interact with surrounding society. The central pleasures of pervasive role-playing are related to playing for real, with the environment and having a tangible, unmediated experience of being a part of a complete and physical world of fiction.

Author Keywords
pervasive role-playing, pervasive game, role-playing game, social expansion, magic circle

TOWARDS A NEW FORM OF ROLE-PLAYING

The history of various forms of role-playing games has been written several times by different authors [1, 13, 15, 17, 25]. The contemporary types used for entertainment, recreation, education and artistic expression evolved since the 70's, when Gary Gygax and Dave Arneson published the first editions of *Dungeons & Dragons*, Roy Trubshaw and Richard Bartle created *Multi-User Dungeon* and the first larps (live action role-playing games) were played out.

The cultural environment allowing the birth of the tabletop, live and online role-playing cultures included many crucial elements. Renaissance fairs, creative anachronism, Tolkien influences, wargamer cultures, assassination games, performance arts et cetera played their parts in the emergence and evolution of role-playing games.

Influences are hard to track, but looking into the history of different forms of role-playing it appears that role-playing is something that is often built "on top" of earlier forms of playful action. Role-playing is not a direct descendant of wargaming or history enactment, but they were central circumstances making the emergence of role-playing games possible.

I have earlier discussed the three typical forms of role-playing: *tabletop role-playing*, *larping* and *online role-playing* [14]. In this paper my aim is to describe a fourth form of role-playing, *pervasive role-playing* that combines the elements of pervasive gaming with those of role-playing, providing an interesting style of play where ludic and ordinary reality can be seamlessly mixed. Before going into how early assassination games paved the way for pervasive role-playing, we'll have a look at the concepts of role-playing and pervasive gaming.

Defining Role-Playing

I have elsewhere [22] discussed role-playing through the *invisible rules* guiding the social process of play. Interestingly, few role-playing rulebooks actually disclose the rules of role-playing. They focus on algorithmic game mechanics, while discussing the process where they are used only implicitly in sections on "how to role-play" and "what is role-playing".

Analyzing different forms of role-playing, I have concluded that three elements are central to the process of role-playing, whether it is done in verbal, physical or virtual environment – whether it's tabletop, live action or online role-playing.

First, role-playing is based on an interactive process of defining and re-defining an *imaginary game world*. Every player has a subjective understanding of what the imaginary game world is like, and the game consists of creating and communicating those understandings. This defining work can be done through speech, but other methods of representation are also used – larp is based on physical acting and online role-playing games communicate through virtual environments. Background music, cultural references and other allegoric methods are also often used.

Second, all role-playing is based on a *power structure* that governs the process of defining. In tabletop games and larps it's especially critical to establish the limitations of each participant's power: The environment is classically controlled by one player (the game master), while the others take over individual persons within the environment (see [4] for discussion). Often some power is allocated to a ruleset or a digital virtual environment, but even in the virtual worlds the players can utilize make-believe techniques to redefine the game world.

Third ubiquitous feature in role-playing is *anthropomorphic characters* portrayed by players. Classically the player-participants have one character each, and characters delimit their defining power: In a typical game, players have the final say to decide the actions, emotions and thoughts of

Situated Play, Proceedings of DiGRA 2007 Conference

their characters, but other arrangements exist as well (see [4]). All characters portrayed by human beings are anthropomorphic – a player can play the part of a stone or a god, but the human interpreting the persona of the character causes inevitable human-likeness.

In short I see role-playing as an *interactive process* of *defining and re-defining* an *imaginary game world*, done by a *group of participants* according to a *recognized structure of power*. One or more participants are *players*, who portray *anthropomorphic characters* that *delimit the players' power* to define.

This definition applies to the three major branches of contemporary recreational role-playing. The following features can be used to distinguish them [cf. 14]:

Tabletop role-playing is mainly based on verbal discourse. Players portray imaginary events of a fictitious world through symbolic interaction: The major part of the interaction is verbal and symbolic, but music and images are used to convey iconic meanings as well.

Larp is based on physical enactment. The symbolic repertoire of tabletop is complemented by strong iconic content as players act out the actions of their characters. A girl dressed in tablecloth can be an icon of an elderly female Roman senator.

Virtual role-playing is comparable to larp in an online environment, where algorithmic rules are implemented in the game code. A digital orc is an index of a program element trying to bash your avatar, but for the player it serves as an icon or a symbol of an orc.

Not all players participating in MMORPGs and tabletop role-playing games *role-play* in the meaning indicated above. Pretence play is not necessary for enjoyment, as the games are entertaining also when played only as regular games; indeed, as shown above, the role-playing forms have evolved from earlier forms of entertainment.

Pervading the Boundaries of Game

In the discussion on pervasive gaming, a plethora of terms have been used to point to a wide variety of concepts. As Nieuwdorp [26] points out, two paradigms exist, one discussing *games based on pervasive computing applications* and the other looking at *games with pervasive gameplay*. The former category includes any games utilizing pervasive computing, while in the latter category the game has to pervade everyday life in some way.

Representing the latter paradigm, I have defined pervasive games as games that have *one or more salient features that expand the contractual magic circle of play socially, spatially or temporally* [21]. This means that the metaphorical magic circle[1] of a pervasive game is blurred [21, 27]. It can be *spatially expanded*, as the game is played in the spaces of ordinary life; streets, industrial areas, schools or random zones of internet. It can be *temporally expanded*, by mixing game and everyday life, overlapping and interlacing with work, school and leisure. And by consequence of spatial and temporal expansion, the magic circle of a pervasive game can also become *socially expanded*, through involving outsiders during the game in various capacities, such as making them players, play elements, spectators et cetera.

The best-known pervasive games include titles such as *Botfighters*, *Can You See Me Now*, *I Love Bees*, *Killer: The Game of Assassination*, *Majestic* and *The A.I. Web Game*. Alternate reality gaming [9, 16, 29] is the most widely established subgenre of pervasive gaming, but others are evolving as well.

The fact that pervasive games break out of the ritualistic space of game, and pervade the boundary of fiction to the domain of everyday life, has certain implications. First, it means that the first pervasive games were played far before concepts such as "pervasive computing" were coined.

Second, as pervasive games break the boundary of artificialness and non-ordinariness, they lose some of their gameness and need to be understood in a broader cultural context of pervasive media culture. Related phenomena include reality TV, candid camera, invisible theater, scambaiting, 24/7 fetish relationships, fabricated identity play in internet, masquerading in MMORPGs et cetera.

The basic enjoyment of pervasivity is twofold: It brings the fun of game into everyday life, and the thrilling non-safety of ordinary world to gaming. When a player of *Botfighters* goes shopping, the bot moves as well – and if a powerful enemy attacks, she has to face the dangers of the physical world while running from it.

According to many designers and case studies [18, 23, 28, 29], one of the strongest appeals of pervasive gaming is the uncertainty of gameness. As everything might be interpreted as ludic, the ordinary environment is given new meanings. In the eye of a conspiracy theorist, everything is related to the conspiracy – and the player of this kind of pervasive game knows that there is a benevolent conspiracy creating an experience for her.

Pervasive gaming also offers other pleasurable experiences. Spatial expansion allows a look to the backstage of urban environment in the fashion of urban exploring, as well as pleasures of similar to urban sports such as skateboarding and parkour. Temporally the game can coordinate players to interesting places in interesting times; when combined with weather information the game can take the players to see

[1] See Huizinga [10] for discussion on how games are situated in ritually and contractually delimited spaces and times and played voluntarily. Salen & Zimmerman [27] expand on Huizinga, also bringing in the notion of games that blur this boundary.

sunsets and moonlit areas. Socially the games allow performance, pretence play and social experimentation.

Pervasive Role-Playing

Pervasive role-playing combines the boundary-blurring features of pervasive games with the pretence play, performance and make-believe of role-playing. Typically pervasive role-playing games are larps staged in urban environments.

The central influences on pervasive role-playing come from the pluralistic genre of assassin games that were played on innumerable university campuses since the 60's. These games are played in ordinary environments as a part of ordinary life in a highly pervasive manner; every player is an assassin with a specific target whom they have to kill during the game. These games can take weeks, as every successful murderer typically takes over the victim's mission, until only one assassin is left. The best-known way of playing assassin is the one codified in *Killer: The Game of Assassination* (Steve Jackson Games, 1981) [25, 27, 31].

Tan [31] describes the history of MIT Assassins' Guild, where the assassination games started to evolve into "theater style format" in early 80's. While the competitiveness was kept intact, the game characters were given "more complex conspiratorial, political, technological and fantasy motifs". In a fashion similar to the ones described above, a branch of players picked up the social, performative make-believe play and started *role-playing* their deadly interactions.

Probably inspired by the well-known assassin games, larpers have also explored the boundary of role-playing and environment, but without the explicit competitiveness of assassin games. First street larps are hard to locate, but the popularity of *Vampire: The Masquerade* (Mark Rein-Hagen, White Wolf, 1991) and other *World of Darkness* tabletop role-playing games was a central contributing factor. In *WoD* games the players take roles of supernatural creatures hiding among unsuspecting ordinary people.

As Salen and Zimmerman [27] note, *Vampire* offers a perfect fiction for pervasive role-play: The easiest form of social and spatial expansion is to act in the middle of outsiders, trying to *avoid* any attention. Just like *Killer* referees often punish players conducting murders with eyewitnesses present (with penalties such as losing points), the *WoD* games do the same in a diegetic fashion: The vampire society is sworn to secrecy, and anyone revealing it's existence to mortals is executed.

The invisible rules of role-playing presented above cope well with the expanded magic circle of pervasive gaming.

The game world is still imaginary: The players and the outsiders act in our physical world, but the players still construct an imaginary world that is superimposed on ours. Just like in larp, the physical world just serves as an endless source of information that is interpreted into the imaginary world.

The power structure is still present for the players. Outsiders do not obey any power constraints, but serve as an uncontrollable variable similar to dice of tabletop role-playing. Of course, outsiders are not players, as they do not construct imaginary personas for purposes of the game.

Looking for New Aesthetics

In the Integrated Project on Pervasive Gaming [2] new aesthetics for pervasive role-playing has been sought in two experimental games; *Prosopopeia Bardo 1: Där vi föll*[3] and *Prosopopeia Bardo 2: Momentum*[4]. These two larps sought to challenge the *Killer* paradigm of urban larping: While assassins and vampires avoid public attention, the *Prosopopeia* series sought to interact with outsiders. [5]

These games were made in as seamless fashion as possible, making the magic circle of gameplay as invisible as possible. The games were designed in a fashion where players, outsiders and even the game masters were left unable to determine the exact boundary of game and ordinary life. David Fincher presented the same ideas powerfully in his movie *The Game* (1997).

Seamlessness was complemented with philosophy of *indexical representation* [14, 23]. In tabletop role-playing games the world is represented through symbols of verbal discourse, and in a typical larp a boffer sword can represent a knight's weapon. But in indexical representation my fake sword represents a fake sword, or even *my* fake sword.

In typical urban larp the *willing suspension of disbelief*[6] is central; the players seek to interpret all the game-related signs into their diegeses[7], and to ignore all signs not clearly fitting into their expectations of the game world. *Vampire* fiction allows the players to suspend their disbelief and pretend vampires in a perfect and photo-realistic environment, since they don't need to confront the outsiders who would deny the claim. The friction of ordinary and imaginary still remains and suspension of disbelief is

---

[2] www.pervasive-gaming.se

[3] Martin Ericsson, Adriana Skarped, Staffan Jonsson & others, Stockholm, 2005. See [23] for full description. Eng. "Prosopopeia Bardo 1: Where we fell".

[4] Staffan Jonsson, Emil Boss, Martin Ericsson, Daniel Sundström, Henrik Esbjörnsson & others, Stockholm, 2006. See [11] and www.prosopopeia.se for full description.

[5] For discussion on ethics, see [24].

[6] The idea of willing suspension of belief is attributed to Coleridge [6]; it means that the audience accepts unbelieveable or ridiculous fiction in order to enjoy it.

[7] Diegesis denotes the subjective fiction constructed by a player through interpreting game-related signs [13].

needed by the ancient vampire refusing to hypnotize the doorman preventing her entry to a classy nightclub.

In *Prosopopeia* series, the aim was to toy with suspension of disbelief, by toying with players' beliefs. As the players are left unsure of what's ludic or ordinary, they don't need to believe; they just need to discern what is relevant for the game and leave the rest.

To illustrate the difference, the rules of a fairly typical urban larp might say something like the following excerpt from *Rikos kannattaa*[8] rules (my translation):

> When playing in an area with lots of people not participating the game or knowing about it's existence, players must play pretty carefully and with respect towards their environment. Even though every heavy immersionist opposes external restrictions, we must accept them because of the play area. If you can't agree with this, you should stay off the streets.

In *Prosopopeia* games the only real rule was that the players should treat *everything* as if it was a part of the game and the diegetic fiction. In fact, *Momentum* lasted for five weeks, and during that period, the players were expected to stay within the diegetic framework 24/7.

In order to allow such playing style, the *Prosopopeia* designers had to create a fiction, which would be compatible with ordinary life to maintain playing. In the game, every player was willingly possessed by a spirit of a dead person, allowing players to role-play both the possessing spirit and the possessed person (latter being essentially a diegetic duplicate of the player). Thus, players could go about their ordinary lives, but when needed, the possessing spirit could take over. Sometimes the spirits were in charge for longer periods, but occasionally the possession could last for just one phone call.

Killer's use of assassins is a similar design solution, where players can play undercover agents until a need to perform game actions arises. *Vampire* is a much worse fiction for such sustained gaming, as player eating food or walking in broad daylight clearly violates the character, and there is no possibility of maintaining the pretence that the activity at least could be ludic.

PLEASURES OF PERVASIVE ROLE-PLAYING

In order to explain *why* pervasive gaming is a very interesting style of role-playing, I'll now take a look at some central aesthetics and gratifications of pervasive role-playing. All the pleasures listed in this section are based on feelings of tangibility, concreteness and realness of pervasivity. As Martin Ericsson underlined in the design principles of *Där vi föll*, players want to *do things for real*, and that is the major strength of pervasive role-playing.

The following analysis focuses somewhat on the pleasurable tangibility of social environment, because social interaction is somewhat particular to role-playing (as opposed to other forms of pervasive gaming).

Social Playground

Acting like a vampire or a madman in an urban environment serves as an excuse for social experimentation and breaking of conventions. While stressful, social play with outsiders can reward the player with feelings of fun and insight about the social conventions. Quoting McGonigal [19]:

> If ordinary people are given *specific instructions* requiring them to take a more adventurous attitude toward public places, they will surprise themselves with their own daring and ingenuity. Moreover, players will discover how surprisingly receptive strangers are to spontaneous interaction, and how responsive non-players are to ludic intervention. In other words, players will learn that there is far greater opportunity for gaming in their everyday environments than they previously suspected.

In other words, socially expanded role-playing provides *empowerment* to act against social constraints. While an ordinary person is bound to follow cultural conventions, a directly instructed player or carefully designed role-playing character can differ from them. After the game the player is left with *insight* on the strength of such conventions and how they operate.

An example of social experimentation took place in *Momentum*, where the game masters donated a painting to an art gallery in Stockholm, saying: "Keep this painting; you're free to sell it if you want and keep the money yourself. Or, if someone's really interested in it, you can just give it away".

The next day half a dozen oddly costumed players entered the gallery, showing interest towards the painting. Their task was to obtain it, but they had no idea whether the gallerists knew about the game or not. As the only solution, the players ended up trying to persuade and fast-talk the gallerists to give the painting out for free, a task, which was done with an increased difficulty level due to their suspicious behaviour, incredible names and weird clothing.

Both the players *and* the gallery personnel found the encounter pleasurable and interesting[9], although it must have been a stressful encounter as well. According to the gallery workers, the fact that they didn't know the gameness of the strange occurrences was the thing making them fun.

[8] Konsta Nikkanen & al, Helsinki, 2006. Eng. "Crime Pays".

[9] According to interviews (conducted by Jaakko Stenros) and player feedback.

Finnish artist and role-player Juhana Pettersson reminisces[10] his experiences of playing a character with no manners in an early pervasive larp *Isle of Saints*[11]:

> I behaved really badly in posh restaurants. One guy in our group talked our way into a packed restaurant, in which I was combing my hair with a fork, acted as an utter dork towards waitresses and other patrons. I ate with my bare hands and messed up the whole table.
>
> For me, doing that wasn't very difficult or immoral. Basically what it takes is a lot of pretended regression and the feeling of freedom caused by the fact that you're not present as yourself.
>
> I found my limits when I went into toilet, and wondered whether I should pee all over the place, like my character would have done. As I was in there alone, I didn't feel any particular reason to perform, and behaved myself for the moment.

Role-playing has been analyzed with frame analysis [5, 8] and other ways of social layering [15]. According to Fine [8], three frames are particularly relevant to analyzing a tabletop role-playing situation: The *diegetic frame*, where elves, agents and other game world things exist, the *game frame* where players negotiate their interactions through rule systems, and the external *social frame* where people meet up to play a role-playing game.[12] In the examples discussed above, the players interacted with outsiders through *fabrication* [5, 23]: The players acted in the diegetic frame, but they led outsiders to believe that they were acting in the social frame. The loss of this empowering mechanism shows in Pettersson's remark, where he switched to the social frame as well, as there was no-one else to sustain the diegetic frame. As a player of *Där vi föll* wrote it:

> We were always moving as a group, which created a zone for playing.

Social playground approach is especially valuable tool for a designer wishing to use game as a political or artistic tool: For example, Boal's [3] group did *invisible theatre*[13] with the theme of sexual harassment by having actors harass each other in public, trying to find out if the outsiders would intervene. When they did, other actors joined in, provoking political discussions.

[10] Personal correspondence, January 2007.

[11] Jukka Koskelin, Mika Loponen and Mikko Rautalahti, Helsinki, 2000.

[12] The italicized names of the frames are author's.

[13] Invisible theatre is drama staged in public space, without denoting it as a performance. In a sense it is "socially expanded theatre".

Emergent Social Play

No-one can anticipate what will transpire during a pervasive larp. The experiences from *Prosopopeia* series indicate that seamless design leads to unexpected results.

An example from *Där vi föll* illustrates the point. In the story of the game the players had to delve into (real world) history of certain deceased people. In some point, the players decided to explore a graveyard, seeing whether a certain person was buried there and trying to record local ghost voices with their supernatural tape recorder. Quoting written post-game player feedback:

> A guy came by when we were using the tape machine [...] we talked to him for a while, but couldn't figure out if he was involved in the game or not. This I think is the best part, where you have no way of knowing if a person or experience is created with intent or not.

Several participants mentioned the aforementioned event as one of the best scenes in the game; the players felt it was extremely authentic, realistic and intriguing situation. Many players also believed that the person was a game master or a part of the game, while in fact the incidence was completely accidental, random and emergent.

This emergent authenticity is a central pleasure, as it gives a heightened sense of understanding that the urban environment around is real, and the game is real as well.

From the game master perspective, emergence is a free and inexhaustible source of game content, but it also needs to be designed for.

Exploration and Discovery

When players learn to understand that their game is situated in the social, historical and physical context of a real, living urban environment, they seem to love exploring both content and context to the fullest, curiously looking beyond boundaries to find how far they can push and still find recognizable parts of the game. The fun of exploration lies in the feeling that the entire world is part of the play and wherever the player goes, more content turns up. In addition to *Prosopopeia* series, e.g. *Uncle Roy All Around You* [2] has experimented with exploration.

Discussing larps played at small spaces but aiming to create an illusion of being parts of entire diegetic worlds, Koljonen [12] points out that the totality of the surrounding world needs to be demonstrated in order to create a good illusion. Towards that end, the organizers of many non-pervasive larps have provided fake telephone connections out from the sealed spaces, brought in new players from the surrounding diegetic world and used other techniques to disguise the practical borders of the game. Koljonen writes:

> A plausible universe can deliver surprises. To make the player accept the border of the game as something else than the border of the fiction, it is the duty of the truly illusionist game master to demonstrate that characters, plots and information could, and sometimes will, cross them.

Talvitie [30] follows the same line of thinking in his guide for urban larpwrights, saying that a proficient organizer does not reveal all participants of an urban larp or all the planned playing areas before the game. The thrill of the game lies in the fact that the player feels like a small part of a huge, living environment.

Another form of pleasurable exploration is urban exploration; going into weird and run-down urban areas, both to see interesting sights and to discover set up game content. Again the players are provided with the comforting feeling of good game master planning, and left with intriguing uncertainty on *what more* there is to discover.

Discovery can also take place in the internet. Game-related fake websites can be created easily [9, 29], but two other techniques exist as well. Either the game can be planned around pre-existing (or historical) web content, in order to allow players to research it during the game for real. The third, somewhat questionable method is fabrication; hiding game content within media content unrelated to the game. The two latter methods are, if possible, even more intriguing than the first one, as it ties the game strongly into a larger context.

Momentum used these techniques by including a lot of real history and real world occultism into the game "as is", in order to allow players to actually research things during the game. This also lead to emergence, as the players dug unrelated material from the net and incorporated it into the game, passing it to other players as well.

Coordinated Networks All Around You

In a pervasive role-playing game the players greatly enjoy the feeling of being a part of a larger game. When the player believes that she sees only a small part of the whole, it's easy to imagine a whole society being a part of the game.

Talvitie [30] discusses methods of constructing social networks in such games. The background philosophy of his approach is based mainly on information flow: If some characters throw a party while others play vampires in the party, the asymmetric information makes dangers and opportunities of vampirism very tangible. Killing a character with actual (role-played) history and existing friends is a deeper experience than preying on a non-player character created for the purpose.

In his design instructions, Talvitie identifies example structures of how to create interaction of player groups within the game in order to create interesting inter-group dynamics through controlling the flow of information and social dynamics. The essential part is designing the ways how players *perceive* the game and environment around them.

In *Prosopopeia* games the players were basically in one a big group, and the illusion of environment was created though game master characters, informed outsiders and characters played through emails and chats. However, *Momentum* split up the group, by assigning four simultaneous tasks to the 30 players. Each task had to be accomplished successfully and in a temporal sequence in order for the whole group to achieve their goal. As a player reported in a feedback form:

> I was really amazed that all the scenario two:s were handled so simultaneously. It was really cool to know that we were all working together at different places at the same time. I really enjoyed that.

The beauty of this example is in the way actual and illusionary was combined. Splitting the players up gave them a tangible impression that the game took place in many places simultaneously, and success of their groups really made a difference. But the players also interacted with many game master characters in the internet, which were illusionary, but the illusion was reinforced through the actual. It was easy to hide the fact that the various non-player characters using different internet messaging systems were played by one person on one computer.

Tangibility of Chained Tasks

If the game includes tasks or puzzles with a possibility of failure, it's important to communicate the realness of the puzzle and failure in a tangible fashion. The players wanting a real experience have to be forced to solve their problems for real. *Där vi föll* tried out a linear, non-branching task structure with bad results: The players failing to complete tasks can't proceed in the game at all. Chained tasks still have the valuable feature of tangibility; success is measurable, and accomplishments feel very real.

An example from *Momentum* illustrates an accidentally discovered mechanism providing tangibility to tasks without absolutely stopping the game. The players were provided with mathematical data that could be used to triangulate coordinates of a hidden stash of game props and documents necessary for the success. The players miscalculated the coordinates, ending up in a wrong neighbourhood in a rainy October night. A player wrote:

> I didn't participate so much in the decryption and [locating] the area. We went out on Friday night trying to find something we didn't know what is was. And we found nothing but water after ~2h of searching.

Even though the game master characters later on could help the players to solve the problem, there was a twofold price to the failure. The player group lost time due to their error, and the long night wandering in a wrong area made the miscalculation a strong experience of failure.

In chained and coordinated collaborative tasks the whole becomes larger than the sum of its parts. A boring math exercise of decryption and triangulation is given relevance and context, as failure leads to searching for an envelope in a wrong area. Similarly, the task of searching for an envelope is given relevance as the triangulation allows them

to feel that they found the important item in a Stockholm-sized haystack instead of the neighbourhood-sized one.

The coordinated collaboration above adds to the gestalt as four player groups are working simultaneously for a common goal, and the failure in triangulation might mean a failure in the overall goal – which is given added significance through the narrative content of the role-playing game.

SOCIAL PLAY WITH SOCIAL ENVIRONMENT

In the discussion on pervasive games it was pointed out that pervasive games expand the traditional domain of games spatially, temporally and socially.

Being a form of gaming based centrally on social discourse, pervasive role-playing is especially suitable for socially expanded gameplay. The elements of emergence, seamlessness and social playground can be utilized in other pervasive games and media as well, but the possibility of rich, inconspicuous interaction is very strong with role-playing. Role-playing and social expansion are both about interacting with other people, creating two-way interactions which offers a much wider design space than the typical forms of social expansion (such as spectatorship and refereeing).

Game design techniques based on spatial expansion are necessary for truly fruitful social expansion, but they also create pleasant and rewarding experiences. Compared to social expansion, however, the similar techniques of spatial expansion can also be used in non-role-played pervasive activities – indeed, as mentioned above, pervasive role-playing borrows a lot from spatially pervasive activies such as urban exploration, parkour and invisible theatre.

Integrating temporal expansion into pervasive role-playing places considerable requirements on the game fiction, but can be done in a rewarding manner (like *Killer* and *Momentum*) demonstrate.

In the discussion about role-playing I noted that the most fundamental part of the social role-playing process is the constant defining and re-defining of the imaginary, diegetic game world. As the gratifications of pervasive role-playing demonstrate, the central value of pervasivity in this process of defining is the content that appears emergent, surprising and tangible to the players.

A clever game designer can play with fabrication and emergence, in order to provide the players lots of material that is easy to interpret into diegeses without exercising significant suspension of disbelief. In creation of the illusion the players need to be given the confidence that their environment provides suitable input for their game experience, even in surprising places. Only after the players are surprised by finding game content from behind an apparently non-game-related door, they learn to interpret every door as a part of the game world.

The second central part of role-playing is establishing a power structure to guide the creation of these imaginary worlds. In pervasive role-playing a lot of this power is given out; if everything happening in everyday environment is interpreted into the fiction, the context wields significant power in the game.

CONCLUSION

In this paper I have discussed the three major forms of role-playing games that emerged since the early 70's. The evolving fourth form, pervasive role-playing, combines many features of the previous styles with pervasive gaming, forming novel ways of playing with a new and appealing aesthetic. Whether these styles should be classified as larps or as an entirely new form of role-playing is debatable, but the interesting part is the way new aesthetics can be utilized in conjunction with role-playing.

The selling point of pervasive role-playing is the thrill of non-safe ordinariness combined with game invading the sphere of ordinary. It's not all about the "this is not a game" illusion [9, 18, 29] allowing the players to pretend that the game is real. The attraction is in the pleasure of *doing real things for real*.

An illustrative example of tangible action took place in a small Danish cutting-edge larp *Tre grader af uskyld*[14], where the players had to get rid of crime evidence by actually trashing a car (with hammers) as a part of their Tarantino-style gameplay. According to the players and organizers, breaking something for real in a pulp-criminal style is a really *fun* thing to do.[15] It's not only about pretending to believe a world of fiction, but also about interacting with ordinary world in a novel way.

The concluding lesson of this paper is that doing things for real is fun. It appears that the generations of mediated entertainment can appreciate unmediated experiences.

ACKNOWLEDGEMENTS

I'm in debt to creators of *Prosopopeia* games, especially Emil Boss, Martin Ericsson, Henrik Esbjörnsson, Staffan Jonsson, Adriana Skarped and Daniel Sundström. Also, the comments from Jaakko Stenros, Annika Waern, J. Tuomas Harviainen and Satu Heliö have been very useful. This paper was written in the Integrated Project on Pervasive Gaming.

[14] Troels Barkholt-Spangsbo, Dennis Asanovski & Tim Dencker, Copenhagen, 2006. Eng. "Three Grades of Innocence".

[15] Presentation by Troels Barkholt-Spangsbo and Dennis Asanovski at Knudepunkt 2007 (Helsinge, February 2007).

REFERENCES[16]

1. Bartle, R. A. *Designing Virtual Worlds*. New Riders, 2003.

2. Benford, S., Crabtree, A., Reeves, S., Flintham, M., Drozd, A., Sheridan, J. & Dix, A. "The Frame of the Game: Blurring the Boundary between Fiction and Reality in Mobile Experiences." In *Chi 2006 Proceedings*. (Montréal, April 2006), ACM.

3. Boal, A. *Games for Actors and Non-Actors*. Routledge, London, 2002 (1992).

4. Boss, E. C. "Collaborative Roleplaying: Reframing the Game." In *Push* vol. 1 (2006), 13-35.

5. Brenne, G. T. *Making and Maintaining Frames*. Master's thesis for University of Oslo, 2005. www.efatland.com/fate/Making_frames.pdf

6. Coleridge, S. T. *Biographia Literaria*. Project Gutenberg, 2002 (1817). www.gutenberg.org/etext/6081

7. Donnis, J., Thorup, L. & Gade, M. (eds.) *Lifelike*. Projektgruppen KP07, Copenhagen, 2007. www.liveforum.dk/kp07book

8. Fine, G. A. *Shared Fantasy. Role-Playing Games as Social Worlds*. Chicago, University of Chicago press, 1983.

9. Gosney, J. W. *Beyond Reality. A Guide to Alternate Reality Gaming*. Thomson, Boston, 2005.

10. Huizinga, J. *Homo Ludens. A Study of Play Element in Culture,* Beacon Press, Boston, 1955 (1938).

11. Jonsson, S., Montola, M., Stenros, J. & Boss, E. "Five Weeks of Rebellion. Designing Momentum." In [7], 121-128.

12. Koljonen, J. "Eye-Witness to the Illusion. An Essay on the Impossibility of 360° Role-Playing." In [7], 175-187.

13. Koster, R. *Online World Timeline*. 2002. www.raphkoster.com/gaming/mudtimeline.shtml

14. Loponen, M. & Montola, M. "A Semiotic View on Diegesis Construction." In [20], 39-51.

15. Mackay, D. *The Fantasy Role-Playing Game. A New Performing Art*. McFarland, London, 2001.

16. Martin, A., Thompson, B. & Chatfield, T. (eds.) *Alternate Reality Games SIG Whitepaper*. IGDA 2006. www.igda.org/arg/whitepaper.html

17. Mason, P. "In Search of the Self. A Survey of the First 25 Years of Anglo-American Role-Playing Theory." In [20], 1-14.

18. McGonigal, J. "A Real Little Game: The Performance of Belief in Pervasive Play." *DiGRA "Level Up" Conference Proceedings* (Utrecht, November 2003), University of Utrecht.

19. McGonigal, J. *This Might Be a Game: Ubiquitous Play and Performance at the Turn of the Twenty-First Century*. Doctoral dissertation. University of California, Berkeley, 2006.

20. Montola, M. & Stenros, J. (eds.) *Beyond Role and Play. Tools, Toys and Theory for Harnessing the Imagination*. Ropecon, Vantaa, 2004. www.ropecon.fi/brap

21. Montola, M. "Exploring the Edge of the Magic Circle. Defining Pervasive Games." *Proceedings of DAC 2005* (Copenhagen, December 2005), ITU of Copenhagen.

22. Montola, M. "Breaking the Invisible Rules. Borderline Role-Playing." In [7], 93-100.

23. Montola, M. & Jonsson, S. "Prosopopeia. Playing on the Edge of Reality." In Frizon, Thorbiörn & Wrigstad, Tobias (eds.) *Role, Play, Art. Collected Experiences of Role-Playing*, 85-99. Föreningen Knutpunkt, Stockholm, 2006. http://jeepen.org/kpbook.

24. Montola, M., Waern, A., Kuittinen, J. & Stenros, J. *Ethics of Pervasive Gaming*. IPerG Deliverable, 2006. http://iperg.sics.se/Deliverables/D5.5%20ethics.pdf

25. Morton, B. "Larps and their Cousins Through the Ages." In [7], 245-259.

26. Nieuwdorp, E. "The Pervasive Discourse: An Analysis of the Use and Definitions of the Term 'Pervasive' in Games Research." In *ACM Computers in Entertainment*, January 2007.

27. Salen, K. & Zimmerman, E. *Rules of Play. Game Design Fundamentals*. MIT Press, Massachusetts, 2004.

28. Stenros, J., Montola, M. & Waern, A. "Post Mortem Interaction. Social Play Modes in Momentum." In [7], 131-145.

29. Szulborski, D. *This Is Not A Game. A Guide to Alternate Reality Gaming*. Exe Active Media Group, 2005.

30. Talvitie, D. "Kaupunkipelin järjestäjän opas." Manuscript for Rantanen, T. *Larpinjärjestäjän käsikirja*. Forthcoming.

31. Tan, P. B. *Tensions in Live-Action Roleplaying Game Design. A Case Study with the MIT Assassins' Guild*. Master's Thesis, MIT, 2003.

[16] All online references checked on February 26th, 2007.

The Three-Sixty Illusion:

Designing For Immersion in Pervasive Games

Annika Waern
Mobile Life at Interactive Institute
Box 1197
SE-164 26 Kista, Sweden
annika@tii.se

Markus Montola
Nokia Research Center
Visiokatu 1
FIN-33720 Tampere, Finland
markus.montola@nokia.com

Jaakko Stenros
University of Tampere
Hypermedia Laboratory
FIN-33014 University of Tampere, Finland
jaakko.stenros@uta.fi

ABSTRACT
Pervasive games are staged in reality and their main attractiveness is generated by using reality as a resource in the game. Yet, most pervasive games that use mobile and location-based technology use reality only in a weak sense, as the location for a computerized game.

In this article we analyze two game practices, Nordic style live action role-playing (larp) and alternate reality games (ARG), that instead use reality as their main game resource. We analyze how they go about creating a believable game world and encourage the players to actively take part in this world. We present two example games that do the same with the support of technology, effectively realizing an immersive game world through a combination of physical play and technology-supported play.

Author Keywords
Immersion, role-play, pervasive game, mobile game

ACM Classification Keywords
I.1.4 Computing Methodologies: Applications

INTRODUCTION
In *Hamlet on the Holodeck*, Janet Murray [22] discusses the full physical immersion of the Star Trek Holodeck as a desirable aesthetic of play. Participating 'as if it was real', full photorealistic and even tangible immersion, is often understood as the holy grail of VR technology and computer games.

By contrast, it may seem straightforward to realize full immersion in the real, physical world, where we move around, meet with each other face to face, and can touch the objects around us. When Weiser talked about 'calm computing' [31] his vision was of a future where human-computer interaction would be as immediate as physical interaction.

Still, although the Weiser design ideal is still strong in the HCI community, it has only marginally affected research on mobile games. Instead, these have taken their main inspiration from computer games and used locative and gesture-based technology as a way to spice up an otherwise virtual experience. Although many studies report on the strong player engagement that the 'coincidental' relationship to the real world leads to [27], mobile games make no attempt of creating any 'Holodeck' illusion in the physical world.

In order to understand how we can create immersive games in the real world, we need to look outside computer games and find game practices where the real world already is the stage for the game. In this article we analyze two such practices, Nordic style live action role-playing (larp) and alternate reality games (ARG) to shed light on the salient design features that these games rely on. Finally, we show how these design features have been approached in two example games, *Momentum* [28, 29] and *Interference* [3], which rely on physical play as well as mobile and ubiquitous technology to realize an immersive world.

THE 360º ILLUSION OF NORDIC LARP
Nordic live action role-playing (larp) is perhaps the game practice that has gone furthest in realizing full immersion into a physical game world. This practice, which originates in the eighties, has its roots in character-immersive role-playing and history re-enactment [10] and has been influenced by improvisational theater.

The community is well documented through annual self-reflective books published by the annual "Nodal Point" events where theorists and practitioners meet to discuss larp[1], The basic approach of a Nordic larp is to confine the players to a carefully staged environment, educate

http://dx.doi.org/10.1145/1518701.1518939

[1] See http://en.wikipedia.org/wiki/Knutepunkt

them (in advance) to play their character roles, and leave them to interact with each other and the environment, fully in character, for the duration of the game. There are few formal rules in this form of larp, the players stay in character continuously (unlike American larp as reported by Lancaster [15]), and the 'mechanics' of American larp [22 page 12] are nonexistent or minimal.

The design ideal of a *360º illusion* was developed in the Nordic community during the nineties and has been very strongly enforced by a vast majority of the community. We have borrowed the term from Johanna Koljonen [13], who has used it as a way to describe and challenge this design ideal:

> "…a complete universe available to interact with, a situational, emotional and physical realism in character immersion, and a what-you-see-is-what-you-get attitude to the physical environment of the game. I call this style the 360º illusion, in reference to the totality of both the physical game environment and the space for immersion it strives to create."

As Koljonen indicates, the 360º illusion depends on three design aspects that together create the illusion: an *environment perceived as authentic* which allows the participants to physically act in a near-perfect representation of the game world, the affording of *authentic activity* where in-game activities are not simulated or represented symbolically but carried out for real, and finally the players 'emotionally and physically' *immersive role-play*. In the following, we discuss in more detail how the community has gone about to realize each of these aspects.

The Authentic Environment

A larp is staged in an *authentic environment* when everything that the players meet throughout the game, be it real or virtual, is part of the game world. In many games, the game world is represented symbolically (e.g. using a numerical value for character's strength) or iconically (e.g. representing a metal sword with one made out of rubber). In an environment which is perceived as authentic, places and objects represent their in-game counterparts: a house in physical world represents an identical house in the game world [21].

Larpers and history re-enactment hobbyists create the illusion through two often uncompromising methods: Everything that might break the illusion is hidden, and everything that is used to create the illusion is perfectly crafted. The *Dragonbane* larp crew spent three years building houses, designing costumes and designing a hydraulic dragon in order to realize their vision [14].

Figure 1. Dragonbane: The head of the dragon, some players and a house built for the game (Photo by Janne Björklund).

In order to take the illusion to a deeply personal level, players crafted pseudo-historic spectacles and used hand-sewn underwear.

In this context, 'authenticity' must be understood as socially and culturally constructed. The world of the game needs to be coherent, believable and realistic on its own terms (magic might exist, gun powder not). At the same time, the *Dragonbane* design establishes a view on what is authentic in its fictional country Valenor, and produces a representation of that authenticity in the physical world.

Creating an illusion of authenticity does not always require huge efforts. An illustrative example of minimalism is *The White Road*; a pervasive larp played in Denmark in 2006 [24]. In this larp, the participants played characters from an existing exclusive Danish drifter subculture, and walked small roads for three days. The larp was authentic in every detail apart from the roles that the participants assumed; they walked the same roads and visited the same gas stations as the authentic drifters would do. Still, through immersing in characters from a marginalized community, the participants experienced their country and society in a new way.

The game world must nevertheless still be an *illusion*. The village of *Dragonbane* was a simulation of a village existing only in fantasy; and the characters of *The White Road* were fictive. It is significant that Murray [22] analyses the core aesthetics of interactive drama as "immersion, agency and *transformation*".

Authentic Activity

A game offers authentic activity when every game action is represented by the identical player action. The pleasure

of simulating swordfights with acted-out swordfights is one key reason for the long lived success of larp. In more contemporary environments, larp players get to enjoy the real-world experiences of exploring abandoned areas, climbing fences, smashing a real car or hacking a real server [20]. Through allowing players to carry out authentic actions in the real world, larp sometimes turn into *brink games*, games that no longer are experienced just as games even by the players. Poremba [24] discusses brink gaming as a powerful means for political and artistic expression.

Not all game actions can be authentic, for ethical, legal and practical reasons. Whereas everyday activities such as walking, talking face to face, sleeping, or cooking come for free, authentic magic and superpowers are very challenging to produce. The *Dragonbane* effects team used extensive pyrotechnics to allow magicians to create authentic-looking magic. However, as they were not working magic but chemistry, they appeared as authentic only to other observing participants; the magicians themselves could not engage in authentic activity.

Immersive Character Role-Play

Ermi and Mäyrä [6] discuss three types of immersion: *sensory immersion*, *challenge-based immersion* and *imaginative immersion*. Whereas authentic environments can be seen as producing sensory immersion, larps also aim for imaginative immersion in the form of *immersive play*, where "one becomes absorbed with the stories and the world, or begins to feel for, or identify with a game character" [25]. Murray describes this as "active creation of belief" in reference to the "willing suspension of disbelief" of cinema [22, page 116]:

> "…live-action games rely on explicit mechanisms of participation to sustain the illusion of a fictional world. One of the most powerful strategies … is the development of specific character profiles by the game masters to guide the individual players without rigidly prescribing their actions."

In a 360º larp the authentic activity in an authentic environment is an important prerequisite for the active creation of belief: The players simultaneously experience the game and serve as environment for other players' experiences. In order to sustain the illusion, every player has to *actively contribute* to it: In the village of *Dragonbane*, every person contributes to sustaining the illusion through (at least decent) role-play. Larpers frown on "off-gaming", as a single player significantly can disturb the illusion. This sets larp apart from table-top role-playing, where players can rapidly shift in and out of role without destroying the game experience [7].

THE 360º ILLUSION IN ALTERNATE REALITY GAMES

Alternate reality games are perhaps the most developed genre of pervasive games [16, 30] and also the only subgenre that has reached commercial success. These games create an illusion of a hidden 'truth', such as a conspiracy, by placing clues and distributing narrative elements everywhere in the ordinary world. As the game content and activity are located in many places in the real world, the games create a feeling of the game being everywhere around the player.

One of the first and best-known ARGs is *The Beast* [16], a promotional campaign for the movie A.I. which utilized websites, answering machines, video clips, emails, live actors and many other cross-media techniques to create an immersive illusion. The primary media for this game was a network of fabricated web sites, and the main game task was to compile clues, solve puzzles and find new places where the narrative could be found. Once the players had found their way into the game, they could also be contacted in numerous ways, including email and postal mail.

Since the success of *The Beast* in 2001, the genre has continued to evolve. A recent example is the Swedish production *Sanningen om Marika*[2] in which an ARG was co-produced with a TV drama series and a fabricated TV debate [5].

Online Authenticity

Creating a plausible 360º illusion is an ambitious challenge for a larp, and even more so for ARGs that often aim for national or even global mass-participation. To a large extent, ARGs rely on *narrative* to create a twist to reality; the different game sites tell a story that the players are able to uncover and in their turn retell in game forums and blogs. ARGs have developed a version of the 360º aesthetics where authentic physical environments and activities are used to spice up an otherwise iconic and symbolic experience. Jane McGonigal [17] documents an example from *The Beast* where the players were used to call answering machines, but suddenly had to call a live actor, who had to be persuaded to answer player questions. This sudden exposure to an authentic conversation contributed significantly to the illusion of a full game world: Apparently several players assumed they had called the wrong number when encountering the actor's pretended obliviousness.

Authentic-looking on-line environments are also often used in ARG productions that border on downright hoaxes. The video blog of *lonelygirl15*[3] is one example. This fabricated blog pretends to be real to the extent of

[2] Eng. *The Truth about Marika*

[3] www.wired.com/wired/archive/14.12/lonelygirl.html

creating personalized email correspondence with members of the audience.

Authentic Activity through Infinite Affordances

An interesting variant of authentic activity occur in ARGs, as they offer "infinite affordances" [18]. When the game presents a puzzle to the players, the players are free to choose whatever means they can think of to solve it. In a typical computer adventure game, the player would have limited options, whereas in ARG searching the web, scrutinizing library resources and contacting experts on an arcane subject are all valid strategies. McGonigal reports how the players of *The Beast* felt that the methods they collectively had learned to use were so realistic, that they could just as well be used to track down real-world terrorists [16].

In an ARG, the scene is unrestricted and the players can travel anywhere, pick up any clues, and improvise any action to address a game challenge. In order to react to surprising player moves, many ARGs are puppet mastered in a fashion similar to the game mastering of table-top role-playing games [18]. While emails and answering machines can automate the communications with players to a certain extent, enabling authentic communications with fictional characters require live actors and puppet masters. In this regard *Sanningen om Marika* [5] went exceptionally far: The main actress effectively lived a double life for months, being both herself and her ARG character.

Immersion as Performing Belief

The ARG genre does not depend on character immersion. Players participate in the game as themselves. A common phenomenon is however that the players themselves choose to act (primarily through how they write in web sites and forums) as if the game world is real. McGonigal analyses this as *performing belief:* the players are not deceived by the game world but deliberately choose to *pretend to believe* that the game world is real [17]. Performing belief generates a collective sense of immersion among the players. If a player accidentally breaks through the illusion and exposes some of the mechanics behind the game, this will frustrate the other players who feel that it is "peeking behind the magician's curtain". In ARG, the players using such "off-game" information to progress in the game are creating the worst disturbances in the illusion. McGonigal [17] discusses the case of one player managing to crack major parts of *The Beast* by doing an Internet search on all web domains owned by the game organizers. The player community condemned this exploitation of a design flaw.

The ARG *The Truth About Marika* took this approach one step further. This game was explicitly exposed as a game, through pop-up warnings on all major web sites. In addition, some of the web sites contained an explicit instruction: "There is only one rule: Pretend that it is real." Through consistently suppressing off-game discussions in the game forums and chats, the organisers of *Sanningen om Marika* saw to that the players were effectively larping, acting as themselves with the only difference that their characters believed in the game world.

THE 360º ILLUSION IN PHYSICAL PERVASIVE GAMES

Although there exists no consensus of what defines a pervasive game [23], a unifying observation is that pervasive games are played in the *ordinary world*. They are not confined to the computer screen nor to playing fields. The current trend in physical[4] pervasive games is to rely on location-based technology; games are typically played by moving around in the real world carrying mobile devices. Many studies of such games [2, 11, 17, 27] show that players particularly appreciate the mixing of real life and the game. As McGonigal [17] writes:

> "Pervasive games, at their heart, are the dream of the virtual to be real. And if pervasive games are the dream of the virtual to be real, then they are also the dream of the players for the real to be virtual."

The central attraction of pervasive games lies thus not only in their ability to create an illusion of a game world, but that this illusion" spills over" into real life, enchanting everyday places and activities. Markus Montola [19] defines pervasive games as games that extend outside a predefined playground, invade people's lives through being playable over varying time periods and in various circumstances, and that are played among – and sometimes with – people that are not aware of the game.

Augmenting Authentic Environments: A Virtual Twist to Physical Reality

The key feature of location-based technology is that it enables the creation of a game world through overlaying virtual content on a physical landscape. Gustavsson et al [11] describes this as a process of *twisting* the real world into a game world. Through computationally superimposing a game and a story line on the real-world landscape, it is changed into a game world.

Where larps require a carefully staged environment and ARG rely on a carefully crafted story line to create a twist to reality, location-based games provide this twist through computational augmentation. Tourist games like *REXplorer* [1] often use real-world landmarks with their historic background as game content, and since players have to actually be at the authentic locations to unlock

[4] As opposed to ARGs, which primarily are played on the Internet.

game content the game relies on authenticity. *Can You See Me Now?* [2] uses a map of the real game area as the game arena, and real-world players hunt on-line players on this map. *Epidemic Menace* [8] places virtual viruses in a real-world campus area and lets their movement be dependent on real-world weather conditions.

As illustrated by the ARG genre, it is just as easy to simulate authenticity online as in the physical world; mobile phone calls, web sites, blogs and text messages are part of what we perceive as the 'real' world. The meeting between the game world and our everyday 'real' world need not follow the borderline between the physical and the virtual.

Limitations to Authentic Activity in Physically Pervasive Games

As we can see from the larp and ARG examples, the biggest challenge that the 360º illusion poses is how to realize authentic activity. This is even truer for games that rely on technology. Location-based games get only one type of authentic action for free: that of moving. Walking, running, and commuting are all activities that frequently occur in games that rely on location-based technology, and can be used to create engaging experiences.

The problem is that in order to create a full 360º illusion, the players' interaction with a device must also be part of the game world; it must *mean* exactly what the players actually *do*. Most pervasive games that rely on technology avoid an authentic interpretation of device interaction, or fall short of achieving it.

Since pervasive games are staged in the real world rather than in closed-off environments, they often need to constrain authentic physical action for legal and ethical reasons. Speeding on the highway is illegal, no matter if you are trying to capture the game's villain or traveling to work. Since interaction with virtual in-game content typically is both safe and legal, mobile technology can be used as a way to afford safe activity in pervasive games.

Uncle Roy All Around You; The first steps towards a 360º illusion

How then, can we go about creating a 360º illusion when some of the game content is virtual, and the players interact with the physical world as well as with the devices? The game *Uncle Roy All Around You* [2] was one of the first to sketch out how this can be done. This game starts out as a fairly standard location-based game where the physical players are tasked with getting to a particular location, Uncle Roy's office. However, once the players are on their way, real world places and activities gradually become more and more important. Activities such as following strangers, entering a real-world office, and eventually hopping into an unknown car

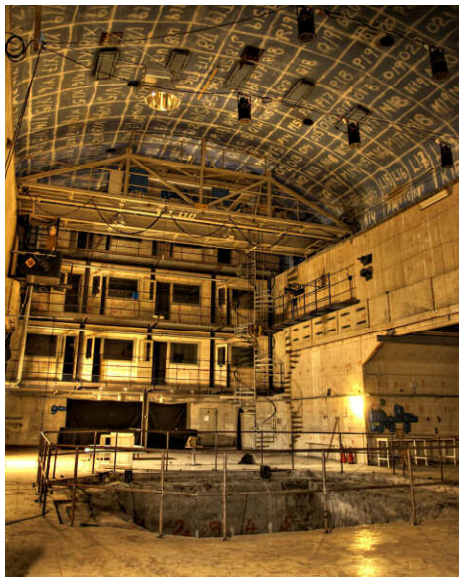


Figure 3. The players' headquarters in *Momentum* was a dismantled nuclear reactor 30 meters below ground.

to meet with a stranger, make the game gradually more 'real'. Through the gradual change in activity, *Uncle Roy* successfully manages to increase the players' immersion in the game world.

Still, the players of *Uncle Roy* do not experience a full illusion of a game world and the game has only minimal traces of role-play. We are now ready to turn our attention to a game that strives for a full 360º illusion in the Nordic larp sense, with and partly *through* technology.

MOMENTUM: 34 DAYS OF 360º ILLUSION

Prosopopeia Bardo II: Momentum [28] was a pervasive larp staged in and around the city of Stockholm, Sweden, in the autumn of 2006. The game was designed to maintain a full 360º illusion for its 30 players. The game lasted for 34 days (unusually long for a larp) and the players never really went off-game. The evaluation of *Momentum* is reported in [28, 29].

The Reality Fiction Approach to Authentic Environment

Pervasive games often deliberately blur the borderline between game and reality [2, 16, 19, 30]. This can be an effective way to create the illusion of an infinitely large game world, as well as to create emotionally powerful experiences. Quite often the immersive power of a pervasive game comes from the players' genuine lack of understanding of where the game ends and the ordinary reality begins. This design ideal, which also is a cornerstone of ARGs, was central in *Momentum* [28].

The aesthetic of *Momentum* was realism. Everything was supposed to look and feel real. The game was mostly set in the ordinary world with little or no special propping. When certain locations were specifically designed for the

game, they were approached by the designers as an extension of the existing physical world, making it impossible for a player to say where ordinary life ended and game begun. Thus the game could take place both at a central market place, in an abandoned subway station, and a specifically designed headquarters for the players.

As is common in ARG, the back-story of the game interlaced with real world history. *Momentum* used fabricated discussions on internet forums, spoofed Wikipedia pages, and a carefully selected library of books installed at the players' headquarters. Even the player characters were taken from reality: they were authentic people that now are deceased.

Authentic Technology Props

This philosophy of authenticity extended to all devices and information resources used in the game. To address this, the devices and their interaction model *were written into the game storyline*. This means that the relationship between the game and the technology in *Momentum* was completely reversed from that of traditional computer games, as well as from that of most existing location-based games. For those, a game is a computer application that is accessed through one or several devices. In *Momentum*, all devices and their applications existed, physically and story-wise, *within the game world*. The devices used in the game had an in-game meaning and were designed to fit the setting, theme and mood of the game. As for all larp props, their aesthetics contributed to the players' immersion in the game world as well as to the players' understanding of how they were expected to engage in the game.

A good example of this approach was the so-called *Thumin* glove developed for *Momentum*. This device consisted of an RFID reader, a Bluetooth communication circuit and a vibrator, all built into a motorcycle glove. The role of the glove was to enable semi-automatic and self-sustained gameplay to offload the game masters; the players used the glove to search for hidden 'sources of magic' (which were hidden RFID tags) in the landscape. To find the exact spot of a magic source, the players had to slowly stroke the surface where it could be found. When a tag was found, the glove started to vibrate. The act of stroking the physical surface of e.g. a tree while wearing a glove is authentic, even though the act invokes virtual content associated to the RFID tag. The act is focused on the tree rather than on the glove or the virtual content, and this is emphasized by tangible feedback.

The *EVP machine* was an extreme example of the same. This was a fixed installation in the player's headquarters, which looked like a black box with three turning knobs, mimicking a radio frequency channel selector. According

Figure 4. Player using the *Thumin* glove in *Momentum*.

to the game story, the machine was used to scan the ether for traces of ghost voices. These ghost messages were pre-recorded by the game masters and programmed so that they would play only when the knobs were in a particular position. Effectively, this realized a game puzzle that again required little game master attention.. According to the in-game device instructions, the EVP machine would only work if you strapped yourself into an old asylum bed made of steel and attached a set of electrodes to your body. Some knob positions would generate a weak electric shock instead of a message. The whole setup, including the bed located in the core of the abandoned reactor and the slightly dangerous interaction model, created strong immersion. The EVP machine was highly appreciated, and some players spent hours using it – although many stopped using the electrodes [29].

In order to become part of an authentic environment, devices must be written into the game storyline. Both the device and the interaction model need to be part of the game. In *Momentum*, an in-game library contained (among other books) manuals on how to use the EVP machine and the Thumin glove. As these manuals also were part of the game, they were a bit cryptic and some players felt that the in-game explanation of in particular the Thumin glove was difficult to understand.

> "The Thumin was really cool, 'cos it vibrated so strongly … But I wanted to learn even more about, I mean, you could put it on your own crystal [that also contained an RFID tag] and it vibrated, and I wanted to know what that did, or how could we use that even more. But there wasn't enough information." (Excerpt from player interview.)

As *Momentum* was a larp, the technology props were not the only props. The abundance of the staged environment contributed to the realism also for the technology

installations. The prepared locations contained not just those pieces of equipment that were vital for the game, but many other similar props.

> "[The technology] felt like part of the game, and it felt like a part of reality. […] [A]nd one of the main reasons it felt real was that the amount of props was much, much greater than it had to be. There were loads of things on desks that weren't supposed to be used, but it looked like it could be used." (Excerpt from player interview.)

One finding from *Momentum* is that *seamful* design [4] is very beneficial for technology in games that strive for a 360º illusion. In seamful design, the design exposes the inner workings and limitations of a technology to its users and uses this as a design resource rather than as a problem to overcome. The reason why it is particularly useful in games that aim for a 360º illusion is that in these games, the game continues to run even when the technology fails. Ideally, all fiddling with technology, recharging of batteries, restarting computers etcetera should be meaningful inside the game world – and fun.

A successful example of seamful design from *Momentum* was the use of an old matrix printer. According to the game storyline, the matrix printer was hooked up to the EVP machine, so that it could (on rare occasions) print messages from the ghost world. Since a matrix printer from the eighties is not a very reliable device, it made quite a racket and would frequently jam. Still, the players loved it. Whenever the printer started to make noise, they would know that an important message was coming, and they had to run there to save it from being eaten by the machine. At the same time as this created tension in the game, the task was solvable: they knew exactly how a matrix printer worked and what to do to prevent a jam.

> "The [matrix] printer was my favorite gadget. It had the same kind of mystique as the EVP equipment but the information was easier to use." (Excerpt from player interview)

The Thumin glove was less successful in this respect. In order to display the connection and battery status of the glove, the Thumin glove was equipped with a set of LED lights that would start to blink in different patterns depending on the status of the glove. The display was fairly easy for the players to understand, but the blinking was symbolically interpreted as a code and the required response action (e.g. charging the battery or restarting the glove) was boring and not experienced as part of the game.

Overall, the *Momentum* technology was brittle and it was sometimes hard for the players to understand when a malfunction was just a malfunction, and when technology was not supposed to work due to the game context:

> "[There was] the problem of not knowing whether the tech has broken down in the first place. […] As I didn't know what the stuff was supposed to do in the fist place it was very hard to know if there was anything wrong at all or if we were just in the wrong place." (Excerpt from player interview.)

From this we can see that it is important to design even technology failure in a way that is understandable and expected within the context of the game.

Immersive Characters in a Pervasive larp

Momentum was a Nordic style larp, requiring the players to read up on and internalize their characters before the game, and then to bodily and mentally pretend to be these characters. However, the role-playing model needed to be modified from the ordinary larp, which is played in a secluded area. The game needed to offer players a way to live with their roles for more than four weeks.

According to the story of *Momentum*, a crisis in the world beyond death has led a group of ghosts to travel back to the world of the living. As ghosts have no physical presence, they need to contact some persons who are still alive and convince them to willingly host a ghost for a limited time. These persons are the players of *Momentum*.

The players thus acted in a double role; they were at the same time themselves and channeling for the ghosts. This "possession model" for role-play enabled the players to stay within the frame of the game while still shifting in and out of character at their own leisure [12, 21].

In *Momentum*, the main use of technology was not to create a physical/virtual overlay, but to function as a communication channel between the ghosts and their fictional home world beyond death. In practice, this function supported role-played communication between the players and the game masters. The EVP machine and the line printer were both used in this way. The game masters acted as spirits from the other side, effectively encouraging the players to immerse further into their characters and help them develop their roles in dialogue with the game masters.

INTERFERENCE: MIXED REALITY 360º

Interference [3] is a much smaller game than *Momentum*, designed to be playable by 6-8 players and lasting 3-5 hours. Designed to be restageable, it has so far been staged on seven occasions in two countries during January and February 2008, and played in total by 52 participants. It is currently under evaluation.

Interference aims for a less ambitious variant of the 360º illusion. The game stages a believable and coherent game world and offer authentic activity, but it does not enforce immersive role-play. The reason for the latter is that the

game is intended as a demonstration game. Instead, *Interference* encourages make-believe much in the same way as ARGs do. Finally, *Interference* is clearly marked off as a game [3] and does not rely on a blurred boundary between life and game.

The participants of *Interference* play their way through a fixed storyline. The players are given roles of telecom engineers, tasked with repairing a failing Internet network in the game area. Their first task, given to them by two of the game characters played by actors, is to scout out the invisible network lines using a *Magic Lens* device (see figure 5). To do this, they must locate black and white markers placed in the real world, look at them using the Magic Lens, and plot the lines they see on a paper map.

One of the players stays in contact with the game characters over mobile phone. From this, they learn that the Internet failure was caused by sabotage, and that the cause seems to be magical. They meet with a third game character who gives them a magic Voodoo doll which she has built and used to interfere with the network. The magic of this doll enables the players to retrieve memories imprinted on the landscape, in the form of video and audio traces that they receive on their mobile phones. Towards the end of the game, they also receive a magical bone flute. By playing the flute to the doll the players are eventually able to stop magic from flowing and thereby restoring the network. Although this works, it also has unexpected and unwanted consequences. The players are faced with a difficult dilemma and must collectively decide how the game will end.

A Partially Virtual Authentic Environment

Interference creates its authentic game world through superimposing virtual content onto the real world in selected real-world locations. The physical environment is not abundantly propped as in *Momentum*. Instead, the game relies entirely on location-based technology to twist the physical world into a game world. But just as in *Momentum*, not only the virtual content but also the devices have an in-game meaning and are selected and crafted to fit the game story and mood. According to the story line the magic lens device is a novel high-tech prototype, whereas the doll and the bone flute are magic Voodoo objects. The game changes quite drastically in mood and gameplay when the doll and flute are introduced. This way of using the devices themselves to pace the game and shape its mood is radically different from just using content as a way to twist the physical world into a game world [3].

Authentic Action through Technology

Even though the central game activities are done through technology, most can still be interpreted as authentic actions. For example, when the players use the Magic Lens device, they see a 3D model superimposed on the video stream. According to the in-game explanation of the device, such a 3D model is not some invisible 'real' object but a 3D rendering of a data scan. The fact that the players alternate between investigating 3D models through the device, scouting out the real world, and plotting lines on the (paper) map, contributes to the authenticity of device interaction.

Figure 5.. Player using the Magic Lens device in *Interference*.

By contrast, the Voodoo doll and flute interaction is less successful in this respect. The game story, together with the fact that the flute is a real bone flute, makes the flute playing an authentic activity, something that the players appreciate:

> "It was a very nice scene, playing the flute to the doll. First we played it to the node and nothing happened, but then we played it to the doll." (Excerpt from post-game interview.)

However, the feedback on whether the playing succeeded or not, is that a set of LED lights light up on the doll. This feedback is a symbolic representation of the effect of the action, and the doll is also slow to react effectively disconnecting action and effect. The response by the doll was confusing to the players and not as appreciated as the actual playing.

Minimalist Role-Play

In contrast to *Momentum*, *Interference* is not a larp. The players are not required to role-play, or even to pretend to believe. The game however strongly encourages the latter, through giving the players functional roles [9] as telecom engineers and letting them interact with actors that play the main characters. These functional roles allow *minimalist role-playing*: Even though the players do not pretend to be fleshed out fictional personas, they naturally act and look the part during the game, facilitating the maintenance of a 360º illusion.

The technology plays a large role in encouraging pretence play in *Interference.* Right before the game starts, the players are given individual roles associated to a

Figure 5. In order to create enticement for role-play, the Interference players are given functional roles and dressed in overalls.

particular tool or piece of technology. The Communicator gets a mobile phone and is in charge of communicating with the game characters, the Tracker receives the Magic Lens device, the Navigator gets a paper map, etcetera. The game also restricts communication to one player at a time: it is only the Communicator who can call and receive calls from the game characters, and audio and video messages are only sent to one player at a time. The players have to converge in order to experience a message, or the player who received it has to repeat it for the others, something that encourages make-believe.

> "We talked a lot about the sound messages. The role as technicians was really good, because we could always fall back on that." (Excerpt from player interview)

In the stagings of *Interference*, we have found that some player groups develop a very immersive play style, whereas others keep switching in and out of pretense play. So far, all groups have however got deeply involved in the final scene, where the players are faced with a difficult decision that they have to solve together.

CONCLUSIONS

The creation of a full, immersive illusion of a game world is not an easy task even in the physical world. To create a full illusion, the game must offer not only a nicely staged environment, but let players act for real in this environment. Through creating the illusion of a full game world, the game encourages the players to play in an immersive way: to pretend that the game world is real and assume characters in this world.

Authentic activity is particularly important, as well as particularly difficult to achieve. Game activities in the real world are limited to those that can be conducted in a safe, ethical, and legal manner. Pervasive technology can help, as it can offer authentic activity in a game world that is partly physical and partly virtual.

In games that strive for a 360º illusion, the role of technology is fundamentally different from that of devices for computer or ordinary mobile games. Rather than being the vehicle that realizes the game, the game device becomes a tool and a stage prop *within* the game. Devices as well as their interaction must be crafted to fit the game world, and all functions of the devices, including malfunctions and failures, should ideally be written into the storyline. The experiences with *Momentum* and *Interference* show that this is possible, but also how hard it can be to achieve a fully consistent 360º illusion.

ACKNOWLEDGMENTS

We wish to thank the production teams for the *Momentum* and *Interference* games. Thanks also to Barry Brown, Karl Bergström, Jussi Holopainen, Hannu Korhonen and Jo Reid who read and commented on earlier versions of the paper.

Momentum and *Interference* were developed within the IPerG project funded by IST FP7 and Vinnova.

REFERENCES

1. Ballagas, R.A., Kratz, S.G., Borchers, J., Yu, E., Walz, S.P., Fuhr, C., Tann, M. and Hovestadt, L. RExplorer: A mobile, pervasive spell-casting game for tourists. CHI '07 extended abstracts on Human factors in computing systems. (San Jose, CA, USA 2007)
2. Benford, S., Flintham, M., Drozd, A., Anastasi, R., Rowland, D., Tandavanitj, N., Adams, M., Row-Farr, J., Oldroyd, A., and Sutton, J. Uncle Roy all Around You: implicating the city in a location-based performance. *Proc. Advances in Computer Entertainment Technology*(ACE). (Singapore June 2004).
3. Bichard, J. P. and Waern, A. Pervasive play, immersion and story: designing Interference. *Proc.. of ACM International Conference on Digital Interactive Media in Entertainment and Arts* (DIMEA). (Athens, Greece, September 2008).
4. Chalmers, M., McColl, I., & Bell, I. Seamful design: Showing the seams in wearable computing, *Proceedings of IEEE Eurowearable*, (Birmingham 2003), 11–17.
5. Denward, M. Broadcast culture meets role-playing culture: Consequences for audience participation in a cross-media production, *Proceedings of International Association for Media & Communication Research*, IAMCR. (Stockholm, Sweden July 2008).
6. Ermi, L. and Mäyrä, F. Fundamental components of the gameplay experience: Analysing immersion. *Proc. of the Digital Games Research Associaton (DiGRA) Conference* (Vancouver, 2005).

7. Fine, G. A. *Shared fantasy: Role-playing games as social worlds.* The University of Chicago Press 1983. ISBN 0-226-24944-1.
8. Fischer, J E., Lindt, I. and Stenros, J. Evaluation of crossmedia gaming experiences in Epidemic Menace. In eds. Magerkurth, C. et al. *Proceedings of the 4th International Symposium on Pervasive Gaming Applications PerGames* (Salzburg, Austria, June 2007).
9. Fischer, J., Lindt, I & Stenros, J . IPerG Deliverable 8.8: Final crossmedia report (part II) – Epidemic Menace II evaluation report. (2006) http://www.pervasive-gaming.org/Deliverables/D8.8-Part-II.pdf
10. Fron, J., Fullerton, T., Ford Morie, J. and Pearce, C. Playing dress-up: costumes, roleplay and imagination. *Proceedings of Women in Games.* (University of Wales, Newport, U.K, April 2007).
11. Gustafsson, A. Bichard, J., Brunnberg, L. and Juhlin, O. Believable environments – Generating interactive storytelling in vast location-based pervasive games. *Proceedings of Conference on Advances in Computer Entertainment* (Hollywood, California, USA June 2006).
12. Jonsson, S. Montola, M. and Waern, A. Prosopopeia: Experiences from a pervasive larp. *Proceedings of Conference on Advances in Computer Entertainment* (Hollywood, California, USA June 2006).
13. Koljonen, J. Eye-witness to the illusion: an essay on the impossibility of 360º° role-playing. In *Lifelike*, book of Knutpunkt 2007, Stockholm. http://www.liveforum.dk/kp07book/lifelike_koljonen.pdf.
14. Koljonen, J., Kuustie, T. and Multamäki, T. Dragonbane: The legacy. http://stuff.wanderer.org/DB_the_Legacy.pdf
15. Lancaster, K. *Warlocks and Warpdrive. Contemporary Fantasy Entertainments with Interactive and Virtual Environments*. McFarland & Company Inc., Jefferson, North Caroline and London, 1999.
16. McGonigal, J. This Is Not a Game: Immersive aesthetics and collective play. *Proceedings of Digital Arts & Culture* (May 2003).
17. MgConigal, J. A real little game: The performance of belief in pervasive play. *Proceedings of the Digital Games Research Associaton (DiGRA) "Level Up" Conference*. (November 2003).
18. McGonigal,.J. The puppet master problem: Design for real-world, mission based gaming. In eds. Harrigan, P. and Wardrip-Fruin, N. *Second Person*. MIT Press 2006.
19. Montola, M. Exploring the edge of the magic circle; Defining pervasive games. *Proceedings of DAC 2005.* (Copenhagen, December 2005), ITU of Copenhagen.
20. Montola, M. Playing for real: Tangible pleasures of role-playing. Proceedings of the Digital Games Research Association (DiGRA) Conference . (Tokyo, Japan, September 2007).
21. Montola, M. and Jonsson, S. Prosopopeia. Playing on the edge of reality. In eds. Fritzon and Wrigstad, *Role, Play, Art. Collected Experiences of Role-Playing* (Stockholm, Sweden 2006). Pages 85-99.
22. Murray, J. H. *Hamlet on the Holodeck: The future of narrative in cyberspace*. MIT Press 1997, ISBN-13 978-0-262-63187-7.
23. Nieuwdorp, E. The pervasive interface; Tracing the magic circle. *Changing Views: Worlds in Play. Proceedings of DIGRA conference* (Vancouver, Canada, June 2005).
24. Pedersen, B. and Munck, L. Walking the white road: A trip into the hobo dream. In Montola and Stenros, Eds. *Playground Worlds*, book of Solmukohta (Helsingfors, Finland, April 2008).
25. Pohjola, M. Autonomous Identities. In Montola and Stenros, Eds. *Beyond Role and Play*; book of Solmukohta (Helsinki, Finland, 2004). Available as http://www.ropecon.fi/brap/ch8.pdf.
26. Poremba, C. On the brink of the magic circle. *Proceedings of DIGRA conference* (Tokyo, Japan, September 2008).
27. Reid, J. Design for coincidence: incorporating real-world artifacts in location-based games. *Proceedings of ACM International Conference on Digital Interactive Media in Entertainment and Arts* (DIMEA). (Athens, Greece, September 2008).
28. Stenros J., Montola M., Waern A., and Jonsson S. Play it for real: sustained seamless life/game merger in Momentum. *Proceedings of DIGRA conference* (Tokyo, Japan, September 2008).
29. Stenros, J. Montola, M., Waern, A. and Jonsson, S. Momentum evaluation report. IPerG Deliverable D11.8 Appendix C, May 2007. http://www.pervasive-gaming.org/Deliverables/D11.8-Appendix-C-Momentum-Evaluation-Report.pdf
30. Szulborski, D. *This Is Not A Game: A guide to alternate reality gaming*. New Fiction Publishing, LLC, 2005.
31. Weizer, M. and Brown, J. S. Designing calm technology. Xerox parc. (December 1995). http://people.csail.mit.edu/rudolph/Teaching/weiser.pdf