The Pervasive Interface: Tracing the Magic Circle

Eva Nieuwdorp
Master Student New Media and Digital Culture
Faculty of Arts and Humanities
Utrecht University
Kromme Nieuwegracht 29
3512 HD Utrecht, The Netherlands
eva.nieuwdorp@gmail.com

ABSTRACT
This paper is an addition to the discourse surrounding interface theory and pervasive games. A buzzword by nature, the term ´interface´ needs to be investigated and redefined in order to remain academically valid; at the same time the pervasive game, being part of recent developments in game culture, needs to be given a place in the discourse of digital games. By approaching the interface through formal game theory, I will investigate the place and status of the interface in the pervasive game, as well as the border between everyday reality and the virtual game world, in search of defining the interaction between fantasy and reality in pervasive gaming. Next to the conventional interface of hard- and software, I argue that in pervasive gaming there exists the two-levelled "liminal" interface, which initially transfers the player into a playful state of mind (paratelic interface) before implementing more rigid structures that belong to the game itself (paraludic interface).

Keywords
interface, pervasive gaming, magic circle, ludus and paidia, semiotics, liminal, paratelic, paraludic

Pervasive games are steadily emerging as a new genre in the field of digital games. Examples such as *I Like Bees* [31] and *Botfighters* [30] broaden the game world to include elements of everyday life, subsequently also bringing rules of play into the public sphere of the street, the workplace and the like. Unlike other games, the mobile nature of the pervasive game is unique in its ambivalent wavering between fantasy and reality when played. In this research, I will argue that it is exactly this ambivalence that is at the core of the player experience and indeed the construction of the game world itself. Set against the backdrop of the physical reality of everyday life, the thin line between the evident ´real´ world and the institutionalised fantasy of the game becomes the crux to which the pervasive game owes its existence; the pervasive game can therefore be viewed as a quintessentially and structurally interdisciplinary concept, interweaving the concept of reality with that of fantasy and transforming our everyday environment into a world in play. This situation on the one hand complicates the notions of reality and fantasy (fantasy referring to the game), while on the other hand, within the game world, Roger Caillois´ terms *ludus* and *paidia* (*Man Play and Games*, 1958) [2] are set off against one another. As pervasive games are played in an already existing environment with its own set of potential cultural conventions, the nature of play brings to mind a more free and open type of game that may be said to resemble that of fantasy or even child's play. Not only does the world of the game reiterate on its own status as a fantastical artefact through the continuing juxtaposition with the 'real' physical world of everyday life, at the

Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play.

same time the concept of childlike 'play' or 'paidia' positions itself in a similar way in relation to its more formal counterpart, 'ludus' or 'game', as will be discussed later on. But what exists at the crossroads of these intermingling phenomena? What are the instances that incite the merging of fantasy and reality, and how can we best define this merge? In this paper, I will investigate these questions by looking at the applicability of the term ´interface´ to the problematic co-existence of said antagonistic forces in the pervasive game. I argue that the status of the interface as an intermediary between the user and the (technological) system he/she interacts with makes it the most important focus to determine the border that is crossed from reality to game. By asking the question where and how the interface comes into being in the pervasive game (if it is in fact an apt term at all in this case), I offer a preliminary insight in the limbo between reality and game, as well as the relationship between *ludus* and *paidia* that is so characteristic for the pervasive game genre.

The part of the player forms an important part of this paper, as I state he/she is in effect the crudest example of an interface in this type of play. After all, the player is of primary importance to the existence of the pervasive game: without him/her the streets will inevitably return to their everyday status. I will therefore argue that, in part, the interface I am trying to define can be located in the thoughts and imagination of the player, thus taking a more *cultural* and *symbolic* meaning than the procedural interface often found entangled with the screen. However, it must be noted here that player experience as such will not be addressed in this paper. Also, the notion of the "real" versus the "virtual" must be viewed as the opposition between cultural conventions that are normally present in the reality of everyday life (such as going to work, walking on the street; this is later on defined as '*lifeworld domain'* [8]) and a fictional game world that is generated by means of computer technology (brought about by a specific set of cultural conventions that are necessary to render actions and elements within the world of the game meaningful and plausible). This distinction between 'real' everyday life and the game world will be addressed in more detail further on in this paper, and will be denoted by the terms '*telic'* and '*paratelic'* respectively [1].

However, before we can state anything substantial about the nature of the interface in pervasive gaming, we first need to demarcate our field of study clearly. After all, it would prove useless to start off any research without a critical discussion of the terms and definitions to be used. An arbitrary handling of terminology, unintentional as it may be, can easily lead to a haphazard if not careless choice of words, consequently weaving a tangled web of cross-linked and overlapping definitions. As this particular research aims to investigate such inappropriate buzzwords, I must ensure to carefully choose and scrutinise our academic tools of reasoning. Our attention will therefore first and foremost focus on the definition of pervasive gaming itself. After this I will turn my efforts to the notion of the interface, which will be described by its usage in both Human Computer Interaction and digital games research. Once both terms are sufficiently investigated we can then move towards exploring the interface in pervasive gaming.

PERVASIVE GAMING

For a term as up-and-coming as pervasive gaming it seems at the least surprising that, from academics to designers, almost no-one takes a clear, common approach to it. This leads to vague descriptions that leave us pondering not only the (im)possibility of one definitive description of the notion, but also where pervasive gaming ends and neighbouring phenomena such as ubiquitous gaming, augmented reality gaming and mobile gaming begin. In academic

Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play.

terms, and this is the approach that will be followed throughout this paper, pervasive games are overall taken to induce a mixture of the real and the virtual, in particular creating virtual words of play in everyday environments (that integrate the entire world around us both temporally and spatially) through the use of different ubiquitous applications of technology and media [4, 19, 29]. In temporal, spatial and social aspects the game world is encompassing and ever-present in everyday physical environments, which the player can interact with in real-time through multiple media platforms [24]. If this is indeed a term that covers *all* of the many faces that pervasive games is believed to have at the present time is a concern that, for the sake of this study, will not be put to rest here. For further information I refer to my upcoming research on this subject [21, 22].

THE INTERFACE

When investigating the nature of pervasive play, one irrevocably must seek out the borders between the different elements of fantasy and reality, which leads us to the interface. Applied to digital games, the interface is invariably equalled to either the hardware (i.e. controllers and the like) or the software (i.e. visual elements of the game world) that gives rise to human/computer interaction. The screen captures both of these, as it is both a part of the hardware while visually representing the (3D) game world at the same time through software, functioning as a veritable Alberti´s window through which the user can step from physical reality into the virtual universe of the game. The screen is viewed as a translucent membrane, an intermediary, which translates digital signs into actual player experience and parallels the player's physical actions to manipulation in the digital realm. In HCI, the concept is taken to mean the human-computer interface with its desktop metaphor or hardware connotations. When applied to digital games, the interface is determined as a fixed screen and gaming device [18], and is increasingly seen as a potential obstacle to immersive qualities of the gaming experience [3]. But is this notion of the interface in digital games satisfactorily covering all game genres? The example of the pervasive game, where visual representation of the game world is no longer dominated by the screen, but which is still inherently digital in its structure, challenges the current concept of the interface. Both from the perspective of the game, which is ambivalent in its player/game interaction and reality/game status, and from the perspective of the interface, which *seems* to be limited to the hard- and software used to bring about the pervasive game, it is interesting to see how these two terms can be defined in relation to one another.

Both in HCI and digital games theory the screen is the ultimate example of the interface [16, 17, 18]. Especially in Human Computer Interaction, the interface is seen as the visible tip that hides the iceberg of programming language needed to make an application work [20]. This makes the interface a primarily graphical and tangible concept. Both hardware and software interfaces are tailored to make interaction as easy to understand and natural as possible. The focus is put on designing and testing, and keeping consistency in the concept. But as computing technology advances and grows ever more potential to become omnipresent, so do the entertainment services that come along with it. When we hark back to our definition of pervasive games as stated above, we see that in this type of play the virtual (the synthetic artefact as generated by a computer) and the real intertwine not merely on a spatial level, but also in the social and cultural domain of everyday life. This increasing ubiquitousness necessitates a different approach to the concept of the interface, as the social and geographical surroundings the technology is used in are now open to change due to the

Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play.

mobility of the player. The game world may be generated by ubiquitous computing, but the player interacts with it through more than just his/her PDA or mobile phone.

Although the emphasis in interface theory has been placed primarily on the graphical and the tangible, there have been several attempts to pull the concept of the interface into the realm of the social and cultural. As computer scientist Jonathan Grudin foresaw as early as 1989, we need to tailor the concept of the interface less to the computer or the user, but more so to the social and spatial environment the interaction takes place in [10, 11, 12]. This is why in recent years there has been an increasing interest to define the practice of computing with specific regard to the context of the user, who brings with him/her a personal history and setting which is comprised of prior knowledge and experience, as well as the environment it takes place in and the possibilities the technology may offer. What is created is not merely for instance a text document or a character in a game, but meaning. This is what Paul Dourish calls "embodied interaction": […] *the creation, manipulation, and sharing of meaning through engaged interaction with artefacts*" [5]. What happens when a player participates in a pervasive game is the active creation of meaning, and, as we will see later on, often the necessary reinterpretation of conventions of meaning. After all, as the spatial qualities of the environment are shared with the existing setting of an already familiar environment (such as the streets), the player must bring along a concept not unlike the willing suspension of disbelief as seen in film to engage meaningfully in the game. He or she must accept the game world as different from everyday life, and thus challenge set conventions and associations that exist in everyday life. We can therefore say that the main facilitating factor in creating and entering the pervasive game world lies not solely within the hard- and software, but also in the player him/herself. This means that not only the game world is pervasive, but so is the interface that gives access to it.

THE PERVASIVE INTERFACE

Before we can set out to determine the role of the interface in pervasive gaming, we need to first take a closer look at what a pervasive game entails. How can we describe a phenomenon that is so elusive that even players can get confused as to what is part of the game world and what is not? How can we denote the border between fantasy and reality, fiction and fact?

What's in a Pervasive Game

Before we get to the membrane that separates the game world from everyday life, we need to ascertain the specifics of both. Only after we fence off the two different domains, can we see what the fence is in fact made of. What makes a pervasive game? What are the instances that make it come into being? To answer these questions we need to take a closer look at the practice of signs, semiotics.

Semiotic Domains

As the geographical setting of a pervasive game is shared with an already existing environment with laws and conventions of its own, it is important that we shed a glance on the elements that in fact change when the game world comes into being. Knowing the characteristics of conventions in the real world makes it easier to observe what has changed when the world has transformed into an arena of play. It is not surprising that these changes occur in the social and cultural context in which we approach our surroundings. It is these cultural conventions, which are agreed upon on a societal scale but implemented on a personal one, that place the focus of the interface in pervasive gaming on the player.

Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play.

I will illustrate my point with an example. Imagine you are a participant in The Go Game, a pervasive game that is played through a mobile phone in an urban environment [32]. You are walking on the street when your mobile phone receives a text message. The exact task you need to perform is this:

"*Sometime today you will find the Mystery Key. It won't look like a key, but it will work some kind of magic when you encounter a locked door later in the game. So make sure you take with you any unusual objects you find along the way…*" [19]

To put it mildly, confusion reigns. In a "normal" situation, you would first of all know a key when you saw one, whilst now the only thing you do know is that the key in question could be anything *but* a conventional key. Instead of going to a locksmith, you will need to view all objects that do not fit in the conventional context of everyday surroundings as potential clues that are part of the game. In other words, you need to view these normally familiar surroundings with new eyes, and almost unconditionally so. This illustration may be a single example, and perhaps an exaggerated one at that. However, it does indicate a characteristic point of pervasive games. Whether brought about by vague missions, or the fact that the street you walk on has changed into a battle field where you need to take down as many opponents as possible, the fact remains that, no matter the degree of intensity, in every game the player needs to shift focus from the everyday world to the conventions and rules of the game he/she has entered. The ambiguity in the example above may be part of one particular game – it nevertheless shows how different the approach of the player to his or her environment could be required to be.

What has changed in this example is the correlation between an entity and its meaning. This is very apparent in the form of the key itself: instead of the word "key" pertaining to a small metal object, it can and must in fact be related to anything else in the whole material world. What has been put under strain is the semiotic relationship between the Saussurian "signifier" and "signified" (where the former strictly speaking refers to the linguistic sound image of a thing, and the latter to the mental concept of a thing) [13]. Theorists such as Charles Sanders Peirce and Roland Barthes have elaborated on this theory, taking it outside of the linguistic realm to denote the relationship between a mental concept and an object (or cultural practice). In order not to get slumbered into a huddle of semiotic theory, I will be blunt and state that what happens in pervasive games is a change in the relationship between an object and its accepted conventional meaning that has been constructed in a specific cultural discourse. Of course I do not contend that in everyday life it is not possible for different people or even the same person to approach any one object or situation in different ways according to context and personal goals, but in pervasive games this relationship is purposefully put under strain.

We could say that what happens when we shift from the practice of everyday life (with its work, shopping and the like) to the ludic space of the pervasive game world, we transgress into another mental state that makes us accept the new rules and conventions without too much interference. How does this happen? Let us keep our focus on semiotics. According to James Paul Gee in his 2003 book "What Videogames Have to Teach Us About Learning and Literacy", videogames can be viewed as distinct *semiotic* domains, which he defines as "*any set of practices that recruits one or more modalities (e.g. oral, or written language, images, equations, symbols, sounds, gestures, graphs, artefacts etc.) to communicate distinctive types of meanings*"[8]. A semiotic domain thus can be seen as a semiotic variation of Foucault's discourse [7] in which meanings and conventions govern the semiotic literacy of the user in

this specific domain. As Gee puts it: "*we can say that people are (or are not) literate (partially or fully) in a domain if they can recognize (the equivalent of 'reading') and/or produce (the equivalent of 'writing') meanings in the domain*" [8]. If we pull this definition to the subject of pervasive games, we can see that the game world can be seen as a semiotic domain with its own meanings to be constructed. This world can be seen as separate from the semiotic domain of everyday life, which Gee calls the *lifeworld* domain. This concept is highly subjective and culturally variable, as each of us has another distinct way of operating "*as everyday people, not as members of more specialist or technical semiotic domains*" [8].

When one decides to play a pervasive game, then, one crosses from one semiotic (lifeworld) domain into the other, thus adopting and adapting to a distinctive set of conventions and meanings specific to that particular semiotic domain in the process. But where does this border reside? To answer this question we will take a closer look at the concept of the magic circle and the metaphor of the cell membrane.

The Magic Circle and the Metaphorical Membrane

When we look at theoretical literature surrounding games, there is one concept that is often used to describe the soap bubble that is the game world in relation to the environment "outside" it. The magical circle, a term coined by Dutch historian Johan Huizinga (1872-1945), describes the world of a game as a "*temporary world within the ordinary world, dedicated to the performance of an act apart*" [15, 23]. This idea was then picked up and applied to (digital games) by Salen and Zimmerman, who take its meaning to denote "[…] *where the game takes place. To play a game means entering into a magic circle, of perhaps creating one as the game begins*" [23]. When we look back at the interface in (pervasive) gaming, we can see that the thin line between this ludic bubble and the practice of everyday life is the core of this research. It is this border, this threshold, which needs to be crossed over in order to transgress into the game world. And so we can deduct from this that tracing the magic circle is indeed tracking down the several levels of the pervasive interface. It has to be noted here that the magic circle is of course a concept not solely confined to pervasive games, but in fact can be applied to all games, digital or analogue. However, as pervasive games deliberately mix life on the street (to put it bluntly) with a necessary reinterpretation of the meaning ascribed to everyday settings and objects, this border becomes more apparent than in any other type of game, as we will see later on.

We should not, however, view the magic circle as merely a rigid sphere that can be placed as an overlay on top of everyday reality. In stead, it can be seen as an almost organic entity which changes, develops and interacts with its surroundings as the pervasive game comes into being for a player. In this sense the magic circle becomes almost a permeable membrane through which conventional meaning, psychical artefacts and environments, and players alike can slide in and out of the game. This argument is supported by Erving Goffman, who in his 1961 essay "Fun in Games" argues that "*the barrier to externally realized properties from the outside world* [e.g. the lifeworld domain of everyday reality] [is] *more like a screen than like a solid wall, and we* [come] *to see that the screen not only selects but also transforms and modifies what is passed through it"* [9]. This screen-like boundary demarcates the pervasive game from its greater real world context, but the relationship between reality and game is more intricate than a crude juxtaposition of terms. The very notion of a cell membrane illustrates the two-way direction of exchange between the game world and everyday life: "*If we think of an encounter* [such as a game] *as having a metaphorical membrane around it, we can bring our concerns into more focus. We can see that the dynamics of an encounter will be*

tied to the functioning of the boundary-maintaining mechanisms that cut the encounter off from wider worlds. And we can begin to ask about the kinds of components in the encounter's external milieu that will expand or contract the range of events with which the encounter deals, and the kinds of components that will make the encounter resilient or destroy it" [9].

But who decides where the border between the lifeworld domain and the semiotic domain of the pervasive game is situated? Looking again at Goffman's citation above, we see that he recognises specific boundary-maintaining mechanisms that govern the shape of the magic circle or ludic cell membrane of a game. These elements can be categorised as follows:

1. rules of irrelevance: "[…] *how 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* ";
2. transformation rules: *"*[…] *rules, both inhibitory and facilitating, that tell us what modification in shape will occur when an external pattern of properties is given expression in the encounter*"; these rules denote the amount of influence a non-game element, that for some reason enters the magic circle, has on the status of the game;
3. realised resources: " *the material for realizing the full range of events and roles of these worlds is locally available to all participants*"; all possible moves that can be made in the game are open to all players [9].

We can see that all of these factors also play an important role in pervasive games. Transformation rules tell us what part objects in the lifeworld domain can play in the existence of the game world; when we think back to the example from The Go Game that we looked at before, we can see that the transformation rules in that particular instance are very loosely defined, making it difficult for the player to discern what is still part of the game world and what is not. This means that the realised resources in the game world are potentially and seemingly infinite to all players, because they cannot be sure what objects are intended to play a role in the game world and which do not. Both the transformation rules and the realised resources can then be seen to depend on the acceptance of the game world as an omnipresent and persistent realm in which everything is part of the game. This is what Goffman calls the rules of irrelevance; the selective disregard of all practices and objects that normally have a meaningful place in the life world domain, but which are not in keeping with the cultural conventions that apply to the world of the game. These rules facilitate the state needed to accept the world as arena of play. How we can describe this state and the way in which it comes into being will be where we turn our direction to next.

THE STATE OF PLAYING

Now that we have determined that the pervasive game world, just as the realm of everyday life, is in fact a semiotic domain with its own rules and conventions, and that the coming-into-being of this game world requires an active mental shift from the player to his/her surroundings, we can direct our attention to the instance in which this happens. What we are looking to determine, then, is nothing short of a description of the state of playing.

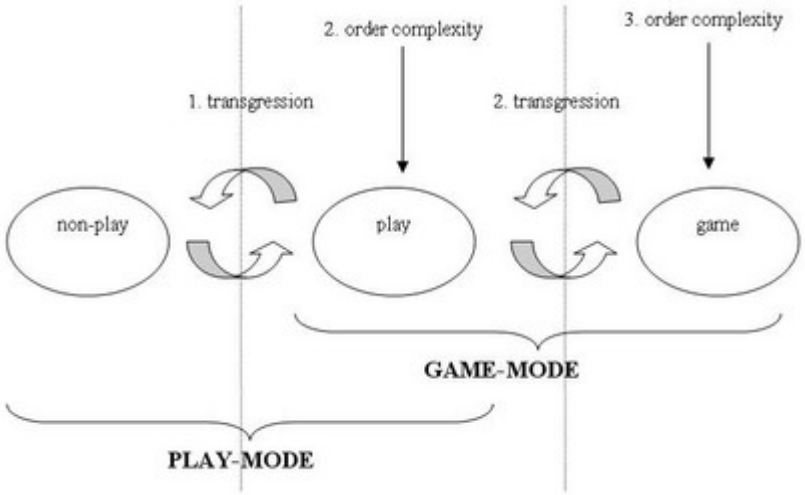
Up to now, little research has been conducted into the area of formalised player attitudes when playing a game. Attempts that have been made include Bernard Suits' *lusory attitude* [25] and the gaming *mindset* as devised by Satu Heliö [14]. Both of these terms apply to the way a player views the game world when in play, but do not address the instance when this change in mental state actually occurs, which in turn denotes the coming-into-being of the game world. This is why we now redirect our focus to the interface.

The Liminal Interface

We have already determined the fact that the interface which makes the game world possible is not only located in hard- and software, but also in the mind of the player. I call this border the *liminal* interface, liminal referring to the status of the interface as threshold or transitional stage [28]. This term has been used by anthropologist Victor Turner to describe a certain "*social limbo which has few* […] *of the attributes of either the preceding or subsequent profane social statuses or cultural states*" [6]. Brian Sutton-Smith in his 1997 "The Ambiguity of Play" describes Turner's view with regards to play, "*meaning that it occupies a threshold between reality and unreality, as if, for example, it were on the beach between the land and the sea*" [26]. The liminal interface, then, is the interface located in the mind of the player we discussed before, and refers to the semiotic switch between the lifeworld domain and the semiotic domain of the pervasive game. This interface can be divided into two different levels: the paratelic and the paraludic interface.

The following theory is based on a combination of existing frameworks in adult play psychology by Apter et al [1], and the classification of playing and gaming as devised by Bo Kampmann Walther (2003) [27]. Walther views two different transitions between firstly the initial serious state of mind into play, which secondly in turn is required to make the transition into accepting the rigid rules of a game. The terms "play" and "game" must be taken in Caillois' sense, respectively meaning *paidia* : " […] *an almost invisible principle, common to diversion, turbulence, free improvisation, and carefree gaiety* […]"and *ludus*: "*tendency to bind it* [paidia] *with arbitrary, imperative, and purposefully tedious conventions, to oppose it still* […]" [2]. Paidia refers to free play such as that of children, whilst ludus indicates the institutionalised game with its rules and regulations.

During the discussion of the two levels of the liminal interface, let us take a closer look at Walther's framework.



Walther (2003: p. 5 of 9)

Level 1: The Paratelic Interface

Observe the first trangression from non-play (reality" or lifeworld domain) into play. This first initiation into the pervasive game, and indeed to all games in general, is the paratelic

Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play.

state. Coined by psychologists Apter and Kerr in 1991 in their book "Adult Play: A Reversal Theory Approach", this notion applies to a playful state of mind, as opposed to one in which the "seriousness" of everyday life takes pride of place. In the paratelic state, a person becomes playful and lets go of the restraints and cultural conventions that refer to work and other such activities in which the end justifies the means: "*the outcome is less important than the process; the main thing is to travel hopefully, not necessarily to arrive* [: p]*aradoxically, there is a sense in which the end is the means in the paratelic state*" [1] . It has to be noted here that in games also the end can justify the means in some situations; however I must remark that such reasoning means literally thinking ahead of the game. The paratelic state of "play" must here be viewed in Caillois' sense of the latter word, and applies to paidia. The decision to play, and thus entering any game world, implies the necessary rejection of a selection of conventions and practices that are present in the lifeworld domain, or the *telic* state, in which "*some need is recognised, or goal chosen, and then a suitable activity is selected which is intended to produce satisfaction of this need or attainment of the goal*" [1]. This is what Goffman referred to as the rules of irrelevance – letting go of the practices of everyday life to prepare one's mind for play.

When we step back and view the theory of the paratelic interface in relation to pervasive gaming, we see that this is the instance in which a "normal" person, participating in a lifeworld domain, decides to reject the practices and conventions within that particular semiotic domain to enter another, more playful one. We must keep in mind however that the term "para" refers to the two-way direction in which it is possible to switch between reality and play. The fact that the conventions of the lifeworld domain are left behind through rules of irrelevance does not mean that reality is pushed out of the picture. In fact, quite the contrary is happening, as play actively needs reality to reiterate its own status; "*reality is the horizon that is transgressed in order to play, and it therefore becomes 'the other' of play. However, importantly, this otherness also has to abide within play, as it is the latter's indication of what separates it from non-play"* [27].

However, just rejecting those conventions of one lifeworld domain does not constitute the complete transaction of moving into a game world with a set of rules of its own. These rules also need to be accepted as laws that govern the new semiotic approach to the domain one is entering, otherwise the player would not, in Gee's sense, be literate in the signs of the new realm. This is why a second transition is needed which leads the player to take on these new conventions.

Level 2: The Paraludic Interface

Once the player has crossed the threshold into the paratelic state, he/she must learn to understand the rules of the game. Taking on these semiotic conventions, in which meaning is assigned in ways specific to the game world, means accepting this game world and being able to function within it as a literate player. Again, however, we need to take into account the two-directional approach to the two states (play and game), as "*play spaces tend to expand, either in structural complexity or in physical extent*" [27]. As the player transgresses into the game, play is never far away. Thinking back to the example fro The Go Game, we see that play not only functions as an extreme against which the formalised game is set off, but also that the playful attitude itself can very much be a part of the game (e.g. when assignments are open to interpretation).

These shifts from non-play tot play into game require a very active stance of the player, who needs to realise on a meta-level the qualities of all three: something is play *because* it is *not* reality, something is a game *because* it is *not* play and consequently *not*

reality. This constant threefold reiteration of a game of its own status as a game means that the player of a pervasive game will always in some form be reminded of the game being a construct. However, accepting the game world as a separate semiotic domain implies accepting the conventions within that domain as dominant and thus as "real".

CONCLUSIONS

We have seen that pervasive games are a special type of game in which the relation between reality and game is emphasised. Due to the fact that the pervasive game is set spatially and temporally in the lifeworld domain of everyday life, the way in which the game world can be distinguished from it becomes a very interesting point to pin down. This has been investigated in this paper by looking at the status of the interface.

In general, we can state that the term interface is often taken to be parallel to the screen, as it often shows itself in the guise of hard- or software applications. However, I argue that the pervasive game challenges this notion of the interface by its ubiquitous and mobile nature which literally takes the game world to the streets, mixing the semiotic conventions that exist in both the lifeworld domain of every day life and the semiotic domain of the pervasive game world. This means that the concept of the interface must be elaborated upon with a cultural aspect, as the player needs to be aware of this mixture and needs to distinguish between the two realms through a mental shift I call the liminal interface. This liminal interface can be seen as the edge of the magic circle or the metaphorical membrane, and is transgressed by rules of irrelevance.

The liminal interface can be broken down in two levels: that of the paratelic interface, which applies to leaving behind the conventions of the lifeworld domain, and the paraludic interface, which brings the player to accept the new conventions that exist in the world of the game. In pervasive games this shift is brought to the fore as a consequence of the persistent presence of the everyday world as a backdrop: the player needs to accept the game world as omnipresent, persistent and consistent universe in which everything is part of the game, or the interface, the edge of the magic circle, will be pierced - deflating the pervasive game out of existence.

This paper functions as a pre-study for my upcoming Master's Thesis "*The State of Playing: a Critical Analysis of Player-Game Interaction in Pervasive Games*" (Nieuwdorp 2005).

REFERENCES

1. Apter, M., Kerr, J., "*Adult Play: A Reversal Theory Approach*", Zwets and Zeitlinger, Amsterdam/Lisse, 1991.
2. Caillois, R., "*Man, Play and Games*", University of Chicago Press, Urbana/Chicago, 2001 (first published 1958).
3. Cheok, A.D., Yang, X., Ying, Z., Billinghurst, M. & Kato, H., "Touch-Space: Mixed Reality Game Space Based on Ubiquitous, Tangible and Social Computing" in *Personal and Ubiquitous Computing* , Springer-Verlag London Ltd.., 2002, issue 6, pp. 430-442.
4. Davidsson, O., Peitz, J., & Björk, S., *Game Design Patterns for Mobile Games*. Project Report to Nokia Research Center, Finland. Available at http://www.gamedesignpatterns.org/ (last visited 13 April 2005).
5. Dourish, P., "*Where the Action is: The Foundations of Embodied Interaction*", MIT Press, Cambridge MA/London, 2001.
6. Ericsson, Martin, "Play to Love: Reading Turners 'Liminal to Limonoid, in Play, Flow, and Ritual; An Essay in Comparative Symbology" in Montola, M. & Stenros, J. (eds.) *Beyond Role and Play:*

Tools, Toys and Theory for Harnessing the Imagination (book for Solmukohta 2004), Ropecon ry, Helsinki, 2004, pp. 15-31.
7. Foucault, M., "The Formation of Objects", chapter 3 in *The Archaeology of Knowledge*, Routledge, 1969. Available at http://foucault.info/documents/archaeologyOfKnowledge/foucault.archaeologyOfKnowledge.ch-o3.html#1 (last visited at 13 April 2005).
8. Gee, J., "*What Video Games Have to Teach Us about Learning and Literacy*", Palgrave Macmillan, New York, 2003.
9. Goffman, E., "Fun in Games" in *Encounters: Two Studies in the Sociology of Interaction*, Bobbs-Merril, Indianapolis NY, 1961.
10. Grudin, J., "The Case against User Consistency" in *Communications of the ACM*, (October 1989), Volume 32, nr. 10. pp. 1164-1173.
11. Grudin, J., "The Computer Reaches Out: The Historical Continuity of Interface Design", *CHI '90 Proceedings* (April 1990), pp. 261-268
12. Grudin, J., "Interface" in *Communications of the ACM,* (April 1993), Volume 36, nr. 4, pp. 112-119.
13. Hawkes, T., "*Structuralism and Semiotics*", Routledge, New York/London, 2003 (first published 1977).
14. Heliö, S., "Role-Playing: A Narrative Experience and a Mindset" in Montola, M. & Stenros, J. (eds.) *Beyond Role and Play: Tools, Toys and Theory for Harnessing the Imagination* (book for Solmukohta 2004), Ropecon ry, Helsinki, 2004.
15. Huizinga, J., "*Homo Ludens: A Study of the Play Element in Culture*", Beacon Press, Boston MA, 1955.
16. Johnson, S., "*Interface Culture: How New Technology Transforms the Way we Create and Communicate*", Harper, San Francisco, 1997.
17. Laurel, B., "*Computers as Theatre*", Addison-Wesley Publications, Boston MA, 1991-
18. Manovich, L., "*The Language of New Media*", MIT Press, Cambridge MA/London, 2001.
19. McGonigal, J. "A Real Little Game: The Performance of Belief in Pervasive Play", *Digital Games Research Associaton (DiGRA) "Level Up" Conference Proceedings*, Utrecht, November 2003. Available at www.avantgame.com
20. Meyer, B., "*Object-oriented Software Construction*", Prentice Hall International Series in Computer Science, Hemel Hempstead, 1988.
21. Nieuwdorp, E., "*The Promiscuity of Pervasive Play: Towards a Definition of Pervasive Gaming*", paper written during internship at Gotland University (Trans Reality Gaming Lab), IperG Project, 31 January – 1 May 2005 (unpublished, copies available at request to the author).
22. Nieuwdorp, E., "*The State of Playing: a Critical Analysis of Player-Game Interaction in Pervasive Games* (working title)", upcoming Master Thesis (2005, copies available at request to the author).
23. Salen, K., Zimmerman, E., "*Rules of Play: Game Design Fundamentals*", MIT Press, Cambridge MA/London, 2004.
24. Sotamaa, O. "All the World's a Botfighter Stage: Notes on Location-Based Multi-User Gaming" in *CGDC Conference Proceedings* (June 2002), Tampere University Press, pp. 35-45.
25. Suits, B., "*Grasshopper: Games, Life and Utopia*", David R. Godine, Boston MA, 1990.
26. Sutton-Smith, B., "*The Ambiguity of Play*", Harvard University Press, Cambridge MA/London, 1997.
27. Walther, Bo Kampmann, "Playing and Gaming: Reflections and Classifications" in *Game Studies: The International Journal of Computer Game Research*, eds. Aarseth, E., Eskelinen, M., Ryan, M-L., & Tosca, S., (May 2003) Volume 3, Issue 1.
Available at http://www.gamestudies.org/0301/walther/ (last visited 13 April 2005).

Websites

28. http://www.askoxford.com , Oxford Dictionary online (last visited 13 April 2005).

29. http://iperg.sics.se , website for the European Integrated Project on Pervasive Gaming (last visited 13 April 2005).

Games Cited

30. *Botfighers*, (It's Alive! 2001), www.botfighters.com
31. *I Love Bees*, (2004) http://www.avantgame.com/ilovebees.htm and www.ilovebees.com (last visited 13 April 2005)
32. *The Go Game*, www.thegogame.com (last visited 13 April 2005)

Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play.