SYSTEM AND EXPERIENCE

A Guide to the Videogame as a Complex System to

Create an Experience for the Player

A Master's Thesis by

Víctor Navarro Remesal

Tutor: Asunción Huertas Roig

Department of Communication

Rovira i Virgili University (2009)

This Master's Thesis was finished in September, 2009.

ACKNOWLEDGEMENTS

I would like to thank my tutor for her support, advice and interest in such a new and different topic.

Gonzalo Frasca and Jesper Juul kindly answered my e-mails when I first found about ludology and started considering writing this thesis: thanks a lot.

I also have to thank all the good people I met at the ECREA 2008 Summer School in Tartu, for giving me helpful advices and helping me to get used to the academic world. And, above all, for being such great folks.

My friends, family and specially my girlfriend (thank you, Ariadna) have suffered my constant updates on the state of this thesis and my rants about all things academic. I am sure they missed me during my months of seclusion, though, so they should be the ones I thanked the most. Thanks, mates.

Last but not least, I want to thank every game creator cited directly or indirectly in this work, particularly Ron Gilbert, Dave Grossman and Tim Schafer for *Monkey Island,* Fumito Ueda for *Ico* and *Shadow of the Colossus* and Hideo Kojima for the *Metal Gear* series. I would not have written this thesis if it were not for videogames like these.

INDEX

INTRODUCTION

The aim of this thesis is to provide a complete and useful description of what a videogame is. I will not limit my research to any specific genre or type of videogame: I will try to identify what is common to all videogames and, therefore, what is needed for a videogame to be a videogame.

As I will show in this thesis, it is a common assumption amongst Game Scholars that videogames are systems: a set of interrelated parts that interact in different ways. My intention is to check if that is accurate and, if so, analyze the precise structure of that system and how it works.

These questions are the starting point of my thesis:

· What is a videogame?

· Is the videogame a system? If so, how does it work?

To answer these questions, I will attempt to construct a detailed definition of videogame that will serve me as a compass throughout the rest of my research.

Videogames are very dependant on technology: I would like to determine its exact role. That adds another research question:

· How is technology a part of the videogame?

Another element that I consider crucial for my research is the player. Without a player to play the videogame, the videogame is just a set of possibilities. Since I want to study videogames as an active system, I need to answer two more questions:

· What is the exact role of the player in the videogame?

· Why the player plays?

By answering these questions, I hope to create a complex and global description of the videogame, not just of the game elements of it. In addition to the core system (the game elements of the videogame) I would like to include the outer elements (such as the technology) and the player in the system I propose.

For the sake of honesty, I consider important to give some clues about my educational and personal background. I have training in scriptwriting (for film, new media and humour TV, to be precise) and, having published a collection of short tales recently, I can say that I am a writer myself. I am familiar with narrative, and this familiarity made me want to analyse videogames as a mean to convey a story. But, as authors such as Jesper Juul or Gonzalo Frasca claim, videogames should be studied and valued for what they are: games. I want to study videogames as games, even though that does not contradict my first intentions; I still want to answer that question:

· What is the role of narrative in videogames?

My hypothesis is that videogames are a complex, multi-layered system that includes not only game elements, but the specific technology and the player. The videogame system has compulsory and optional elements that can be combined to create a vast range of videogames. Story is not an obligatory part of the videogame system, although many of its elements present narrative possibilities that can affect the player's experience. This

experience is created by the interaction of the system elements, is the reason why the player plays and goes beyond the mere idea of “fun”. In short: videogames are a multi-layered system that creates an experience for the player.

I will start this thesis with a definition of videogame and the basic map of its systematic nature. After that, I will study each one of these parts of the system in-depth: the surrounding system (the context and the technology), the player and the resulting experience and the core system (the game elements of the videogame).

This thesis is addressed to both game scholars and game designers. I hope it ends up being useful for both of them.

CHAPTER 1

WHAT IS A VIDEOGAME?

1.1 · THE FOUNDATIONAL QUESTION

Although it may seem kind of obvious, the definition of what *exactly* a videogame is has caused several troubles to Game Studies scholars. Many of the discrepancies, as the "ludology vs. narratology" debate[1], seem to arise from this very point. Therefore, if I set out to make an in-depth analysis of the videogame system, I will need a strong and clear definition of *videogame*.

We may all agree that a videogame is a game which is played using an electronic device. This definition, however, may include games that are not videogames, such as classic board games with electronic components. For the game to be a videogame the electronic device needs something else. Let's consider this definition provided by the Merriam-Webster online dictionary[2]:

> *An electronic game played by means of images on a video screen and often emphasizing fast action.*

I will discuss the "often emphasizing fast action" bit later. It is the "played by means of images on a video screen" part that interests me: the electronic device used for videogames serves both as a "generator" of the game content and as a "translator" of

[1] Clearly summarised by Gonzalo Frasca in his article *Ludologists love stories, too: notes from a debate that never took place*. (2003) http://www.ludology.org/articles/Frasca_LevelUp2003.pdf
[2] http://www.merriam-webster.com/dictionary/video+game

said content into information that the player can understand. The images on the video screen are what is important to the player, not the device itself. Consequently, it can be said that the electronic device is a *remediator* of the game, and that, as Game scholar Marku Eskelinen (2001) states, videogames are *remediated* games.

After this, I should indicate which electronic devices I am talking about. This was not a problem until a few years ago: videogames were created to be used either in home computers or in specific game apparatus commonly known as *game consoles*. Those devices are often referred to as systems or platforms. Given that I will be using the term "system" to talk about the videogame as a whole, I will call them, from now on, *platforms*.

As I said, for generations videogames have existed in and for traditional platforms (PC and gaming consoles). With the improvement of technology and the increase of the number of casual gamers[3], videogames have leaped into a vast array of devices whose primary use is not that of gaming, such as mobile phones, handheld music players and PDAs. As their technical capabilities are getting better and the casual players' prowess is improving, the videogames for those new gaming platforms are getting more complex. Hence, it would be a mistake to dismiss them as gaming platforms. I will elaborate on that in coming chapters.

With this new category of gaming platforms the (already unclear) borders between what is and what is not a videogame have been blurred even more. Until that, every application that was developed for a console was considered a videogame. (We could

[3] Gamers who play sporadically and/or with a low level of engagement.

find some not so clear applications for the PC, but generally everybody agreed on what a videogame was). Videogames were ludic applications raising challenges and goals to the player. Those goals were usually simple: get to the end of the level/game without being killed, get as many points as you can, defeat the computer or the other player… Now, not only do we find videogames in non-gaming platforms, but we can also find different applications (other than games) in traditional gaming devices.

It was with Nintendo DS[4] that Nintendo decided to try and convince people not familiar with videogames to play, and they did it mainly with a line-up of accessible, casual gamers-friendly titles that Nintendo president Satoru Iwata labelled as "non-games"[5]. Those non-games comprise varied ideas, from the merely relaxing and experimentational *Electro Plankton* to the pet simulator *NintenDogs*[6], or even more practical and "scientifically validated" (sic) applications as the *Brain Training*[7] series. While these applications seem to lack a clear goal, and have a handy side to them besides the ludic use, they still seem to have some inner rules and a playful dimension. The main allure of *Brain Training* is not only to exercise our brains, but to do so in an entertaining fashion. In next chapters I will expose why I still consider them to be videogames, even when their own developers say otherwise.

So, I started with the idea that a videogame was a clear object, easy to define, but in next to no time I found a couple of problems that mystified me: videogames can exist within a wide range of platforms, and some applications appear to defy our basic

[4] A handheld system with two screens, one of them tactile, and a built-in microphone. First released in 2004.
[5] "First, it is one of those non-game games I mentioned; a form of entertainment that really does not have a winner, or even a real conclusion." Satoru Iwata talking about *Animal Crossing* at the GDC, March 2005.
[6] The best-selling title in the system, with more than 22 million sold worldwide.
[7] Also known as *Brain Age*.

concept of game. Well, there is still one more apparent axiom to question: what is distinctive to videogames is their *interactivity*. That, I believe, is not true. Interactivity is not an exclusive of videogames; it is everywhere. Menus on our DVDs, websites, mobile phones applications, computer programs… almost everything we use in our modern society has a digital interactivity similar to that of videogames. In fact, *too* similar to consider it unique to videogames.

Let's go back to Eskelinen (2001). He stated that "outside academic theory people are usually excellent at making distinctions between narrative, drama and games." I do no doubt this, but I have to admit that some applications are hard to fit in one of these two categories (videogames and narratives). When the CD technology became popular in the early 90s, game platforms as Sega Mega-CD or 3DO got flooded with "interactive movies[8]": games consisting of a narration (on video) where the player had to press the right button in time to further advance. If not, she got a "death" or "dead end" video (a negative outcome) and the game was over. That was all; the only possible interaction the player had.

In time, cut scenes grew to be a frequent part of videogames, occasionally alternating with playable sections. Some videogames have a heavy load of them, as is the case with the *Metal Gear Solid*[9] series: one can spend practically the same time watching narrative cut scenes as actually playing. Interactivity is not a feature of these cut scenes[10]. Another case: game developer Cing[11] is well known for creating games with

[8] However, they were born way before: the first interactive movie is Dragon's Lair, an arcade videogame published by Cinematronics in 1983 featuring animation by Don Bluth.
[9] Developed by Konami and Kojima Studios. Created by game guru Hideo Kojima.
[10] Even though there can be little interactions allowed to the player, like moving the camera around or changing the angle.
[11] *Another Code* (2005, Nintendo DS), *Hotel Dusk* (2007, Nintendo DS), *Another Code R* (2009, Wii).

lots of dialogs and lines of text, as well as complex characters and intriguing plots. Hardly not a narrative. We do not need such extreme examples, though. Narrative is a key element in many modern games, and it adds varied functions and uses. I have showed that some videogames put interactivity temporarily aside in favour of narrative. So, videogames are not the exclusive owners of digital interactivity, and this interactivity does not need to be present throughout the whole videogame.

Now I have a good view of the main obstacles that can arise when attempting to define videogame. I would say I am ready to go for that definition.

(I have not forgotten about the Merriam-Webster definition. I would not consider "often emphasizing fast action" an essential trait of what a videogame is. The aforementioned *Electro Plankton* –yes, I said I deem it a videogame–, *Endless Ocean*[12] or *Flower*[13] focus on creating a gentle, harmonic atmosphere for the player to relax, while providing opportunities to be playful.)

Fig.1.1 – *Flower*, a PSN downloadable game

[12] A scuba diving simulator for the Wii.
[13] One of the developers, Kellee Santiago, called it "a videogame version of a poem".

1.2 · CONSTRUCTING MY DEFINITION

Within the academic world videogames have been described in various ways. Espen Aarseth (1997) studies them as *cybertexts*[14]; that is, focusing on the organization of the text and the influence of the medium on it. Jesper Juul (2005) sees them as *rule-based systems*. Those two concepts (rule-based and system) are crucial in Game Studies. Game researcher and "serious games" developer Gonzalo Frasca (2003) considers games to be *simulations*, another pivotal concept.

Before discussing these and other terms related to the nature of videogames, I will make clear that I agree with the ludologists' claim that, first and foremost, videogames are *games*.

Videogames being games, I should go back to the first Game Studies academics to start working on my definition. Roger Caillois (1958) was one of the first scholars to study games; he said that a game is a fictional, unpredictable, and unproductive activity with rules, with time and space limits, and without obligation. Thus, games are:

- Fictional, that is, not real, happening in a space different to that of the real world. I would say that acknowledging and accepting this fiction gives way to the pact between player and game.
- Unpredictable, with a high level of uncertainty that will motivate the player. If the outcomes of a game were decided beforehand, there would be no point and no pleasure in playing it.

[14] A term derived from cybernetics, a field that gives a central importance to feedback and input. Julian Kücklich (2002) also called games "second-order cybernetic systems".

- Unproductive, given that we expect no direct result or benefit from the act of playing. I would add that the primary reason to play the game is unproductive (we play just for fun), even if we get some benefits as by-products (health improvement, learning…). Those benefits, though, need to be a by-product, or we would be talking about training and studying rather than playing a game. Some players play for money, in a sportive way[15]: that I would consider official competition and, again, not playing.
- With rules. Again, we find rules as an imperative to the game system.
- With time and space limits, clearly defined and accepted. Those limits allow comprehending the fiction of the game.
- Without obligation, in a voluntary fashion.

Caillois distinguished between play and game, or, as he called them, *paidia* and *ludus*. Those two concepts will come in handy for our definition, for they can clarify the role of rules and goals in games. According to Eric Zimmerman (2004):

> *"Play is the free space of movement within a more rigid structure. Play exists both because of and also despite the more rigid structures of a system."*

Zimmerman talks of three categories: game play, ludic activities and being playful. His definition of *play*, hence, falls within his first category. That indicates that, while paidia and ludus can be seen as contraries (freedom and restraint), they actually inhabit and form a single system, for the freedom of playing does not come from the lack of rules,

[15] There's an active *StarCraft* professional competition circuit. They even broadcast it in South Korea, and it is followed by millions. And some people make an awful lot of money of playing. Wow.

but, according to John Huizinga (1938), -another of the first scholars to study videogames-, from its provisional or superfluous nature. This is his definition:

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

There is one important fact to be found here and not present in the Caillois' definition: "rules freely accepted *but absolutely binding*". We, as players, know that a game has no real consequences and no effect in the real world; we know that we accept those rules voluntarily, but at the same time we realize that, once we accept them, they have to be absolutely binding. Otherwise, there would be no game. As I said, there is a pact between the player and the game, and this pact implies:

- a) that the conditions (the rules) of the pact are clearly exposed and accepted by both parts and
- b) that both parts abide by these conditions, and for that reason the pact is mandatory for the game to exist.

We accept to play by the rules and we agree to experiment the feelings of *tension* and *joy* that Huizinga points out. Play is a meaning-making activity; as he says, where there is play, there is also "meaning". We have freedom within the game system because it has rules that delineate its behaviour and our ways to achieve that meaning. Katie Salen and Eric Zimmerman (2003) put the formal structure first and the movement of play second. Games, they say, have an inner formal logic; their rule-based nature is what is distinctive to them as a phenomenon.

The “more rigid structures” where the player has that “free space of movement” are what delimitate the paidia activities. Then, I can say that paidia is not a wild, lawless territory, but one where the rules define only the behaviour of the environment, and not the valorisation of the player’s actions and the quantification of their outcome. Wolfgang Kramer (2000) establishes two set of criteria to differentiate “games with rules” from the others:

- The first set, the basic criteria, is shared by all games: common experience, equality, freedom, activity and diving into the world of the game.
- The second set, particular for “games with rules”, includes game rules, change (the course of the game is never the same) and competition.

The two sets seem fairly reasonable, although I would not call the second type “games with rules”. I just saw (and will see again a few more times) that play-paidia needs rules, just not those that valorise the player actions. We should start talking about *quantifiable outcomes*. So does Zimmerman (2003) when defining *game*:

> *“A game is a voluntary interactive activity, in which one or more players follow rules that constrain their behaviour, enacting an artificial conflict that ends in a quantifiable outcome.”*

Again, this does not contradict his definition of play. *Rules constrain players’ behaviour*, but they still allow freedom of movement (play exists both because of and despite the more rigid structures). Some interesting ideas are to be found here:

- Players *enact* that artificial conflict. This idea of enactment will be valuable when describing the player's exact role in the videogame system.
- There is an *artificial conflict*. A game needs a certain dose of chaos, of disarray, to be interesting. If everything is alright with the game world, the player has nothing to do there.
- This conflict ends in a *quantifiable outcome*. This outcome, which value is clearly indicated, is fundamental to mark a game as *ludus* rather than just paidia.

Nicolas Esposito (2005) questions the need of that quantifiable outcome to define videogames because, as he indicates, there are games without it, or with no artificial conflict. He talks about "toy-games" and "puzzle-games". While I agree on the accidental nature of outcomes, I have to disagree on the need of an artificial conflict. As I said, the game world needs some element to be *out of place* for the player to have something to do. A conflict is the confrontation of self-excluding, opposing forces. It is a matter of antagonisms. Puzzle-games do have a conflict, albeit an abstract one: there are problems to solve and, in the case of time-based puzzles such as *Tetris*[16], a time limit to do it.

And for toy-games, a good example could be *Noby Noby Boy*, probably the most bizarre, baffling gaming experiment I have seen for a long time. In it, the player controls some sort of worm and she has to stretch it (or, actually, she does not have to, she just *can*). The playing space is randomly generated, and is normally not very big. Players can add up their achieved length to a giant worm floating in outer space called *Girl* and

[16] The player needs to eliminate rows, but she only has arbitrary random pieces to connect and form those rows. And the pile of pieces cannot reach to top of the screen, or the game is over. Constant falling of pieces versus the need to eliminate them and clean the play space: sounds like a conflict to me.

make it grow collectively, getting to other planets in the solar systems as it gets longer and longer[17]. The limited space to move (and stretch) plus a rubber-like friction in the worm's stretching physics prevent players from growing freely. There has to be an effort if the player wants to grow; there are (weak, abstracts) obstacles for she to overcome. *Noby Noby Boy* does not feature a strong conflict, but it would be inaccurate to state that it does not feature one at all.[18]

Fig. 1.2 – Boy stretches himself out in *Noby Noby Boy*.

Once I have clarified this, I can take a look at Esposito's (2005) definition of *videogame*:

> *"A videogame is any kind of game that can be handled by an audiovisual apparatus."*

[17] I told you, it is as insane as games can get. No doubt it is created by the author of *Katamari Damacy*, another milestone in odd game design.

[18] Let's compare it with a virtual space like *Second Life*, where nothing can hurt us, we can move freely in every direction with no physics to limit us. If there are conflicts in *Second Life*, they come from the interaction between users, but not from the application itself. In that sense, this program is more similar to a 3D chat room than to a game.

It looks like I am simplifying it, and back to square one again. I quoted that definition now because Esposito analyses the different types of games and *actively* refuses to exclude games that do not have a quantifiable outcome from his definition. He talks about *any kind of game*, and I believe that is what we should do.

Actually, Esposito defines videogame again in the same text (2005), and adds another element:

> *"A videogame is a game which we play thanks to an audiovisual apparatus and which can be based on a story."*

A videogame *can be based on a story*. Even though I agree on that statement, the *possibility* to have a story does not seem to be as important as to be included in such a short definition. After all, it is just a possibility, and videogames can be many things. What is important is what they *undeniably* are: what makes them essentially be what they are, and not other thing. And whilst I appreciate the attempt to acknowledge the narrative capabilities of videogames, its inclusion in this definition is, in my humble opinion, a little far-fetched.

Less ambitious, and consequently more likely to succeed, is the inclusion of narrative features in Chaim Gingold's (2003) definition. He analysed *Wario Ware*[19] in-depth and reached the following conclusion:

[19] A game consisting of heaps of micro-games (often taking place in 5 seconds or less), with a strong use of metalanguage. It was first released for the Game Boy Advance in 2003 and since then it has spawned a series of sequels, all of them experimenting with and showing each platform's unique traits.

"A video game is a world with its own fiction, nouns, verbs, goals, and controls."

A videogame has *its own fiction*. Some abstract videogames may lack a patent, easily describable fiction (and one could argue that *even then* we have a fiction), but fiction is an important part of videogames nonetheless. No matter whether videogames tell (or are based on) a story or not, they will always have *fiction*. It is a more modest concept than story, but also less vague.

Fig. 1.3 – A *Wario Ware* micro-game

He extracts three main parts in a videogame from his analysis (2003) of *Wario Ware*'s micro-games. Games, he says, have:

- Fiction. Examples: I am a lizard and I eat things; I am a man and can walk…
- Goal. Examples: Catch! Jump! or Avoid!
- Agency. Examples: Push the A button to catch, stop…

His definition comes from the practical study of one concrete game, and that exact game has these three main categories. However, I would not extrapolate *Goal* to all videogames, for the reasons mentioned above. Let's keep the idea of *Fiction* and consider the term *Agency*, which in fact only summarizes the player implication in the videogame. Players need to have *agency* within the videogame; they have to be able to *do* something. Players are agents with a margin to modify the game status. It is play, enactment, interactivity, all over again.

Videogames are what they are because they let the player do things. Game designer Chris Crawford (2003) proposes to abandon the term videogame and replace it for "interactive entertainments" or even "playthings". It may be too late to change such an established term, but I reckon Crawford's point is beyond semiotics: he focuses on agency, control and experimentation. Another game designer, Richard Rouse (2004) puts gameplay in the foreground, and describes it in this manner:

> *"The component of the computer games that is found in no other art form: interactivity. A game's gameplay is the degree and nature of the interactivity that the game includes."*

Again, we should be careful with how we use the term "interactivity" (quite a trendy word, with the potential loss of meaning that this entails). Interactivity can be found in other places too, and we should not demand it in every second of our gaming session. But without agency there would not be videogames[20].

[20] The problem of the limits of interactivity will be discussed again (and, hopefully, will be satisfactorily settled) in the next chapter.

The player is in the spotlight; she is at the heart of the videogame. Aarseth (2003) says that:

> *"Since a game is a process rather than an object, there can be no game without players playing."*

Videogames are "processes". They are not a fix object, but an assortment of elements that can be combined according to rules to create something. I am starting to see that videogames are systems, but what does this system amounts to? Jesper Juul (2000) gives a possible answer:

> *"Everything is relevant to the experience of the player. Creating a game involves all sense."*

So, what I am working with here is the *experience* of the player. The player engages in a game to experience tension and joy, and it appears that everything is important for the creation of said experience. Aarseth (2003) speaks of three levels in videogame analysis (that can be analysed separately or combined):

- Gameplay: the player's actions, strategies and motives.
- Game-structure: the rules of the game and the simulation
- Game-world: the fictional content of the videogame, its topology and level design.

The player's motives are pointed as a first-tier element within this system. Those three complementary levels work together to create the videogame, and thus, could we say,

the *gaming experience*. Miguel Sicart (2008) distinguishes other three levels in a videogame, this time giving even more importance to experience:

- Game system (that is, the rule-based structure)
- Game hardware (understood as the electronic device, the platform)
- Player experience

Thus, *player experience* is as important as the system that articulates the process and the hardware that executes it. Sicart maps game mechanics to input procedures (the actual way the player communicates with the game) and *player emotions* (again, what is behind her motives and what creates her experience). The player and her experience are a core element in what a videogame is.

Let's recap what I have seen so far, before I continue with more complex definitions:

- Videogames are *games* of any kind
- They are *remediated* by an electronic device (platform) that creates a virtual (fictional) space
- They have *fiction*, happen in a fictional space that presents some sort of artificial conflict and with time and space limits
- They are *rule-based*, and those rules are freely accepted but absolutely binding once the player engage in the *process*
- This process is *unpredictable, unproductive* and without *obligation*
- They allow players to have *agency* within that space, both enabled and constricted by those rules, and that interaction creates an *experience* for the player

1.3 · COMPLEMENTING MY DEFINITION

I can expand upon those five points by using the game elements Aki Järvinen (2007) cites:

- *Components*, the resources for play
- *Environment*, the space for play
- *Ruleset*, the procedures with which the game system constrains and moderates play, with goal hierarchy
- *Game mechanics*, what actions the players take as means to attain goals when playing
- *Theme*, subject matter of the game which functions as a metaphor for the system and the ruleset
- *Information*, what the players need to know and what the game system stores and presents I game states
- *Interface*, in addition to direct, physical means for the player to access game elements
- *Players*, with various formations and with various motivations
- *Context*, where, when and why the gaming encounter takes place

According to Järvinen:

> *"By minimum, a game has to have Components, Environment and at least one Game Mechanic"*

I could map those elements to the five points I have:

- The *environment* seems to fall within the fiction, the virtual space where the game takes place. Game *components* and *theme* fit this point as well.
- Games hare rule-based, thus they have an unambiguous *ruleset*. Related to it, I find *information* and *interface*: the game has to communicate its rules in a detailed and unequivocal fashion to the player, and the player needs to have a space to communicate back with the game. That formal space would be the interface.
- Interface could be related to agency too, since it is the space in which the player can send feedback to the game. Directly linked to agency we find *game mechanics*, for those mechanics encompass the actions the player can perform in the fictional environment of the game and, as a result, form her possibilities of agency.
- As a last element there is *context*: the limits in time and space of the act of playing. Järvinen not only contemplates the where and when, but the why: the motives of the player and the reasons behind the pact between her and the game.

I can extract some ideas from that to be added to my points:

- Videogames have a fictional environment with *components* inside it.
- Videogames exist in a precise and delimited *real-world* context.
- Agency is possible because of *game mechanics* available to the player.

Here I have a visible triangle composed by the game, the player and the real world. If I listen to Jesper Juul (2003) I am on to something, since he states that "a good game definition" has to include:

- 1) The kinds of systems set up by the rules of a game (the *game*)
- 2) The relation between the game and the player of the game (the *player*)
- 3) The relation between the playing of the game and the rest of the world (the *world*)

It looks like, as of now, I pass the test.[21] Juul continues consulting other definitions to write his own, for example, Avedon & Sutton Smith's (1981: 7):

> *"At its most elementary level then we can define game as an exercise of voluntary control systems in which there is an opposition between forces, confined by a procedure and rules in order to produce a disequilibrial outcome."*

Once more I find voluntary, control and systems as vital terms. They talk of an "opposition between forces", too: a conflict. (Yet again, for them, the outcome –that has to be "disequilibrial", valorised positively or negatively– is an important part of the definition of videogame.) Crawford (1981) also includes conflict amongst other three common factors:

- representation ("a closed formal system that subjectively represents a subset of reality")
- interaction
- conflict
- safety ("the results of a game are always less harsh than the situation the game models")

[21] Another one: Bernard Suits (1978) states that to test a game definition the simplest way is to test it for being either too broad or too narrow.

David Kelley (1988:50) defines game as follows:

> *"A game is a form of recreation constituted by a set of rules that specify an object to be attained and the permissible means of attaining it."*

Nothing new here, but it is interesting to see, once again, that the rules both provides the object (or state) to be attained and the means of attaining it. That can be expanded with Bernard Suit is (1978: 34) definition:

> *"To play a game is to engage in activity directed towards bringing about a specific state of affairs (prelusory goal), using only means permitted by rules (lusory means), where the rules prohibit more efficient in favour of less efficient means (constitutive rules), and where such rules are accepted just because they make possible such activity (lusory attitude)."*

The rules of a videogame have to "prohibit more efficient in favour of less efficient means": if too much power and control is allowed to the player, she will find no challenge (and, as it seems) no pleasure in playing. Rules need to create *challenge*.

With all those definitions (and more), Juul (2003) gathers all the points he finds under ten headings:

- Rules
- Outcome
- "Goals"
- Interaction

- Goals, rules and the world (artificial conflict)
- "Separate"
- "Not work"
- Less efficient means
- Social groupings; based on Huizinga's statement that playing "promotes the formation of social groupings".
- Fiction, even though he argues that "some games have a fictional element, but that is not universal to games."

From all this he concludes that the game contract is based on three components of goals:

- The valorisation of the possible outcomes
- Player *effort* (because the rules will make her use the less efficient means to attain those goals)
- *Attachment* of the player to an aspect of the outcome: the player, entering the game with a lusory attitude, agrees to feel give different meanings (and, hence, feelings) to each of the outcomes.

This game contract, then, is established on the negotiation about the meaning of those outcomes. Juul (2003):

> *"I suggest that games are characterized by being activities with negotiable consequences."*

As a result, Juul lays his definition in six points that all games have:

- 1) Rules
- 2) Variable, quantifiable outcome
- 3) Value assigned to possible outcomes

- 4) Player effort
- 5) Player attachment to outcome
- 6) Negotiable consequences

It all appears to be based on the idea of outcome and consequences, but I have seen that there can be games (and videogames) without outcomes, without end states. There are videogames that never end, such as the *Sims* series, *Animal Crossing* or even MMORPG[22] like *World of Warcraft*. If they never end, the player never gets an outcome. But a lot of scholars put this concept in their definitions… Can they all be wrong? Well, it may be time to solve that problem. Miguel Sicart (2008) gives an answer: games with no end states, such as these, have "desired states".

Remember *Noby Noby Boy*? When I was describing it, I corrected myself after saying that the player *had to* stretch the worm-character, because she is not really forced to do it, she is just offered the right tools and rules to have that possibility. The game does not actually reward her for achieving an abnormal length, but the sum of all the players' length makes the collective worm (Girl) grow and reach other planets for the players to visit[23]. One can launch *Noby Noby Boy* just to go for a walk in its overly freakish scenarios, but the game subtly gives players a *desired* state: stretch to collaborate and make Girl larger.

[22] Massive Multiplayer Online RolePlaying Games.
[23] At the time I am writing this, we (yes, I play *Noby Noby Boy* every now and then) have reached the Moon and Mars. The game was released on February 19, 2009. The moon was reached on February 23, 2009, just four days after release. Mars was reached on May 23, 2009. That gives an idea of the implication of the players worldwide in this collaborative effort (the distances are 1:1).

From all this, the conclusion I draw is that, whilst videogames may or may not have outcomes, they always present a *desired state*, a state with an optimal valorisation superior to others, thus preferable, and that cost the player an *effort* to achieve.

I consider I have enough material to arm a final definition, but before doing so I would like to address two extra questions. Firstly, we have been talking of videogames as systems, but what exactly is a *system*? Secondly, to be semantically legitimate: can we call videogames *media*?

1.4 · VIDEOGAMES AS SYSTEMS

The term system is not going to be as hard and conflictive to describe as videogame. Let's see Salen and Zimmerman's (2003) definition for it:

> *"A set of parts that interrelate to form a complex whole."*

Aki Järvinen (2007) expands upon that by saying that systems are:

> *"Dynamic wholes with interacting parts"*.

Those sets of interrelating parts have to be *dynamic*. And that is all one needs to understand what a system is; simple as it gets, and equally valid for my purposes. So far, I have seen the principal parts and glimpses of the ways they interrelate, as well as the big picture of the complex whole they form. So, what does it means that videogames are systems?

Espen Aarseth (1997) says that games should be analysed as systems rather than as narratives. While some may see this as a shot to dismiss the more narrative aspects of videogames, I think that his point is sensible and evident: narratives have a closed, linear form, whereas videogames are a set of interacting parts ready to engage in a process of uncertain result. Narratives are their own final form; videogames are the starting point of a virtually endless collection of different playing sessions. Their consumption, as the MDA crew[24] (2004) state, is relatively unpredictable.

For the three MDA scholars, design methodologies guide the creative thought process, and the interdependencies within the system designed are at the centre of the game:

> *"Designers and researchers must consider interdependencies carefully before implementing changes, and scholars must recognize them before drawing conclusions about the nature of the experience generated.* […] *Systematic coherence comes when conflicting constraints are satisfied, and each of the game's parts can relate to each other as a whole."*

David Parlett (1999: 3) declares that formal games are "systems of ends and means". For Sicart (2008), game systems are "formal structures that create gameplay". He enumerates three elements that constitute a game: the system, the player and the player-and-system in context (thus, the world). For him, "the design process is understood as the creation of a system, and the interaction possibilities that a player has with that system". Salen and Zimmerman (2003) treat rules as a formal system, which then

[24] Mechanics-Dynamics-Aesthetics, by Robin Hunicke, Marc LeBlanc and Robert Zubek, The MDA is a theoretical framework for Game Design based on these three steps (mechanics, dynamics and aesthetics).

generates play as an effect, which in turn takes place within a cultural context. Thus, they point to three main concepts:

- Rules, "the organization of the designed system"
- Play, "the human experience of that system"
- Culture, "the larger contexts engaged with and inhibited by the system"

Games are a system of interdependent ends and means with which the player interacts to create an experience and located in a larger context. This seems to differentiate between the actual system and the elements that are linked to and interact with the system but are not a part of it, such as player and culture. And those two are separate elements of their own. Even more, we have a fourth level: the results of the interactions of all those elements: the experience (or play). These elements interact in a process like this:

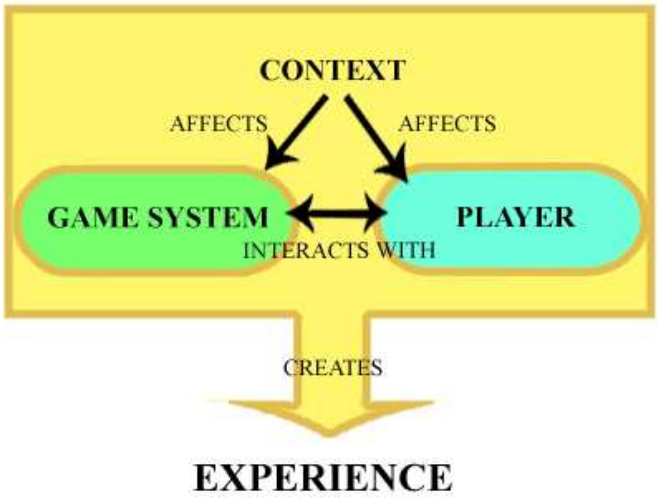

Fig. 1.4 – The videogame process[25]

Järvinen (2007) states that "any kind of game can be identified through a limited number of structural features called game elements." In his analysis of *Wario Ware*,

[25] Created by the author.

Chaim Gingold (2003) affirms that it "demonstrates how complex games can be built out of simple components." For Salen and Zimmerman (2003), those elements are four: objects, their attributes, their internal relationships and an environment where they take place. Stefan M. Grünvogel (2005) further elaborates on those objects and their interdependencies:

> *"A game consists of objects which change their state during the play, where the evolution of their state is governed by the rules and influenced by the players or other objects."*

Therefore, the dynamism of the videogame system corresponds to a series of *changing states* belonging to the objects inside the game. And those object states change because of the player or other objects and the rules that govern the system. Järvinen (2007) says that the game system "displays behaviour, which has been argued to be the essence of games as entertainment." But is this behaviour inherent to the strict game system (meaning the game code) or a product of the interactive process?

I seem to be dealing with two ideas of the videogame system at the same time. Whilst almost every scholar acknowledges the importance of the player and even the real-world context, they appear to speak of the videogame system as nothing more than what is encoded inside the videogame *software*. Certainly there are objects with attributes, internal relationships and environments in the virtual space provided by the code, but they amount to nothing without the parts left outside in such a precise view of the videogame system. Järvinen (2007) himself notices it, and he talks about incorporating such a formal model of games into another model "that is more sensitive to players and

the contexts of play". The same goes for Daniel Cook (2007), who claims that games are self-contained logical systems, but criticizes focusing only on them:

> *"You end up with a set of fragmented pieces that tell you almost nothing about the meaningful interactions between the game as a simulation and the player as an active and evolving participant. Games are not mathematical systems. They are systems that always have a human being, full of desires, excitement and immense cleverness, sitting smack dab in the centre."*

I do agree wholeheartedly. Games are not mathematical systems, and even if they need to present a clear, self-contained logic, we should never stop thinking about the uncertainty and freedom that comes with them. But I need not worry; the solution is much simpler than it seems. I already made a map of the videogame process: I will say that *that map* is the videogame system. As I see it, the videogame system is a complex, multi-layered system, containing an inner, or *core*, system (what the code generates) and an outer, or *surrounding*, system (the context and the platform).

The player, in the very moment she decides to play the game, becomes the *primary propelling force* of the system, based in the surrounding system and influencing the core system. And for the experience, I can say that it is the result of the process, although at the same it forms a cycle by modulating the player's expectations and interest. The experience is not a palpable and visible object attained once we finish our gaming session, but a *stream* of emotions constantly fed to the player. Given that the player enters the game with a previous knowledge and a set of expectations[26], I can easily

[26] More on that in the next chapter.

valorise this stream of experience: it can meet the player's expectations, surpass them of fall short. Each gaming experience is added to the player's knowledge and expectations, consequently modifying it. Thus, experience may be considered an indirect part of the videogame system, not only a result

.

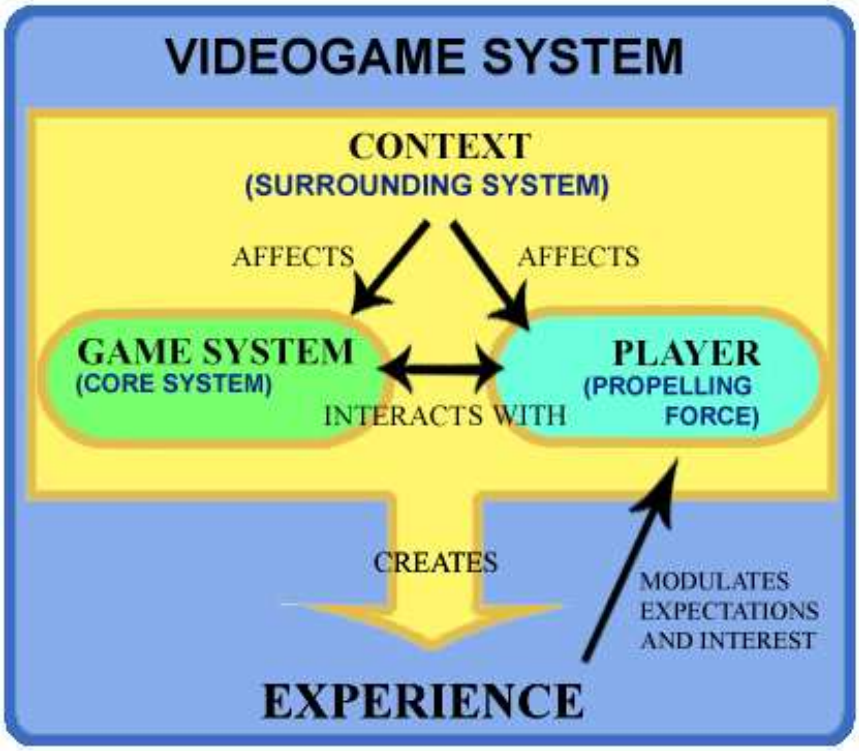

Fig. 5 – The videogame system[27]

1.5 · VIDEOGAMES AS MEDIA

Videogames are remediated games, but, are they media? I will go back to Merriam-Webster[28] one more time:

[27] Created by the author.
[28] http://www.merriam-webster.com/dictionary/medium

> ***2****: a means of effecting or conveying something: as* ***b*** *plural usually media* ***(1)****: a channel or system of communication, information, or entertainment — compare* ***MASS MEDIUM*** ***(3)****: a mode of artistic expression or communication*[29]

Videogames are systems, and they could be considered to act as a channel and communicate in the same way movies do. They are definitely a system of entertainment. And I do not want to discuss whether they are a mode of artistic expression or not.[30] Rune Klevjer (2001) says that media are "rhetorical":

> *"Without a message, there is no medium. The computer is a meaningless, empty machine.* […] *I would call the game a medium."*

Some would say different, as Jesper Juul (2003), who claims there is not a single "game medium", for that many games move between media. He labels games as "trans-medial" entities. Notice that here we are dealing with games in general and not only videogames. I will insist, videogames seem to fit the Merriam-Webster definition, and it can be said that they are rhetorical. Even if a set of rules can be adapted and exported to different media, it is unlikely that they remain exactly the same.

So let's assume that videogames are a medium, and try to see how that medium is. Once more, I will quote Klevjer (2001):

[29] Abridged definition.
[30] Otherwise, I'd have to write a thesis just on that, and first we'd have to agree on what art is.

> *"A computer game offers both an interface to the world and an interface to a specific procedural logic, and is therefore both a representational medium and an action machine".*

This procedural logic (or *procedural representation*, as Klevjer later puts) is a vital part of the videogame as a medium. With this, I feel I am going back to the remediated nature of videogames. Janet Murray (1997:71) talks about "digital environments", which are procedural, participatory, spatial and encyclopaedic. Klevjer (2001) takes these categories and changes the first two for performatory (the computer executes procedures) and responsive, and deems spatial too narrow an essential property: it is a part of the computer's representational powers ("It enables and structures movements and actions").

Espen Aarseth (1997: 40) points out the unique dual materiality of cybernetic sign productions. He tells "strings of signs as they exist in the game" (*textonic* game elements) apart from "strings of signs as they are presented to the player" (*scriptonic* game elements). He says that the dominant user function in games is the *configurative* one: we have to interpret in order to be able to configure.

Lastly, I would like to quote Juul (2003) again about the remediated nature of videogames. Four (plus one extra) are the characteristics that videogames add to non-computerised games: Time, Automation/Complexity, Replay, Levels and, as a fifth point, narration, which occurs "mostly between levels".

Automation and *complexity* are what I find most useful (because some games do not have levels or narration, while time and replay could be a part of that automation).

1.6 · MY DEFINITION OF VIDEOGAME

Finally, I am ready to render my own definition of videogames, in ten points:

- 1) Videogames are *games* of any kind
- 2) *Remediated* by an electronic platform that creates a virtual space and adds *automation* and *complexity*
- 3) With *fiction*, happening in a fictional space with components that present some sort of *artificial conflict*
- 4) Existing in a delimited real-world *context*
- 5) *Unpredictable, unproductive* and without *obligation*
- 6) Played by a player with a *lusory attitude* and an *attachment* to the game state
- 7) *Rule-based*, and those rules create *challenge* to demand player *effort*
- 8) With several possible valorised states, and amongst them *desired states*
- 9) Giving *agency* to the player by *game mechanics*
- 10) Forming a *complex system* where the code, the context, the platform and the player interact to create a *stream of experience*.

CHAPTER 2

THE PLAYER AND THE EXPERIENCE

2.1 · THE HUMAN BEHIND THE CONTROLLERS

Without a player, there would be no game. We would have just a lifeless, futile system ready to be started. Despite that, sometimes we seem to be content just by mentioning her and use little time to study her figure inside the videogame system. In this chapter I will attempt to describe the role (or roles) that a human assumes when interacting with a game and becomes a player, the different attitudes she can have in front of that game, her motivations and the way she interacts with the game and with other players. Player needs to be the first element of the system we study thoroughly.

I would like to emphasize the *human* nature of the player. It is not a machine who plays, and as I have just seen, videogames are not mathematical systems. Players are unpredictable, so need to be videogames to a certain degree. Above all, videogames are systems designed to create experiences for humans. Thus, experience will be the second part of this chapter. But, one can object, in the videogame system map experience and player are different parts, why put them together?

Well, as I said, experience is a cyclic thing: it is not just a product of the act of playing, but an important part of the player's motivations to play. We start to play with a *desired experience*, an idea of the class of experience we want to get from the game. This corresponds to the player's motivations, which in turn are a pivotal concept to try and

understand how the player thinks. Experience holds the answer to one of the most important questions in this chapter: *why we play?*

In fact, that will be the main question of this chapter, attending to what Hector Rodriguez (2008) says:

> *"The study of play as play is directed towards the experience of the player, rather than the social, psychological or biological functions that playing performs."*

I would not be so categorical, and whilst this is no psychological treatise, I may incidentally come across some of these functions. When we talk about experience, we are talking about emotions. And social functions will definitely come into play. Still, player experience is the heart of the videogame system.

For Daniel Cook (2007) human psychology has the key to game design:

> *"It is my belief that a highly mechanical and predictable heart, built on the foundation of basic human psychology, beats at the core of every single successful game."*

I believe this needs some clarification. I doubt Cook thinks that this "highly mechanical and predictable heart" is the same for *every* videogame, but that the single heart of each videogame has a heart of that kind. Otherwise, that is a dangerous thing to say: the huge variety of players that can be found (as we will see) means a huge variety of desired

experiences, and even if two player look for the same experience, they may experience the same game differently. The heart of every videogame has to be built upon human psychology, and it has to be logical (that is, "highly mechanical and predictable"), but always giving place to the unpredictability that the player behaviour will bring. Cook himself acknowledges that "humans are not creatures of pure logic."

It may look as if I were saying that the player and the system were at odds. Their natures can be different, but let's just remember that the player makes an imaginary contract with the game: she enters it in a lusory attitude and the game provides some sort of conflict, of problem to be solved with effort. Hence, the system is configured to be used by the player and the player adapts her attitude to play the game. No real contradiction here.

If the player abides by the system rules and interact with said system using the tools it provides it must be possible to study the player in a formal and systematic manner. For Cook, "a science of game design concerns itself with testable models of human psychology", so we can presuppose we can identify the aspects of the player that make her play and how they fit in the system. In the end, the whole system is created *for* the player. Doug Church (1999) puts it, in my opinion, unmistakably:

> *"I believe the challenge and promise of computer game design is that our most important tools are the ones that involve and empower players to make their own decisions."*

2.2 · CHARACTERISTICS OF THE PLAYER

The player has a set of recognizable and variable features that can be used to draw a profile of her. We can have as many types of players as possible combinations of these traits, or, to be precise, player *states*, given that a player can change some of these traits from play to play[31]. I start to see and sense some of the player's motives here. These traits are:

- 2.2.1 · Style of playing

Espen Aarseth (2003) cites the four player types that Richard Bartle (1996) lists according to the way they play:

· *Socialisers*, who enjoy the company of others

· *Killers*, who enjoy preying on and harassing other players

· *Achievers*, who like to win and triumph

· *Explorers*, who enjoy discovering the game's secrets and hidden mechanics

Evidently, the player's playing style derives from what she expects from the game. Aarseth adds another style of playing to the inventory: *cheating*. Some distinction ought to be made here: I believe that cheating generally is a mean to triumph in any of the previous categories. Players willing to do anything to succeed, and rather disrespectful of the system rules, may consider cheating to harass other players, to win, to discover the whole topography of the game.

[31] One may feel like competing with a friend some day and engage in a short game just as pastime the day after. Actually, some videogames with online play, as Capcom's *Street Fighter IV*, let the player openly express her mood and aspirations in that particular moment.

Some players, although, might want to cheat *just because*. Then cheating really is another style of playing, but I would call that style differently:

· *Anarchists*, who enjoy tweaking and surpassing the system rules and like to discover and surpass their limits

In this sense, anarchists are very similar to explorers, except that the former do not abide by the rules and are their exploration concerns the rule system more than what is inside the fiction of the game.

Fig. 2.1 – *Little Big Planet*

I would like to mention what I consider a result of gaming anarchism: *modding*. Specially in the PC community, where the code of the game is more accessible, players began to deconstruct it, understand it and modify it, creating new content and new rules[32]. Soon, some developers encouraged this behaviour, providing tools for the creation of *player generated content*[33]. Customization and content

[32] A famous case involves a mod for *Max Payne* mimicking some aspects of the movie *The Matrix*. Even more representative is *Counter Strike*, a highly successful team-based multiplayer game, which was born as a *Half-Life* mod and was later released as an official game.
[33] *Half-Life* developers, Valve Co., provide a wide arrange of modding tools and an active community support for modders. They even hired the *Counter Strike* mod creators.

creation became a selling point of some games[34]. Lately we have witness the success of *Little Big Planet* for the PlayStation3, a game based on a handicrafts-like, physically realistic creation engine that allows players, in an easy to get to but deep way, to design their own levels and upload them to share them with the community. Therefore, I would like to add a sixth category to the list:

· *Creators*, who like to fully understand the foundations of the game and create their own content and rules[35]

The final list, then, includes six types of playing styles: socialisers, killers, achievers, explorers, anarchists and creators. Those types, however, are not mutually exclusive: to be accurate, we should talk about *dominant* playing styles, or even a *hierarchy* of them. A player can enjoy two or more of these styles, and even the more seemingly clashing styles, socialiser and killer, do not invalidate the other: let's keep in mind that videogames are unproductive and with no real consequences (we are not dealing with real psychopath killers here, thankfully).

- 2.2.2 · Previous knowledge and skills

Aarseth (2003) goes on with his classification and talks about player *positions*, obtained by combining the playing styles with another criterion. The profile of the player, then, is a combination of different sets of traits: in his case, the second criterion is what he calls the *experience axis*. He does not use

[34] Think of the popular *Sims* series and its character editor. Although we can trace it all back to the first *Doom* (id, 1993) user maps, or the level editor included in *Duke Nukem 3D* (3D Realms, 1996).
[35] Notice that, in order for this to be a playing style, the player has to do it for the sake of it; the creation of that content has to be a goal in itself.

"experience" meaning the result of the process of the videogame system (the personal perception of events that make for a particular lived-through journey[36]), but the practical skills and knowledge acquired by observation or direct participation. Thus, with the aim of avoiding misunderstanding, I will refer to this concept from now on as *knowledge and skills*.

Daniel Cook (2007) affirms that players bring an initial set of skills to a game. For Hector Rodriguez (2008) playing is a matter of learning, since every game involves a learning process. He also adds that gamers do game analysis all the time: that analysis is the mean to understand and learn how the videogame works. He quotes Huizinga:

> *"Play presupposes a conscious player who understands the aims, rules, strategies, conventions and resources involved"*.

Thus, players learn everything they play, with every experience, and every experience increases their knowledge and skills. The two meaning of "experience" are somehow linked.

In the experience axis of Aarseth (2003) we find three possible categories: *newbie, casual* and *hardcore*. In essence, these categories are based on a separation that became popular with the advent of videogames (and even platforms) aimed to people non-familiar with videogames. In fact, the term *casual gamer* was used at first by traditional, skilled players who wanted to

[36] And I am disclosing my own definition of "experience" here. I will go back to it later.

distinguish themselves from these inexperienced newcomers (it was then a pejorative term, openly showing their disdain). Hence the distinction between *hardcore* and casual gamers, though the exact meaning of each of these terms is loose. It all seems to amount to a matter of dedication. The market soon absorbed those words and used them to separate easy, accessible videogames from more demanding ones, thus orienting this binomial towards skills.

Anyhow, Aarseth (2003) seems to be using them as a skill measure, adding the "newbie" category for absolute beginners. I consider this distinction to be too vague; before establishing categories, we should ponder a series of facts that are indicative of the player's skill level:

· *Dedication to playing*; the average time the player spends playing on a daily/weekly basis

· *Dedication without playing*; the average amount of time the player spends reading and enquiring about videogames and/or discussing them on a daily/weekly basis

· *Personal history*; when the player began playing, what has been her relation with videogames, the rough amount of videogames that the player has ever played (therefore directly experienced)

· *Knowledge of the technology*, given that videogames are remediated games, the knowledge of how the remediator technology enables and limits the system provides an advantage to the player

· *Completion habits*; how far the player normally progresses in a videogame, if she completes many videogames[37], if she obtains special

[37] Calculating an estimated ratio of videogames completed can be deceiving: a high percentage would be a sign of knowledge and skills only if the player has played a lot of videogames. Maybe a seasoned player

achievements. Aarseth (2003) describes seven strata of engagement[38] that can be used here as a measure: superficial play, light play, partial completion, total completion, repeated play and expert play, finally, innovative play

· *Assimilated gameplay patterns*; videogames, particularly those of the same genre, share numerous gameplay patterns[39]. When a player has learnt and internalized one of these patterns, she's able to recognize and repeat in a new videogame

Craig A. Lindley (2002) talks about those gameplay patterns or, as he calls them, *gameplay gestalts*. He describes them as patterns of *perceptual, cognitive and motor operations*, and states that "recurrent gameplay gestalts can be identified across games, game genres and players." For him, every time the player completes a game she learns a patter of interaction, thus learning how to interact in a way that supports progress given a useable subset of the rules of the game.

Currently, some videogames and online services, such as Xbox Live, portray player profiles with all their statistics. Whilst this could be useful it can be deceiving as well, since they only show a percentage of the player's activities and focus mostly on achievements and status. Then, we can check these profiles to complement the one we are developing, but taken with a grain of salt.

---

has come across many videogames that she didn't like, and then she didn't feel like completing; maybe the videogames she played were short and easy. If I just play a couple of videogames and complete them both, that hardly makes me a knowledgeable player. Thus, this hypothetical ratio should be taken with a pinch of salt.

[38] Here we are using them as a measure of the habit. They can be used for the actual current engagement with a videogame, a temporary state that does not exactly fit the knowledge and skills category and deserves to be studied independently. More on that later.

[39] Or *gestalts*, as we'll see soon. Consider how many videogames feature shooting, jumping or driving as a main mechanic.

An accurate profile of the player knowledge and skills, thus, will be far more complex than just "newbie, casual or hardcore". Its description is not the result of a mathematical equation; therefore it will always be up to the researcher to mull over those seven criteria and judge the player's level of skill and knowledge. Said level could be assigned using a scale like this:

· *Absolute beginner*: Has practically no knowledge about videogame. Is familiar neither with the technology nor with the most common gameplay patterns. Needs assistance to play, in the form of tutorials or aid from other players.

· *Basic player*: Has a basic knowledge of videogames. Is able to recognize basic gameplay patterns and can interpret with ease almost any tutorial. Can complete low-demanding videogames.

· *Independent player*: Has a reasonable knowledge of videogames and their history. Is able to interpret any tutorial and learn new gameplay patterns in a short time. Can master any videogame enough to make a significant progress and complete most videogames.

· *Proficient player*: Has a vast knowledge of videogames and their history both practically and theoretically. Is able to recognize and/or deduce virtually any game pattern. Can detect the system limits and mistakes and exploits them in her benefit.

· *Devoted player*: Has a nearly complete knowledge of videogames and their history both practically and theoretically. Is able to recognize and/or deduce virtually any game pattern at the moment. Actively analyses the

videogame system and deconstructs it to master it at the top level. Can perform innovative play and even create her own challenges.

Fig. 2.2 – *Mario Sunshine* can be completed without collecting all of its 120 shines. Collecting all them is a long and difficult task.

A complete profile of the player should include a brief description of each one of the seven criteria aforementioned and an assigned level from these five. Still, I am afraid this is the vaguest part of my description of the videogame system, since it resists being depicted in a short and precise manner. Sufficient to say that, objectively, the personal history and behaviour of the player towards videogames give her a complex background.

Those levels should be specified by genres and even videogames: I may be an independent player generally but dedicate a lot of time to a specific videogame, therefore achieving excellence in that videogame. On the other hand, I may be a devoted player but never have tried any real-time strategy game.[40]

[40] In fact, most self-title "hardcore gamers" focus on one genre or videogame. There are hardcore FPS gamers,

To add more complexity to the mix, we can argue that it is not just the previous knowledge about videogames that matter: knowledge regarding the real world (for example, physics), general culture (geography, history) or the franchise the game belongs to/is based on[41] (if it is) can be needed to fully understand the videogame. This extra information should be added by the researcher or the designer if considered important for the system.

- 2.2.3 · Current engagement

While the previous characteristics are more or less fixed (skills and knowledge will normally improve with every play session) there is another one that affects the system that is decidedly changeable: the engagement of the player. I am not talking about dedication and general *attitude* here, but the level of engagement the player has in the concrete moment of the play session.

This would be the hardest characteristic to describe. Many unpredictable elements can influence here: the quantity of time at dispose for the session, the mood of the player, the social grouping[42], the context… I will make a distinction in two categories, for practical reasons:

· The current engagement of the player *with that videogame*, meaning the level of *progression* and familiarity the player has in that moment with that videogame, and for that I will bring back Aarseth's (2003) seven

[41] If I play a videogame based on *The Lord of the Rings* I know exactly what to expect from a nazgul, even if I haven't meet it in the videogame yet.
[42] Well, that element gave birth to an entire genre, the social or party games, such as the *Mario Party* series or Sony's karaoke inspired *Singstar*.

strata: superficial play, light play, partial completion, total completion, repeated play, expert play and innovative play, judging that they follow a sequential order

· The current engagement of the player *with that session*, meaning the *mood* of the player in the moment of the specific play session: the player may feel like just relaxing, training, eagerly seeking completion, experimenting…

Hence, the level of energy a player puts into a session may vary, modifying how she makes use of the attributes she has, and this has to be taken into account as well. The second one (the current engagement with that session) would be the most likely to affect how the player plays.

- 2.2.4 · A profile of the player

With this information, I am ready to draw a profile of the player.[43] It would consist of:

· The *hierarchy* of styles of playing preferred by the player

· The *description* of the player knowledge and skills based on the seven items previously described

· The judged *level* of knowledge and skills of the player

· As a fourth part, we can add the player *engagement* or mood.

[43] And I say *a* profile, not *the* profile. I consider these criteria a practical way to get a grasp of the most important characteristics of the player, but there is not an *ultimate* method to do it.

As researchers, we can use this profile in two ways: as a study of a real, concrete player and as part of the design of a videogame: since every videogame depends on its player to start its process, we can affirm that every videogame is designed with an abstract, *intended* player in mind. We can deduce this intended player by analysing the design of the videogame system, and see how it affects that design.

2.3 · INTERACTIVITY AND THE PLAYER

I addressed the problem of the limits of interactivity in the previous chapter. While there can't be a videogame without it, it is not exclusive of them. James Newman (2002) states that the concept of "interactivity" is redundant:

> *"Quite simply, videogames are not interactive, or even ergodic.* […] *It is a mistake to consider that they present only one type of experience and foster only one type of engagement."*

He quotes Aarseth with the question of "how much time we spend actually in non-trivial action when 'playing' a videogame". I would not go as far as him and say that videogames are not interactive (that is actually an essential trait of them), but I do think that this concept and its limits have to be clarified.

- 2.3.1 · The allowed interaction continuum

So videogames are not always interactive, and it seems reasonable to ask ourselves what happens with those non-interactive sections in a videogame. Are

they really part of the videogame? Or are they something else? According to Newman (2002):

> "[There are] *highly structured and comprise episodes of intense ergodic engagement", but the non-ergodic sections are integral parts of the game".*

The term "ergodic" implies that the player has to make an effort, has to participate actively, hence that section is playable or interactive. This is not just a matter of narrative versus gameplay, of cut scenes and dialog: every single moment in the process of a videogame that the player cannot send input to the system is a non-ergodic moment. Think of *Pac-Man*: before giving control to the player in a level, it shows a series of signs ("Ready!") and for that time no input can be sent using the controllers. Or the countdown before the race starts in most racing videogames. Newman tells those two states apart as:

- *On-line*, the moments where the ergodic participation of the player is allowed and inputs can be sent via the controller
- *Off-line*, the periods with no registered input control received from the player (and no possibility to send them)

Newman himself acknowledges that the boundaries are blurred:

> "*Ergodic punctuations can interrupt and break otherwise Off-line sections.* […] *On-Line and Off-Line engagement should be thought of as the polar extremes of an experiential or ergodic continuum."*

Some videogames allow the player to have a limited interaction during cut scenes, as restricted camera movement or angle change[44]. Other videogames ask for a more substantial participation of the player in those cut scenes, QTE (*Quick Time Events*) being the most common method. They were first introduced in *Shenmue*[45] for the Dreamcast, and consist of brief moments (normally during cut scenes displaying high levels of action) where the player has to rapidly press a button in order to progress. If the player fails to do so, either she has to repeat the sequence or she gets penalized in some other way[46]. Still, that is not what we would understand as complete participation.

I think that the terms "On-line" and "Off-line" can be mistaken with the videogames that allow play via internet connections, so I prefer the term "allowed interaction". Thus, Newman's "experiential[47] or ergodic continuum" will be called *allowed interaction continuum* in this thesis.

Videogames are interactive, but the scope of the allowed interaction is constantly varying, and even when they do not allow interaction at all they are still videogames.

[44] *Metal Gear Solid 3: Snake Eater*, for example. In some cut scenes, the player is briefly allowed to change to the subjective view of the main character.
[45] Sega-AM2, 1999.
[46] If they sound familiar it is because they are: they can be considered the direct offspring of the primitive interactive movies I mentioned in the previous chapter. In my opinion, they successfully give a useful application to that pattern of interaction.
[47] I believe that, even when the player has no allowed interaction at all, the stream of experience is active. The non-interactive parts of a videogame are part of the experience.

Fig.2.3 – *One of Shenmue's QTEs*

- 2.3.2 · The secondary player

Newman (2002) raises another shade of meaning to what it actually means to be a player: he affirms that there are "non-controlling roles" in videogame players. He quotes Jessen (1995, 1996, 1998), who states that "videogames are not exclusively solitary experiences." They are not, indeed, since many videogames allow multiplayer play with different controlling players. What Newman (2002) is talking about here is a more habitually overlooked role: the *secondary player*. He describes her as being a player:

> "[…] *interested, engaged with the action, but not actually exerting direct control through the interface, performing tasks like map-reading, puzzle-solving and looking out for all the things that the principal player does not have time for."*

This role, Newman says, is something not intended by the developers, or not planned:

> *"The secondary-player role is frequently taken by players who like the idea of games but find them too hard".*

These non-controlling players act as some sort of "co-pilot", and from that point of view they can notice aspects of the videogame missed in the role of primary player (Newman argues that the audiovisual richness of the world serves the secondary-player). They are not mere spectators. Acting as a secondary player the user is still playing, so she can improve his skills. A secondary player is an active player:

> *"The level of secondary players' participative engagement during play sequences can be seen to be greater than in the primary-player during standard cut-scenes."*

2.4 · PLAYER TO PLAYER RELATIONSHIPS

Even when there is only one player controlling the videogame we can find the participation of other players. Videogames, then, permit highly participative social dynamics. We have already seen that for Johan Huizinga (1938) games "promote the formation of social groupings". Erwin Goffman (as quoted by Järvinen, 2007) talks about "gaming encounters", an idea derived from his own idea of "focused gathering":

> "[Focused gatherings are] *"social arrangements that occur when persons are in one another's immediate physical presence.* […] *Gaming encounter is a concept that emphasizes the behaviour of players and the contexts where the game takes place."*

I will classify four strata of gaming encounters:

· *Single play*, where there is only player in a controlling role. A secondary player can partake in the session

· *Limited group play*, where there is a limited number of players actively playing, normally ranging from two to four

· *Team-based play*, with two or more teams of players facing each other in usually larger numbers than in a limited group play session

· *Community play*[48], where there are numerous players inhabiting the same world, even if they do not directly interact. It serves as a context for the configuration of limited group or team-based acts of playing.

The concept of "community", at the same time, can have another meaning: even videogames that do not allow community play may have a huge community behind them, thanks to online spaces such as forums, blogs and so. In these communities players can talk about that videogame, share strategies, compare their statistics… They can even arrange tournaments, either online or in real events such as fairs or conventions. The videogame itself can support these attitudes. For example, a fighting videogame like *Dead or Alive 4* is designed to be played one on one (limited group play), but its online system encourages the sense of community.

[48] Traditional of online worlds such as *EverQuest* or *World of Warcraft*.

We can find virtual communities based on many other criteria: a platform, a genre, the virtual space they use to communicate[49]… We can even talk about *the* online gaming community, meaning the whole group of players that dedicate time to videogames at online spaces.

Within those four strata of gaming encounters, players can interact with each other basically in two ways:

- *Competition:* when players compete with each other, therefore achieving a valorised end state of winner or loser
- *Cooperation:* when players cooperate with each other to achieve a common goal

These two ways may appear to be self-excluding, but there are examples of videogames that make players both compete and cooperate at the same time. Such is the case of *The Legend of Zelda: Four Swords Adventures* for the GameCube, a videogame where up to four players have to collaborate to progress (some puzzle elements can only be solved with the synchronized actions of several players) and compete to get the maximum number of rupees[50]. At the end of the level, the game awards the player that collected more rupees with a winner status.

[49] Some players may consult and participate in different forums, while others stick to the same and develop a sense of belonging.
[50] The local coin in the *Zelda* world. Currency unknown.

Fig. 2.4 – Four players fight a boss in *The Legend of Zelda: Four Swords Adventures*

I have already pointed out a third way for players to interact: *status*. Status is an indirect manner of social interaction between players. Some videogames and online services feature public profiles of the players. In Xbox Live, Microsoft's online service for the Xbox 360, each player has a score based on the special achievement she has obtain from the videogames she owns.

2.5 · WHY WE PLAY? A LOOK AT THE EXPERIENCE

Now that I know the player and her possible roles and interactions I can try and answer the next big question: why do we play? I have stated that the reason players play (and the product of the whole videogame system) is the experience. Hector Rodriguez (2008) puts it in a similar way:

"We play for the sake of the lived quality that attaches itself to the act of playing."

So far, I have been avoiding a very common term when discussing videogames: "*fun*". I consider "fun" too limited a concept to include all the different emotions that the videogame system can create for the player. Besides, "fun" has a light-hearted connotation to it. Most of the satisfactions of playing are harder to describe than just "being fun", as being a source of amusement[51].

In this section I will present my own definition of experience. Then, I will analyse how this experience unfolds within a structured system which seems to have challenge at its core. With this, I will be able to take a look at emotions and how they relate to videogames. Finally, I will try and list the gratifications of playing.

- 2.5.1 · My definition of experience

In the previous chapter, I referred to the experience as the stream of emotions constantly fed to the player by the videogame system. A videogame is a system with constant communication: it sends information to the player, she interprets it and reacts using the means available, which in turns creates another reaction inside the system that is sent to the player, and so on. These reactions and information are always valorised. As I have seen, we are not beings of pure logic, and videogames depend a lot on emotions. Thus, this valorisation is often not simply logic. Take for example *survival horror*, one of the most successful

[51] In fact, some scholars have problems with that word. Instead of trying to define "fun" in a useful way, I will stick with the more rich and complete "experience".

genres during the PlayStation2 era[52]. Videogames belonging to that genre have one feature in common: their whole design seeks to create a scary and tense *atmosphere* for the player. Design choices such as limited ammunition available, obscure camera angles or gloomy scenarios are all originated from that very idea. Hence, a survival horror videogame main aim is to create an experience of *terror*.

Emotions are a subjective process. I will go into some basic psychology now, just to try and illuminate my idea of playing experience. We perceive some information, and this makes us *feel* in a certain way. This feeling, in turn, makes us react in some way, that is, makes us sense a certain *emotion*. The term "emotion" comes from the Latin "movere" (or "emovere") which means "to move". When we undergo an emotion, we say that we *are moved*. Feelings are passive states; emotions are active reactions (even though non-voluntary ones). Emotions have an object (they are about something) and are processes, which can result mainly in two things: emotional expressions and *behaviours*. Thus, even if we are following and applying the logic of the videogame to the problems it proposes, we are basically behaving because of our emotions.

Playing experience, then, will be *the sum of the emotions and gratifications created by the perception of the events of the videogame system that build a particular lived-through journey*. I will elaborate on that:

· The videogame system presents events that the player perceives.

[52] And still surviving today. No pun intended.

· Based on that perception, the player senses a certain emotion[53].

· Those emotions create valorised gratifications for the player.

· Those emotions are sensed in a linear fashion.

· The sum of those emotions can be seen as a progression from a starting point to an end state.

· This journey is perceived by each player in a different way and creates a sensation of being lived-through. The player undergoes all the events of the videogame; she is not just a spectator.

Lastly, I would like to mention the notion of *autotelism*, as described by Salen and Zimmerman (2003: 332): videogames have intrinsic motivations, are an end by themselves. Players play just for the experience of doing it. Hence, experience is an *end* by itself.

- 2.5.2 · Experience and structure

Playing experience may not be a pure logic thing, but it is generated within a highly structured environment[54]. To further develop this idea and complement the previous section, I will go back to Hector Rodriguez (2008). He states that gaming experience is indivisible from structure:

> *"The player's experience essentially unfolds within a structured situation.* […] *Experience is inseparable from structured action."*

[53] We could refer to each one of these emotions as *experiences* and say that players experience a collection of experiences. I prefer to remain as semantically clear as possible, and will put all those emotions under one singular, complex experience.

[54] We face the apparent contradiction of videogames again. Thankfully, by now we know it to be just apparent.

For Rodriguez, to speak of experience implies a vocabulary of qualitative description: “tension”, “release”, “challenge”, “effort”, “uncertainty”, “risk”, “balance”, “oscillation”, “contrast”, “variation” and “rhythm”. Notice how all these terms point to the system being *uneven*. We find a system that hints a specific order, but is not ordered. He separates experience from the inner states of an isolated ego, since experience is originated from this need to structure chaos:

> *“There is always a dynamic interplay of move and counter-move.* […] *The essential function of play is the modulation of experience.”*

Philosopher Hans-Georg Gadamer (1989: 97) supports this idea:

> *“The purpose of the game is not really the solution of the task, but the ordering and shaping of the movement of the game itself.”*

The events in a videogame emerge from the movement between chaos and order. As players, we are responsible for the rearrangement of that chaos[55], for creating the videogame’s movement. It is within that highly structured context that we can go through the gaming experience. Without this external structure, there would not be events to perceive, no emotions, no lived-through journey. Again, the videogame is a logic and structured system which purpose is to create experience.

[55] What if there were a videogame with *wreaking havoc* as a goal? No problem: we are not talking about narrative or fictional chaos and order, but structural ones. Hence, the creation of chaos would be the twisted way to set the system in order. Even madness has its methods.

- **2.5.3 · Challenge**

This logic and structured system is unbalanced, and it is up to the player to restore that balance. In the previous chapter, I saw that videogames always contain a conflict, and that their rules favour less efficient means to solve this conflict. They always demand an effort from the player. Videogames are all about the *struggle*, or, as we find in Rodriguez's (2008) vocabulary, the *challenge*.

Challenge is an indispensable part of what we understand as videogames. It is where fun supposedly comes from. Jesper Juul (2007) talks about a "complete theory of video games" that describes the "complete connection between the game artefact, the gameplay of the game and the experience of the players". Seeing as he is analysing videogames with no goals or with secondary goals (*The Sims 2* and *Grand Theft Auto: San Andreas*) it is obvious that he is talking about a *classic model*. It goes like this:

· Games have goals

· Games provide challenge to players

· It is the mental challenge of a game that provides the fun

· If the challenge is right, the player is in a state of flow. (If the challenge is too easy, the player is bored, if the challenge is too hard, the player is frustrated.)

That *flow* Juul talks about is a concept proposed by Mihály Csikszentmihalyi (1990: 49, 54) to refer to a highly positive mental state that people reach when they are met with a situation with a "challenging activity that requires skills" (49) and "clear Goals and Feedback" (54). The challenge has to be right to create that state of flow: if it is too hard, it generates anxiety, if it is too easy, boredom. This is how the challenge and player effort work at their most basic level.

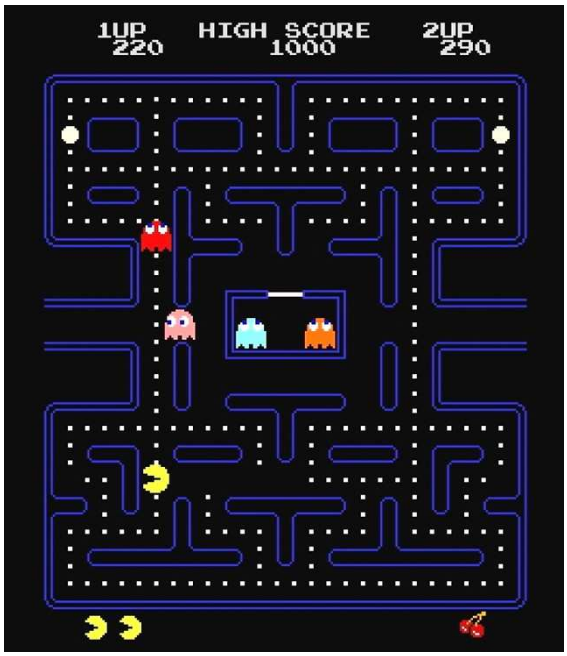

Fig. 2.5 – *Pac-Man*. Goal: eat all the pellets. Challenge: do it while avoiding the ghosts. The power pellets balance the otherwise asphyxiating pursuit.

Some go as far as saying that challenge is all that there is to videogames. Sociologist Erving Goffman (1972: 19) talks about *rules of irrelevance*: the fiction of the game is irrelevant[56]; the primary interest of the player is in mastering the game rules:

[56] To be fair, that was 1972: videogames and their high-detailed fictions were still to come.

> "[Games] *illustrate how participants are willing to forswear for the duration of the play any apparent interest in the aesthetic, sentimental, or monetary value of the equipment employed, adhering to what might be called rules of irrelevance. For example, it appears that whether checkers are played with bottle tops on a piece of squared linoleum, with gold figurines on inlaid marble, or with uniformed men standing on colored flagstones in a specially arranged court square, the pairs of players can start with the "same" positions, employ the same sequence of strategic moves and countermoves, and generate the same contour of excitement."*

Daniel Cook (2007) sees mastering a game as an instinct:

> "*Play is instinctual.* […] *The player is entity that is driven, consciously or subconsciously, to learn new skills high in perceived value.* […] *'Fun' is derived from the act of mastering knowledge, skills and tools."*

For Cook, play is a "deeply pragmatic activity", and fun, boredom and frustration are "biological phenomena". He says that, as humans, we are wired to crave new information constantly" and quotes cognitive neuroscientist Edward A. Vessel:

> *"Those "aha" moments, when a concept or message is fully interpreted and understood, lead to a flood of chemicals in the brain and body that we experience as pleasurable."*

We find pleasure in play because we have a biological instinct to learn and master skills. We crave the *endomorphins* that this produces in our brains. Raph Koster (2005) also contemplates the physical aspect of play when talking about visceral reactions, which are related to physical mastery of a problem.

Videogames, according to these scholars, are about attaining and exercising control. Torben Kragh Grodal (1998: 249, cited by Klevjer, 2001) defines gaming experience as an aesthetic of control, or a "power-based subject-oriented-structure". Games, for him, offer the pleasure of mastery, both visual-motoric and intellectual. Here we find a hint of the audiovisual representation of a videogame. James Newman (2002) diminishes the importance of the audiovisual aspects of the videogame:

> *"The pleasures of videogame play are not principally visual, but rather are kinaesthetic."*

Koster (2005) writes about *aesthetic appreciation*, admitting that it is not always fun, but it is certainly enjoyable. Since humans are pattern matchers, he says, aesthetics are about recognizing patterns. He focuses on "fun" as "the act of mentally mastering problems", but at least acknowledges the delight that derives from aesthetic appreciation:

> *"Beauty is bond in the tension between our expectation and the reality."*

Notice how he speaks of "the act" of mastering problems, not the mastery itself. For him:

> *"Fun is primarily about practicing and learning, not about exercising mastery.* […] *The lesson here is that fun is contextual* […] *Games aren't stories. Games aren't about beauty or delight. Games aren't about jockeying for social status. They stand, in their own right, as something incredibly valuable. Fun is about learning in a context where there is no pressure, and that is why games matter."*

Challenge, effort, learning and *mastery* lay at the foundations of the videogame system.

- 2.5.4 · Emotions and play

How aesthetic delight does contribute to the play experience? Is fiction really irrelevant? By now, suffice to remember that from the very beginning of game studies scholars have considered more aspects of games than just challenge, as Roger Caillois' (1961: 12) four types of games:

> *"After examining different possibilities, I am proposing a division into four main rubrics, depending upon whether, in the games under consideration, the role of competition, chance, simulation, or vertigo is dominant. I call these agôn, alea, mimicry and ilinx, respectively. All four indeed belong to the domain of play."*

Even if we consider chance, mimicry or vertigo as part of a challenge, they add something else. Mimicry seems to be linked to a sense of fiction, make-believe. Vertigo implies letting go, letting the emotions of the experience overflow oneself. Again, they seem to be tools for the creation of emotions, and, as Jesper Juul (2007) states:

> *"The road to attaining game goals is beset by emotions."*

Let's take a closer look at *emotions* before considering how they fit within the videogame system. I will use Robert Plutchik's (1980: 3-33) psychoevolutionary theory of *basic emotions*. It can be summarized in ten postulates:

- 1) The concept of emotion is applicable to all evolutionary levels and applies to animals as well as to humans.
- 2) Emotions have an evolutionary history and have evolved various forms of expression in different species.
- 3) Emotions served an adaptive role in helping organisms deal with key survival issues posed by the environment.
- 4) Despite different forms of expression of emotions in different species, there are certain common elements, or prototype patterns, that can be identified.
- 5) There is a small number of basic, primary, or prototype emotions.
- 6) All other emotions are mixed or derivative states; that is, they occur as combinations, mixtures, or compounds of the primary emotions.

· 7) Primary emotions are hypothethical constructs or idealized states whose properties and characteristics can only be inferred from various kinds of evidence.

· 8) Primary emotions can be conceptualized in terms of pairs of polar opposites.

· 9) All emotions vary in their degree of similarity to one another.

· 10) Each emotion can exist in varying degrees of intensity or levels of arousal.

With these ideas, he lists 8 basic emotions, in couples of opposites:

· *Joy,* a positive valorisation of an event, a desired emotion; opposed to

· *Sadness,* linked to a feeling of abandonment

· *Acceptance*, the recognition of a new element as an ally or a positive companion; opposed to

· *Disgust*, the rejection of an event or stimulus

· *Fear*, the natural answer to a threat and a perception of danger, thus causing the need to escape; opposed to

· *Anger*, an emotion created by an obstacle or an annoyance to surpass, resulting in the need to fight it

· *Surprise*, as an answer to an unexpected event; opposed to

· *Anticipation*, the eager wait for a coming event or stimulus

He states that these basic emotions can be combined advanced emotions, and exemplifies it with his *wheel of emotions*.

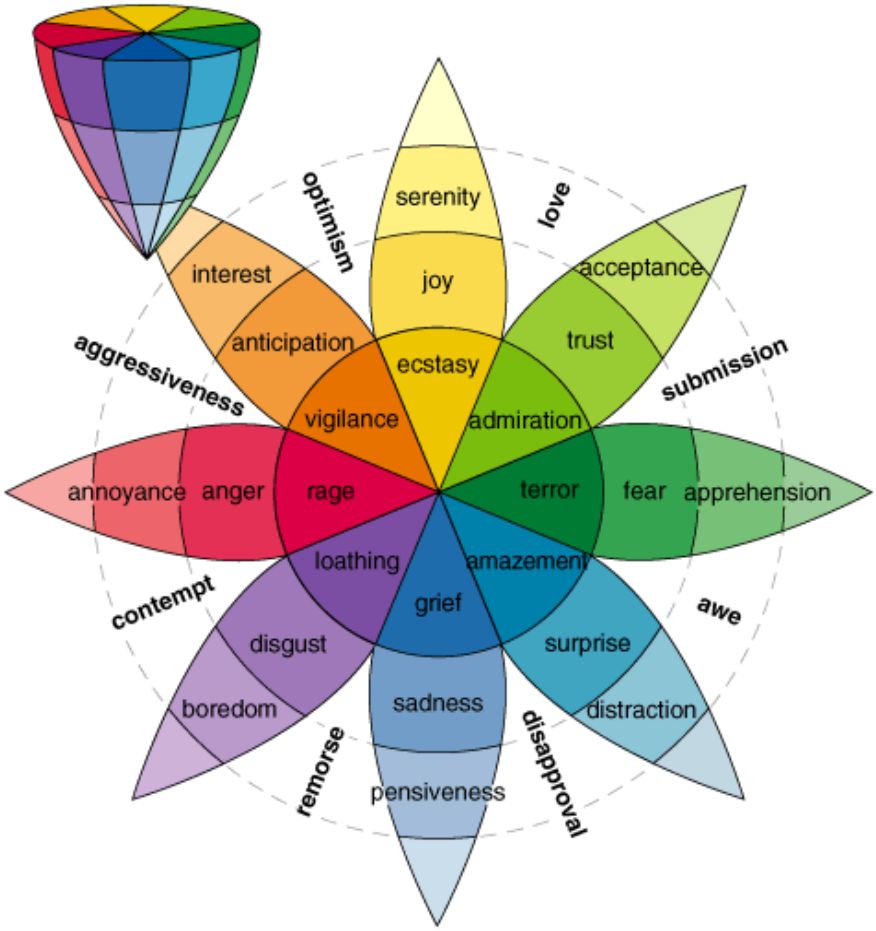

Fig. 2.6 – Plutchik's model of emotions and their relations.[57]

As I said, this is not a psychological treatise, but I consider relevant to know what the range of emotions we can experience is. We need to know emotions if we are to consider videogames as structured systems that create a stream of emotions that, in turn, add to a general gaming experience. Stéphane Bura (2008) also sees emotions as the motivation of the player:

> *"Players do not play to complete games, just as readers do not read to finish books. Players play to feel emotions.* […] *Player's emotions influence how he interacts with the game."*

[57] http://www.fractal.org/Bewustzijns-Besturings-Model/Plutchikfig6.gif

Andrew Ortony, Gerald L. Clore and Allan Collins (1990, as cited by Järvinen, 2007) created what is known as the *OCC model*, a theory about the cognitive structure of emotions:

> *"Emotions are valenced reactions, i.e. positive or negative appraisals, to one of three aspects in the world: Agents, Events or Objects."*

They claim that emotions are phasic:

· First, there is the *recognition* of something as significant

· Then, we make *plans* to cope with the situation

· Next, we are in a state of so-called *action readiness*

· Finally, we produce bodily and expressive *effects* of emotions

That coincides with my view of emotions as reaction processes. If it is an issue of action-reaction (simplifying it) there is a high chance of predictability, which leads us to talk about:

> "[…] *action tendencies, i.e. the likely courses of action triggered by a particular emotion in a particular situation.* […] *There are a number of variables that affect the intensity of emotions."*

The prediction and integration of said action tendencies in the videogame system leads to a well designed structure. It is sensible to think that a good design has to contemplate those possible actions and include answers to them: the action-

reaction pattern works both ways; to every action of the player there ought to be a reaction of the system. But in my definition I said that videogames are unpredictable, so the system has to be rich enough as to keep the result of its process unclear. For Aki Järvinen (2007), *uncertainty* "fuels most games and motivates players to play."

Järvinen sees two crucial points to take away from the OCC model:

- *"games privileged so-called prospect-based emotions that are always focusing on events and their outcomes"*
- *"the emotion of suspense is a fundamental emotion of player experiences.*

This does not mean that the videogame system offers only those emotions. As an example of its complexity, Celia Pearce (2005) quotes John Baldrica, who says that agency creates the opportunity for *regret*, an emotion that can only be achieved through personal culpability.

Let's sum up before my final stop in the player and experience analysis. I concluded that we play for the experience and defined experience as the sum of the emotions and gratifications created by the perception of the events that build a particular lived-through journey. This experience is an end by itself and unfolds within a structured system. This structure is inherently unbalanced and that makes us put challenge, effort, learning and mastery at the videogame system's foundations. But emotions are a complex field, and many things can

arise from the interaction between the player and the system. Knowing the basic human emotions (and their valorisations) and the players' action tendencies, the system can incorporate predicted actions and reactions. Those actions and reactions have to be varied and complex enough to allow uncertainty about the process' result.

With this information, we could use different emotions to try and describe a particular videogame experience. A practical example of emotions in play: remember survival horror? I previously said that their main focus is to create an experience of terror, thus their dominant emotions would be terror itself. Let's consider *Silent Hill 2*, one of the most critically acclaimed games in the genre. It features a complex and ambiguous plot that involves the main character looking for her dead wife (or is she?) in an eerie an atmospheric town. The use of sound effects of unknown source, melancholy and unsettling music, limited visibility (because of a thick fog and a thicker darkness) and disturbing themes create an experience that has been often classified as *psychological horror*[58]. The empty spaces and personal loss dominate every aspect of the videogame; its main emotional ingredients would be disgust, vigilance, sadness and terror.[59]

[58] "*The whole game is like this, creepy, eerie, creating lingering doubts in your mind about your character, and what you believe has happened to you. It is creates internal, psychological fear.* […] *And finally, no matter how settled you might feel, you still feel so incredibly lost and rudderless, that it is almost uncanny that you're merely playing a videogame."* Extract from the review by Doug Perry at IGN.com, September 25, 2001. http://ps2.ign.com/articles/164/164904p1.html

[59] It succeeds, in my opinion, in creating them because the challenge and the structure is right.

Fig. 2.7 – *Silent Hill 2*. Eerie atmosphere is the trademark of the *Silent Hill* series.

- 2.5.5 · The gratifications of playing

Now I am ready to take the final step in this chapter and talk about the *gratifications* that players get from playing. These gratifications are usually referred to as "fun". I already explained why I do not use the term "fun". The use of this term often ends in confusion between what I call "experience" and what I call "gratifications". First I will elaborate on "gratification".

Robin Hunicke, Marc LeBlanc and Robert Zubek (2004), creators of the MDA[60] approach, want to move as well from words like "fun" or "gameplay", thus they use the term "aesthetics" " to refer to *desirable emotional responses* evoked in the player when she interacts with the game system. In my understanding, aesthetics is an accurate term, but it has to do with the creation and appreciation

[60] "Methods, Dynamics and Aesthetics". As I said, a framework for Game Design.

of beauty, and has an artistic and philosophical connotation that can make our comprehension of the concept more difficult. Therefore, I will use the term "gratification", meaning both a source of pleasure and satisfaction and the reward for the player's actions.

Gratifications, then, are the crystallization of the emotions in play during a gaming session. They, however, are not synonymous with "experience": to put it in a simple fashion, gratifications are *the good things we get from the emotions*. I will use *Silent Hill 2* again: I described its experience as being one of disgust, vigilance, sadness and terror. Why would we want to experience those (in principle) negative emotions? Because they, in a cathartic way, provide us the gratifications of sensation, fantasy, narrative, discovery, among others. In order to best describe the resulting experience of a videogame system, we should describe the emotions and gratifications it is made of.

Since emotions are active and related to something, we can argue that experience goes beyond an inner state. Sthépane Bura (2008) quotes Donald Norman, who describes three different levels of experience processing:

- *Visceral*, how it makes the person having the experience feel
- *Behavioural*, how well it suits its purpose or function
- *Reflective*, how it affects the person's self-image

Subsequently every gaming experience is going to act in these three levels. Experience usually creates new desired experiences and skills and knowledge. If a player feels more dexterous she may look for more demanding challenges and more complex experiences, hence presenting new and/or modified behaviours.

Bura (2008) also mentions Nicole Lazzaro work on player emotions, which is divided into four main cluster emotions (represented by the facial expression):

· Hard fun

· Easy fun

· Altered states

· The people factor

At first sight, hard fun sounds like the gratifications obtained from a challenge, while easy fun would be other gratifications that do not imply as much player effort. Altered states could be the gratification of vertigo games, and the people factor the one attained from player to player interaction.

Hunicke, LeBlanc and Zubek (2004) defend an experience-driven design, created with the player in mind, and establish this taxonomy of aesthetics:

· 1. *Sensation* (as sense-pleasure)

· 2. *Fantasy* (as make-believe)

· 3. *Narrative* (as drama)

· 4. *Challenge* (as obstacle course)

· 5. *Fellowship* (as social framework)

· 6. *Discovery* (as uncharted territory)

· 7. *Expression* (as self-discovery)

· 8. *Submission* (as pastime)

We can identify many of the elements we have studied so far in this taxonomy: fantasy and narrative would relate to fiction, fellowship comes from player to player interaction; submission could be a mild experience of vertigo… And while challenge may derive in a precise pleasure, it does not seem like an actual pleasure to me.

Nicolas Esposito (2005) studies the gratifications of playing using different sources. First he cites the LeDiberder brothers (1998) and their list of pleasures of playing:

· *Competition*

· *Accomplishment*

· *System mastering*

· *Narrative enjoyment*

· *Audiovisual experience*

Let's compare it to the DMA (2004) taxonomy:

· Accomplishment and system mastering seems to solve the problem of what the DMA team call "challenge". They are the gratifications resulting from beating a challenge.

· Competition is the result of a challenge that involves more than one player, but as a gratification it has the same problem as "challenge": it is the interaction that allows a gratification, not the gratification itself. I will refer to this gratification as *peer-defeating*.

· The audiovisual experience takes us back to Koster's aesthetic appreciation, and could be a twin category of the DMA sensation.

Esposito (2005) next adds two more gratifications: discovering hidden elements (such as secrets and Easter eggs) and cheating. I discussed cheating in the previous chapter: rule-breaking can be part of discovery (as a meta-exploration, the search for the system limits) or of expression. The discovery of hidden elements is just a deeper part of discovery.

Finally, he cites Newman (2004) who lists:

· *Challenge*

· *Immersion*

· *Players expect to do (not to watch)*

This last category is nothing more than *agency*, and it has to do with expression: when in a virtual environment, specially a new and unexplored one, players wan to interact with it and make things their own way. Immersion, in its turn, is a vague concept often used but rarely defined. I would say that it is *the illusion of being a part of the fiction of the videogame*, and is created in part by the sum of agency, flow and fantasy. But it is still too vague and similar to be considered a category: in my opinion, it is an attribute of fantasy.

Now we can answer the questions I made in the previous section: How aesthetic delight does contribute to the play experience? Is fiction really irrelevant? They both are gratifications we obtain from playing. My own list of gratifications (not an ultimate list, but hopefully an accurate and useful one) includes:

· *Sensation*, as audiovisual/representative appreciation

· *Fantasy,* as believability of the fiction

· *Narrative*, as satisfaction with the story and plot of the videogame

· *Accomplishment*, as completion of a challenge

· *System mastering*, as the acquisition of skills and knowledge

· *Peer-defeating*, as triumph in a player(s) vs. player(s) duel

· *Fellowship,* as player to player interaction

· *Discovery,* as the exploration of uncharted territory

· *Expression,* as agency within the videogame system

· *Submission*, as pastime

Those gratifications are not self-excluding. For example, fellowship usually refers to player cooperation, but peer-defeating can be often accompanied by it.

2.6 · CONCLUSIONS ON THE PLAYER AND THE EXPERIENCE

The player is right at the heart of the videogame system, and this system is created to produce an experience for her: it is a logical structure based upon human psychology. Players play looking for a desired experience, but since no two players are the same, they can get different experiences from the same system.

If we want to trace a profile of a specific player or the abstract, intended player of one system, we can describe her using these recognizable and variable features:

· The *hierarchy* of styles of playing preferred by the player between socialiser, killer, achiever, explorer, anarchist and creator.

· The *description* of the player knowledge and skills based on her dedication to playing, her dedication without playing, her personal history, her knowledge of

the technology, her completion habits (using these strata: superficial play, light play, partial completion, total completion, repeated play, expert play or innovative play) and her assimilated gameplay patterns.

· The judged *level* of knowledge and skills of the player, between these five: absolute beginner, basic player, independent player, proficient player and devoted player.

· As a fourth part, we can add the player *engagement* or mood in the exact moment of play and with that videogame.

In addition, we can add extra information like knowledge about the world or about the franchise if we consider it important for the system.

The player interaction with the system is not always the same: sometimes she can send inputs, sometimes she has just limited control, and sometimes she can not send inputs at all. This range of interaction is the allowed interaction continuum, and it varies constantly within the process of the videogame system. Those moments at the no-interactive end of the spectre, albeit passive, are as part of the system as the participative ones.

Besides the controlling player we can find secondary players. These players have a non-controlling role but still take part in the decision-making process of the gaming session. They act as "co-pilots" and exercise and improve their skills as well.

This is just one example of the social dynamics permitted by videogames. They can create four types of gaming encounters: single play, limited group play (from two to four players), team-based play (two normally large teams facing each other) and

community play, which in turn serves as a context for the configuration of limited group or team-based acts of playing.

Inside these gaming encounters players can interact in two ways: competition and cooperation. Both types of interaction can exist at the same time. Players can interact in an indirect manner too by means of their status.

Players play for the experience, which I defined as the sum of the emotions and gratifications created by the perception of the events that build a particular lived-through journey. This experience is an end by itself and unfolds within a structured system. This structure is inherently unbalanced and that makes us put challenge, effort, learning and mastery at the videogame system's foundations.

But emotions are a complex field, and many things can arise from the interaction between the player and the system. Knowing the basic human emotions (and their valorisations) and the players' action tendencies, the system can incorporate predicted actions and reactions. Those actions and reactions have to be varied and complex enough to allow uncertainty about the process' result.

An experience ought to be described with the emotions and gratifications that form it. The good things we get from playing (and experiencing the emotions derived from play) are what I call gratifications. I list ten main gratifications from playing: sensation, fantasy, narrative, accomplishment, system mastering, peer-defeating, fellowship, discovery, expression and submission.

CHAPTER 3

THE SURROUNDING SYSTEM

3.1 · THE ENVIRONMENT OF THE PROCESS

A videogames is a complex, multi-layered system that a player uses to start a process that ends in an experience. The main interaction inside this system is the one between the player and the core system, that is, the virtual environment, rules and mechanics that the program or code of the videogame generates. But for this interaction to be possible, we need a surrounding system that both creates the real environment for it and provides tools for a fluid, two-way communication.

The first function is performed by what we can call the context. This is nothing more than *the world*: the space in the real world where the videogame process unfolds, its social and cultural aspects and, in particular, the boundaries that separate the space of the videogame from the real world. The second one is performed by the remediator technology, which makes possible the chain of actions and reactions that compose a game by sending inputs and outputs and executing the videogame's code.

This surrounding system has a distant relation with the player. It is vital for the process, and the player recognizes it (at least, minimally), but she only uses it as means to interact with the core system. As Terry Harpold (2007) states:

> *"*[…] *the player, whose attention is, for the most part, on events and existents of the gameworld."*

Many aspects of the player's previous knowledge and skills belong to the surrounding system, which acts as context and intermediary. For the videogame process to start, the player has to understand minimally that surrounding system and make use of it, but at the end of the day, it is mostly invisible to her.

3.2 · THE GAMING SPACE

Videogame processes take place in the real world, but in a particular state ensued from an agreement with the player: she attaches herself to its outcomes but at the same time keep the whole system unproductive outside its boundaries. Next I will try and get a wider perspective to see how the videogame system and the real world interrelate, and then I will focus on these boundaries.

- 3.2.1 · Real world context

First, I should consider which place videogames hold in human culture, as well as our specific culture. (Here I am using "culture" as the shared set of attitudes, goals, values, beliefs, practices, etc.) Hector Rodriguez (2008) talks about Johan Huizinga:

> *"In his view, play* is *immensely valuable. His point is not that, in the course of human evolution, play was eventually transformed into culture:*

this thesis would still imply that culture and play are two different phenomena. Rather, Huizinga claims that culture is playful from the start."

I have to agree with him. Play is inherent to culture in its broadest sense, no matter the reason why. Videogames are a concrete form of one of the basic human phenomena, thus they are part of human culture. I would have to move to Sociology to keep studying that, but I would dare saying that, as other creative products of culture, videogames satisfy our curiosity and need to experiment in closed, controllable environments with no real consequences.

But the relation between videogames and the world is more direct than just being part of human culture; they are openly linked with other elements of it. Warren Motte (1995: 26) talks about three articulations in games: of player to player, of player to game and of *game to world*. Lars Konzack (2002) created a method for computer game analysis in seven bottom-up layers; in it we can find an example of how to approach the study of the articulation of game to world. He starts suggesting a general description of the virtual space and the *playground* before describing any of those layers. This playground would be the real world space where the videogame takes process. Again, I find the implied idea that it is delimited and different from the rest of the world.

Konzack's fifth layer[61] is *meaning*, as semiotics, the semantic meaning of the videogame. This, he states, helps us put the game in perspective. Terry Harpold (2007) gives what he considers an axiom of videogames:

> *"Gameplay is the expression of combinations of definite semiotic elements in specific relations to equally definite technical elements."*

Thus the videogame matches real world semiotics with technical elements. Harpold defines the semiotic plane as *the common cultural material available for designers and players*, and offers some examples of these elements: shared myth, conventions of genre and narrative form, comprehension of the relevant intertextual canons, etc.

Videogames being part of our culture as they are, they ought to include references to it, voluntarily and involuntarily. These references are essential to understand the videogame. In the sixth layer of Konzack's (2002) model we have *referentiality*: for him, the main referential element is the *genre* of the videogame, both the *game genre* and the *narrative genre*:

> "[Genres] *help us to understand the new by providing us with references to the old, and in that respect all genres are referential."*

Once more I find the context directly linked to the player's previous knowledge and skills. The knowledge about game genres supplies us with gameplay

[61] After hardware, program code, functionality and gameplay. I will go back to that later.

patterns to assimilate. Any videogame can be connected with many others. Chaim Gingold (2003) reaches that conclusion when studying *Wario Ware*:

> *"The meta-game of Wario Ware is identifying the game on the screen, and mapping it to your knowledge of video games.* […] *By adding a historical dimension, one could map out a family tree of games."*

Douglas Brown (2007) talks about genre classification, stating that it is affected by "the way we play the game". For him, videogames should not be analysed as isolated products, since the experience is characterized by the "interplay":

> *"Games need to be read in their entirety alongside intertexts and historical contexts."*

In Konzack's (2002) seventh and final layer we have *socio-culture*, which can be studied mostly observing the playground. Gaming encounters and player to player relations, as I described them in the previous chapter, are part of this layer, as well as where, when and why they do take place. I would add a broader concept: the *diffusion* and *penetration* of videogames in our culture. How do the public perceive videogames? What is the profile of the average player?

Videogames are a part of human culture and they are connected to other general cultural material, other videogames, social interactions and society in general. They happen inside a real world socio-cultural context, but separated from it. Let's take a closer look at this separation.

- **3.2.2 · The magic circle**

The importance of the *playground* has been taken into account since the early days of Game Studies. Johan Huizinga (1955:10) describes it in this light:

> *"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."*

Amongst several types of playgrounds Huizinga cites the *magic circle*, a concept coined by him and later applied to videogames by Salen and Zimmerman (2003:95):

> *"In a very basic sense, the magic circle of a game is where the game takes place. To play a game means entering into a magic circle, or perhaps creating one as a game begins."*

Hector Rodriguez (2008) takes Huizinga's list and makes a distinction: the magic circle is the separation created by any act of play, and if often consists in a literal physical precinct: a chessboard, ring, arena, field, stadium, stage, altar, etc. Thus, the playground is the space shaped by the magic circle.

Within the magic circle, Rodriguez says, the rules of a game hold absolutely. When reviewing Salen & Zimmerman's *Rules of Play*, Aki Järvinen (2004) defines *meaningful play* as "actions and outcomes within a magic circle that add to the emotional and psychological experience of playing the game." The magic circle generates a world of its own where meanings can be made[62].

The magic circle, then, can be seen as an imaginary membrane enclosing the virtual environment of the videogame. Edward Castronova (2005: 147) states that it:

> *"*[…] *can be considered a shield of sorts, protecting the fantasy world from the outside world."*

This membrane, however, is not watertight. Castronova claims that it is porous and that "synthetic worlds" (the term he uses for the virtual environment of the videogame):

> "[…] *cannot be sealed completely; people are crossing it all the time in both directions, carrying their behavioural assumptions and attitudes with them."*

[62] "Meanings are not found, but made." David Bordwell (1989: 3)

The abstract notion of magic circle, then, refers to the environment that delimits the playground where the player enters and the process of the videogame can take place. This space is permeable, but the validity and consequences of the videogame never trespass those boundaries and reach the real world.

3.3 · THE REMEDIATION CHANNEL

The context allows the creation of a gaming space for the player and the core system to interact. Their interaction is not direct, but through another element of the surrounding system: an intermediary called *the platform*, which creates a *remediation channel*. Let's look again at the videogame system map:

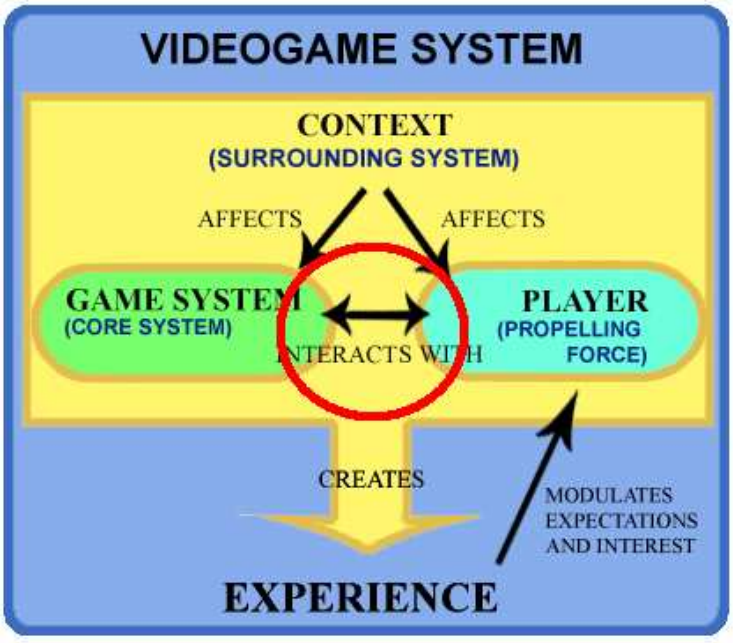

Fig. 3.1 – Between the core system and the player there is a remediation channel.[63]

[63] Created by the author.

The platform is *an electronic device that processes the player inputs and representational outputs that constitute the videogame process*, thus remediating the game. It is an audiovisual apparatus; one that Nicolas Esposito (2005) describes like:

> "[…] *an electronic system with computing capabilities, input devices (controllers, mouse, keyboard, etc.) and output devices (screen, loudspeakers, etc.)."*

The platform holds the mechanical and mathematical responsibility for the human-computer interaction. In this section I will further my description of remediation and build a map of the remediation channel.

- **3.3.1 · The platform as remediator**

When studying game time Jesper Juul (2004: 131-42) affirms that:

> *"The main difference between the computer and its nonelectronic precursors is that computer games add automation and complexity –they can uphold and calculate game rules on their own, thereby allowing for richer game worlds; this also lets them keep pace."*

Videogames can have complex abstractions because take can take care of them without the player even knowing. Juul mentions dissonances between the game time and the real time that are only feasible with high end automation. He talks about *pace*, an attribute only practicable if a remediation device is managing the

reactions to every action. Celia Pearce (2005) states that digital technology can add features to gameplay as, for example, high quality animation, which opens up the opportunity for character. The game is not only remediated by the electronic device: it is that device *what makes it possible*.

I talked a little bit about remediation in Chapter 1. I think I am now in the position to take a closer look at it. For instance, Rune Klevjer (2001) concluded that "digital environments" are performatory, responsive and encyclopaedic. I believe that he is not talking about the virtual spaces created by the videogame process, but the actual technology that generates them. So the remediation device is:

· *Performatory*: the remediation device executes procedures, is the responsible for the mechanical behaviours of the videogame process

· *Responsive*: the remediation device can take inputs from the player, identify them and match them to a fixed, consistent reaction.

· *Encyclopaedic*: the remediation device stores all the data necessary for the videogame process, and has it accessible at any moment.

I can assert that the remediation device is executing two processes at the same time (which can be seen as the two sides of a coin): the videogame fiction as the player perceives it and the logic calculations that work constantly underneath it. This, I believe, is what Espen Aarseth (1997: 40) was talking about when he differentiated between:

· *Textonic* game elements: "strings of signs as they exist in the game"

· *Scriptonic* game elements: "strings of signs as they are presented to the player"

We can identify the latter with what I have been describing as the core system. The first one would be the game code or *software*, the logical, hidden structure behind every videogame action. The remediation channel works like this: *the platform, activated by player inputs, executes the game code and produces the core system via representation outputs.*

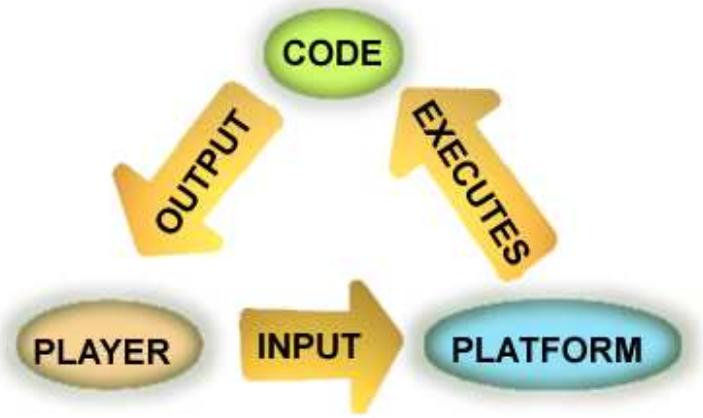

Fig. 3.2– The basic remediation triangle[64]

Here I want to show that, albeit the platform and the code work together, they are not the same.

- 3.3.2 · The software

The software or code of the videogame is the most atypical part of the remediation process. It is not part of the platform, but without it the platform would have nothing to do, no orders to manage. It is strictly not part of the core system, since the core system is the group of environments, rules and mechanics

[64] Created by the author.

of the videogame. We can say that *the code is a pure logic structure that serves as the lowest, deepest stratum of the core system, and has to be executed by the platform to generate it*.

Every possible action and interaction of the videogame system is contained within the lines of code of the videogame software. Actually, most people use the terms "videogame" and "software" as synonymous. Practically speaking, the software *is* the videogame. It exists at the non-visible foundations of the core system and in the remediation process. It articulates the remediation channel, and serves as the *hinge* between the surrounding system and the core system.

Therefore I consider that it has to be analyzed with the surrounding system. In the next chapter I will study the core system, and there we just need to bear in mind that everything in that system exists due to the videogame software. It is as a part of the remediation process that the software claims our attention.

Terry Harpold (2007) describes the aspect of code that upholds the core system as the *technical plane*: "the computational, electronic and mechanical systems that support game play". He affirms that the technical plane needs *consistency* and *stability*. The lines of code are pure logic rules, thus it is reasonable to think that they have to have those two qualities. If the technical plane is not consistent and stable, there are no rules for interaction and therefore no way to consistently communicate.

Jesper Juul (2003) states that "game media" support games in three ways:

· *Computational,* how it upholds the rules and decides what happens in response to player input

· *Game state,* what keeps track of it

· *Interface,* how detailed an influence the players have on the game state

The software is the possessor of the rules and the fiction, and it needs an electronic audiovisual apparatus to represent those rules and fiction in order to communicate them to the player.

- 3.3.3 · A map of the remediaton channel

I described the remediation channel as follows: the platform, activated by player inputs, executes the game code and produces the core system via representation outputs. Hence, I have the next basic elements:

· *The player*, who perceives the core system and acts accordingly

· An *input device* that translates the player actions to logic inputs

· A *processor* that receives the inputs and executes the code. It is the main part of the platform and it may be known as just "the platform".

· A *data storage medium* that stores the whole of the code. It may be a hard drive built-in the platform, an external ROM (Read Only Memory) such as cartridges or discs…

· *The code*, which holds the logic structure of the videogame process, takes delivery of the inputs and triggers a reaction that generates outputs

· *Representational devices* that show the outputs to the player, thus supporting the core system

The inputs in the remediation channel are sent from the player to the processor, where the code is being executed, via the input device. Input devices usually are game controllers or the combination of keyboard and mouse but can be a virtually endless array of devices.

The outputs generated by the code are commonly audiovisual, but we can also find controllers that support *haptic outputs* like vibrations and forces. Thus I could speak of a *perceived output* (the sum of the outputs generated by the code) that is perceived by the player and completes the circle. This would be the complete map of the remediation channel I propose:

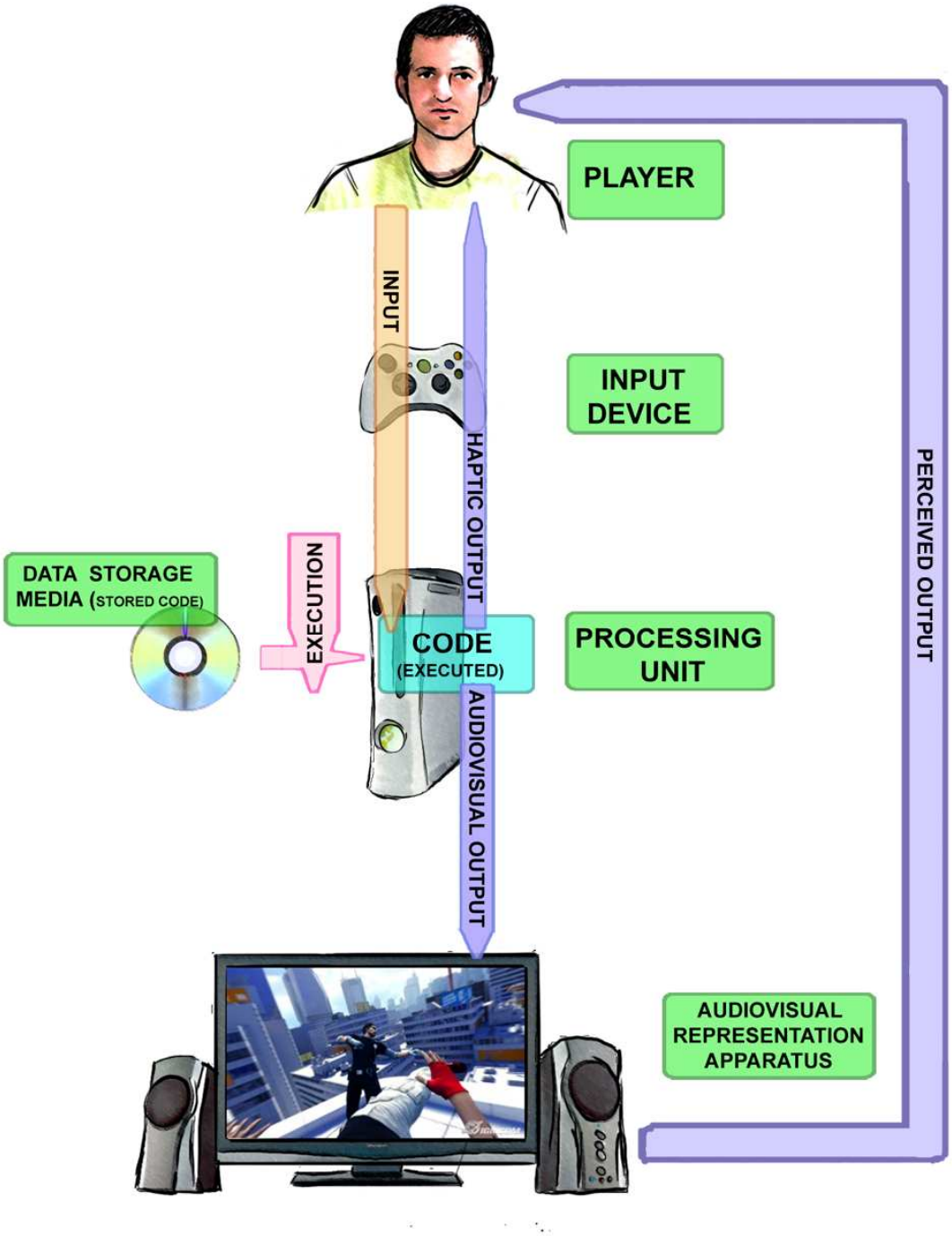

Fig. 3.3 – The remediation channel.[65]

In this case, the player is using the Xbox 360 to play *Mirror's Edge*.

The remediation device(s) generate the core system and link the player with it. Thanks to it, the player is freed from having to control the proper execution of

[65] Created by the author.

the game process. The player attention might be in events of the videogame world, but at the same time there is always a hint of recognition of (and, may I add, awe for) the technology that makes that world possible.

3.4 · THE PLATFORM

There is not a single object we can call *the* gaming platform. Instead, we have numerous electronic devices (what is commonly known as *hardware*) designed to (or able to) work as videogame remediators. In Lars Konzack's (2002) seven-layer model for game analysis, he puts *hardware* at the first level. We can not understand the videogame system without the hardware, nor a concrete case study. In this section I will describe the different types of platforms and their main components.

- 3.4.1 · Types of platforms

In Chapter 1, I already made a distinction based on whether videogames were the primary intended function of the platform or not. Some electronic devices have advanced technological capabilities and are able to execute videogames with no problem, although they were not designed with that intention in mind. Personal computers, in turn, are multi-task machines, able to execute both videogames and more functional applications, yet they are usually considered a traditional gaming platform. The line is even thinner: for the past generations, game consoles have been adding more and more multimedia functionalities, such as video and music playing and internet connections. I propose a classification in five categories:

· *Arcade videogame cabinet*: a coin-operated machine normally designed for a particular videogame or at least with interchangeable parts to fit the design of the videogame currently installed in it. Players have to play independently for each play session. Everything needed for the mediation channel is built-in in the cabinet: the screen or monitor, the hardware (a printed circuit board) and the control panel. They are usually found in amusement parks, business and penny arcades. Since the whole cabinet is normally designed for a specific videogame, one of their main appeals is the wide variety of control devices: from dancing mats to lightguns to steering wheels. Their design tends to be customized and eye-catching.

Fig. 3.4– *Dance Dance Revolution X*'s cabinet.

Players introduce inputs by stepping on a dancing pad on the floor.

· *Personal computers*[66]: multi-task machine designed to be used for numerous purposes. They feature a general operating system from where

[66] Any kind of personal computer, no matter if they are Mac or IBM PC compatible.

the user can manage and execute the rest of the applications. Traditionally used since their early days. Their main input devices are the *keyboard* (a device with alphanumerical and extra keys) and the *mouse*[67] (a device based on motion control, usually linked to a pointer in the screen), but can support many other devices, as game controllers. We can find two subtypes here:

· *Desktop computers*, designed to be used in a single location and with all their main elements separated: a GPU (*general processing unit*, usually in the form of a "tower case"), a monitor, a keyboard and a mouse.

· *Laptop computers*, relatively small devices designed to be portable, with all their main components integrated into a single object (except the mouse, which is often replaced by a touchpad, a surface that detects the movement of the user's finger).

· *Game consoles*: electronic devices specifically designed for the execution of videogames. They are composed of a main processor and at least one controller, and in general allow the connection of more controllers for multiplayer play. They need to be connected to external display devices, such as TVs, monitors and speakers, to portray the audiovisual outputs. There are several game consoles made by different companies with different characteristics. Normally every console uses its own storage medium, such as cartridges, cards, discs, magnetic media… Some also use digital distribution, enabling users to download the

[67] The combination of keyboard an mouse is the control device of choice for many players, specially for FPS (First Person Shooters) players, who depend on very short reaction times and high accuracy.

videogame software. Some examples are: Nintendo NES[68], Super Nintendo[69], Sega MegaDrive[70], PlayStation, PlayStation 2, Xbox 360…

· *Handheld game consoles*: though they could be considered as a subcategory of game consoles, I believe they deserve a category of their own. Handheld game consoles are portable devices specifically designed for the execution of videogames. They have everything necessary for the remediation process integrated in a single unit: screen(s), game controls, speakers… The most famous example is the long-lived GameBoy by Nintendo. Other examples are: Sony's PlayStation Portable (PSP), Nintendo DS, GameGear, Atari Lynx…

· *Other devices*: with the improvement of mainstream technology videogames have become more accessible and popular. As of now, there are myriad devices (generally handheld ones) that can execute videogames without being specifically designed for that: numerous models of mobile phones, smartphones, PDAs, aircraft audiovisual apparatus[71]…

While they may differ from each one, all these different types of platforms have a number of elements in common.

- 3.4.2 · Basic components of a platform

[68] Or Famicom in the Japanese market.
[69] Or Super Famicom in the Japanese market.
[70] Or Sega Genesis in some markets.
[71] Last time I took a long distance flight, they had GameBoy emulators as well as original, simple videogames.

A platform needs to have a processor, input devices and output devices. In many cases, almost any kind of generic output device can be used to display the output signal, thus leaving the core platform only with a processor and an input device. Let's take a closer look at each one separately:

· The *processor* or *core unit* is what executes the code. It is the hub where everything is connected and it is made of complex circuitry. I use the term processor in a broad sense, since it is actually made of several interlinked parts such as a CPU (central processing unit), a RAM (Read-Only Memory) and often an audiovisual co-processor. In the case of game consoles, the processor is the console[72]. In home computers, it is inside the tower.

· The *input device* is the component that receives player actions (normally, pressing buttons) and translates them to inputs that the processor can understand. Miguel Sicart (2008) relates input device design and player actions. That is, the player actions are both allowed and restricted by the possibilities of the input device. Let's remember, as I cited in Chapter 1, that he maps mechanics to input procedures and player emotions. Player abilities, input device possibilities and game mechanics depend on each other, and in the end, they create *possible inputs*: the actions the player can do to communicate with the core system. According to Sicart, these possible inputs could be more than pressing one button: fight games have complex sequences that trigger one

[72] Here we are in dangerous semantic territory again. Some would say that a game console is made of the core unit and *the* controller (the main model of it). That I would call the platform, which still lacks representational or output devices to be complete.

mechanic, and the player learns it as a unity, "not necessarily conscious moves".

Input device possibilities, player abilities and *mechanics* amount to end up being one and the same. The former are the combinations allowed by the input device design. I will describe mechanics in the next chapter, although I believe we already have an intuition of what they are: the possible actions allowed to the player by the core system. What are player abilities? Aki Järvinen (2007) states that:

> *"Digital games necessitate both cognitive and psychomotor abilities, but increasingly also 'physical abilities'."*

He cites the example of *exergaming* products, like *WiiFit*[73] and many other videogames for the Wii. These are "player abilities": cognitive, psychomotor and physical abilities that game mechanics require players to perform.

Fig. 3.5– The guitar controller for the Wii version of *Guitar Hero III*.

[73] A videogame played using a balance board in which the player has to make exercise.

Motion-detection based controllers can require players to execute a certain movement to perform a mechanic within the videogame. Cameras with movement recognition can demand full-body motions from the player. Input devices are mainly game controllers and keybord plus mouse, but we can find numerous other input devices that determine the way we play: musical instruments based on mimicry, such as the guitar of *Guitar Hero* or the drums of *Rock Band*, microphones that detect our voices, as in *Singstar* or *Odama*[74], lightguns that let us shoot at the screen… Even our own body can be turned into an input device[75] with the use of cameras as the EyeToy for the PlayStation 2 or Microsoft's Project Natal.

Some input devices feature *haptic technology*, mechanisms that communicate with the player via the sense of touch (vibrations, resistance, etc.). This is another type of output created by the software, thus turning the input device into an input/output device. Since their main purpose is the collection of inputs sent by the player, I will still refer to them as input devices for practical reasons. This haptic technology is often called *force feedback* or *rumble functions*[76].

[74] A strange blend of pinball game and military strategy for the Nintendo GameCube, where the player can give voice commands to her troops.
[75] It can be argued that the actual input device is the camera, while our body still is classified as player habilities, but with 1:1 recognition as in Project Natal the limit become rather unclear.
[76] Because they were first introduced in game consoles by the Rumble Pak, an external device for the Nintendo 64 controller.

· The *output devices* can be a part of the platform, as in laptop computers or handheld game consoles, or just external audiovisual devices as TVs, monitors, home cinemas... They translate the audiovisual signal sent by the processor and generate the audiovisual output that shapes the core system. Hence, they are the videogame's *representation space*. They have to be on par with the platform audiovisual capacities: if a processor can generate high-definition images at 60 frames per second, any lesser output device will not be able to display the videogame audiovisual full potential.

As a fifth element we can add data storage media:

· *Data storage media* are external ROMs (Read-Only Memory) that store the videogame's program or software. Most platforms use their own media, such as magnetic media, optical media, cartridges, discs… Modern platforms have hard disks (be it by default or sold separately) where videogame programs can be stored, thus rendering external media unnecessary[77].

Fig 3.6 – *The Legend of Zelda*'s famous golden cartridge for the NES.

[77] Sony aims to move all the PSP (Play Station Portable) videogames from being stored in UMDs (the PSP's own media) to being downloadable to the built-in memory or memory cards.

3.5 · CONCLUSIONS ON THE SURROUNDING SYSTEM

In this chapter, I have seen that the interaction between the player and the core system happens thanks to a surrounding system that both creates the real environment for it and provides tools for a fluid, two-way communication. This surrounding system is composed of the context and a platform that builds a remediation channel.

Videogames cannot be studied isolated from human culture, from which they are part; hence they are connected to common cultural material, other videogames, social interactions and society in general. They happen within a real world context, but are separated from it by the magic circle, an imaginary membrane enclosing (but still permeable) the virtual environment of the videogame. This magic circle shapes the playground or gaming space, and within it the rules of the game hold absolutely and the game itself has meaning. No real consequences can transpire to the outer world of the magic circle, though.

Inside of this surrounding system we have a platform that processes the player inputs and representational outputs that constitute the videogame process, thus remediating the game. Or the other way around: the platform, activated by player inputs, executes the game code and produces the core system via representation outputs. The remediation channel, then, consists of a player, an input device, a processor, a data storage medium to store the videogame's software, that code and representational devices.

The code or software is a pure logic structure that spawns the core system when executed by the platform. It is the collection of logic calculations that work constantly underneath the videogame fiction as the player perceives it; it possesses the rules and fiction of the videogame and automates them, thus allowing more complex games and pace and freeing the player from this responsibility.

There is not a standard platform. We can find five types of them: arcade videogame cabinets, personal computers (both desktop and laptop computers), game consoles, handheld game consoles and other devices. The basic elements of a platform are the processor or core unit, the input device and the output device(s), that can be a part of the platform or an external device. Input devices are closely interconnected to game mechanics and player abilities (the cognitive, psychomotor and physical abilities that game mechanics require players to perform).

CHAPTER 4

THE CORE SYSTEM

4.1 · VIDEOGAMES AS GAMES

Videogames have to be analyzed as games. They are not normal games, though: their technological remediation permits a degree of automation and complexity unfeasible for non-electronic games. I have already seen what the role of a person that decides to play a videogame is, how the context is a part of that videogame and how the remediation channel works.

If we go back to my definition of videogame, we will see that by now I have gone into some of its point in depth. For instance:

- 2) *Remediated* by an electronic platform that creates a virtual space and adds *automation* and *complexity*

This point was analysed in the remediation channel. Points 4 and 5 correspond to the context and the magic circle:

- 4) Existing in a delimited real-world *context*
- 5) *Unpredictable, unproductive* and without *obligation*

The player is taken into account in the definition in point 6:

- 6) Played by a player with a *lusory attitude* and an *attachment* to the game state

And the complex system and its resulting experience are what point 10 is about:

- 10) Forming a *complex system* where the code, the context, the platform and the player interact to create a *stream of experience*.

Half the definition has been expanded upon. The rest of it, the bulk of what a videogame is, belongs to the core system:

- 1) Videogames are *games* of any kind
- 3) With *fiction*, happening in a fictional space with components that present some sort of *artificial conflict*
- 7) *Rule-based*, and those rules create *challenge* to demand player *effort*
- 8) With several possible valorised states, and amongst them *desired states*
- 9) Giving *agency* to the player by *game mechanics*

This is the part of videogames that is studied most often. In this chapter I will analyse this system within a system, the interconnected game elements in a videogame. I will study the core system, its g*ameworld, entities, mechanics, rules and goals.* Along the way, I will find that most elements in the core system have narrative possibilities: I will try to analyse them in the last section of the chapter.

4.2 · GAMEWORLD

The *gameworld* is the fictional or virtual environment where the actions in the videogame take place. Gonzalo Frasca (2003) considers videogames to be *simulations*. A simulation, as Craig Lindley (2003) puts it, is:

> "[…] *a representation of the function, operation or features of one process or system through the use of another."*

Considering videogames as simulations can raise a few problems, as in the case of so-called *abstract games*. A puzzle like *Tetris* offers only an empty space where blocks of varied shapes fall, not resembling anything in real life. Is that a simulation? If so, a simulation of *what*?

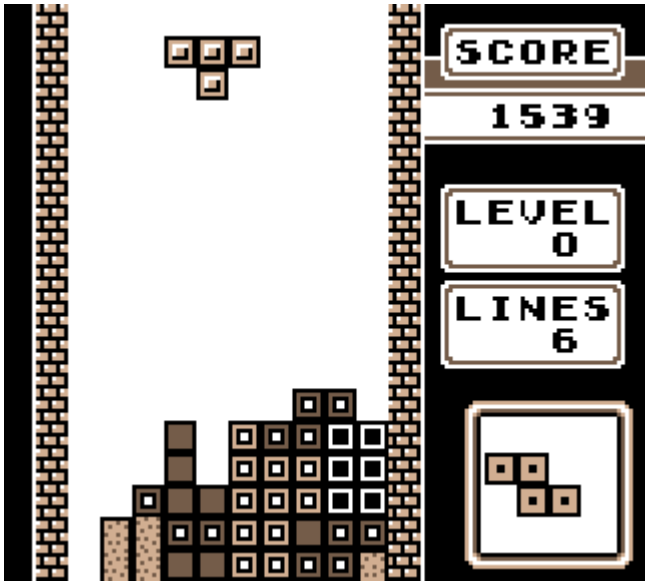

Fig 4.1 – *Tetris* for the original GameBoy.

- 4.2.1 · Gameworlds as representations

The term "simulation" implies that something is not only artificial, but an *imitation* of something else. Rune Klevjer (2001) affirms that:

> *"As much as we play with a machine, we also play with the world, because a computer game offers some kind of representation of the world".*

As I saw in the previous chapter, we play with the world because videogames are indivisible from it. They are part of our culture and our world. But is *Tetris* a simulation of something we can spot in the real world? It is rather unlikely. Then, it seems pertinent to label *Tetris* as an abstract game: it is disassociated from any specific instance; it does not try to simulate anything in the real world. Raph Koster (2005) states that "we rarely see truly abstract simulations in games". That is, in itself, a contradiction: how can it be a simulation (an imitation) abstract (with no model in the real world)?

There is even more confusion about the term "simulation". Gonzalo Frasca (1999) uses it as almost a synonymous of paidia, of games with no clear rules. He states that simulations (like flight simulators and so) "do have rules of defeat, but not rules of triumph: the main goal is up to the player." He quotes LeDiberder (1993), who says that simulators are more like toys. Frasca says that "the ability to perform paidia activities is determined by the environment and the actions", and compares that environment with Prince's (1987) narrative "setting", which is the "spatiotemporal circumstances in which the events of a narrative occur."

"Abstract" and "simulation" seem to be two opposite concepts, indeed. Klevjer (2001) states that "computer game representation is either abstract or mimetic." Then, *mimetic representations* are what we are calling simulations, and abstract representations are different from them. The key word, then, is *representation*: a *gameworld is a representation of a space that can range from being based on reality to entirely abstract*. Whether it tries to be a carbon copy of reality or it is

completely imagined, this space (which I will call the *model environment*) is represented in the gameworld of the videogame. It is not a binomial, but a continuum. A flight simulator may attempt to be realistic as possible, while a videogame like *Gears of War* is still based on reality to a certain degree: there are human beings, they carry firearms, the physics in the world are realistic… I agree with Koster (2003) (although, to be correct, he should talk about "abstract representations"): it is hard to imagine a model environment completely different from our world. Even the blocks in *Tetris* fall to the ground in some sort of simulation of real-world gravity. If they "fell" to the ceiling our brain would have a difficult time interpreting what was happening.

I affirmed that gameworlds are the fictional environments where the actions in the videogame take place; thus I believe that they can be considered fictions. This, however, does not have to be mistaken with narrative. Lisbeth Klastrup (2009) tries to determine if gameworlds are fictions, narratives or both. She defines fiction as follows:

> *"Fiction is a concept that describes an imaginary, 'not-real' world, whereas narrative is a term that describes the presentation of a series of events."*

And she tries to answer if gameworld are narratives stating that online worlds share with narrative:

> "[…] *the fact that they function as symbolic frames for a special form of experience which we associate with the promise of 'immersion', emotional engagement of flow we have come to expect from the engagement with narrative* […] *which is brought about by the filtering out of what is irrelevant or uninteresting."*

I said in Chapter 2 that I find the term "immersion" too vague to use it safely (it would be an attribute of "fantasy" combined with "agency", at most). But what Klastrup (2009) says here is that gameworld offer the possibility for experiences similar to the ones we associate with narrative. I would say that fictions have *inherent narrative possibilities*, and because gameworlds are fictions they have inherent narrative possibilities too. Klevjer (2001) cites Kirksaether (1998), who says that the textual world of a computer game is "rather a fictional framework":

> *"Crucial narrative elements are used to frame the action of the game within a story-world."*

Klastrup (2009) continues her analysis and describe gameworlds as "frameworks for interpretation":

> "[A gameworld] *still has a representative function because it represents a mediated understanding of what a world is or should look like.* […] *They are frameworks of interpretation which allows us to judge whether events in the world are, for instance, 'moral' or 'immoral', 'good' or*

'bad' according to the 'world rules', the designated morals of that particular world".

I consider moral codes to be a valorisation of the actions, thus they can belong to gameworld rules and game rules at the same time: while in some videogames killing innocent people does not affect the end state, other videogames, like *Doshin the Giant*, are based almost entirely on how you treat other characters.

Besides that, I consider Klastrup's definition to be valid. Gameworlds are virtual environments that represent model ones located within a realism-abstraction continuum. They are where the actions of the videogame take place, where the player and the computer meet: we can compare them to the GOP[78] (Game Ontology Project) team's notion of interface:

"[Interface] *is where the player and game meet, the mapping between the embodied reactions of the player and the manipulation of game entities.* […] *The interface provides the means by which the player experiences the game and takes action within the game."*

As an interface, the gameworld lets the player interact with a representation of the model environment. Jesper Juul (2003) writes about two different representational fashions:

[78] José P. Zagal, Michael Mateas, Clara Fernández-Vara, Brian Hochhalter and Nolan Lichti. They are creating a framework for analyzing, describing and studying videogames.

· *Implementation*, where there are mapping one-to-one correspondences. For example, the game of chess can be reproduced in a videogame featuring all its components and behaviours

· *Adaptation*, where much detail is lost on the level of the rules and game state. A tennis videogame has to transform all the possible actions of the tennis players into something that can be done with an input device.

We can adapt behaviours of imagined worlds to our gameworld. If a game designer imagines a world with giant armour-like robots, as in *Lost Planet*, the imagined behaviour of these robots has to be adapted for the input device: move with the analog stick, shoot with the trigger…

Marku Eskelinen (2001) affirms that the bare essentials of the gaming situation are:

> "[…] *the manipulation or the configuration of temporal, spatial, causal and functional relations and properties in different registers."*

This relations and registers affect the whole system, not only the gameworld, but they show the basic characteristic of said gameworlds: they are *changing, reactive but solid and reliable spaces*. Eskelinen cites Burch (1973:17) to talk about the spatial characteristics, and differentiates four factors affecting space:

· *Positioning*

· *Movement* (freedom, speed and direction)

· *Point of view*

· *Access to information* (interplaying channels, at least one for audio, visual and textual information).

He also mentions a series of conventions on spatial representation: reliability, subjectivity and normality.

- **4.2.2 · Gameworld rules**

Gameworlds need to be stable and reliable; they need to have *rules* to how the representation works. Gonzalo Frasca (2001:9) divides rules into "paidia rules defining how the simulation functions" and "ludus rules defining the winner or the outcome of a game". Gameworld rules, thus, are different from the rules that determine the end state and the challenge of the videogame. The GOP team also distinguishes between gameplay and gameworld rules, and describes the latter in his Wiki[79] in this way:

> *"This world, not necessarily the same as the physical world we inhabit, is still subject to its own constraints and has a consistency that allows the player to recognize it as a world. These constraints, or these characteristics that make it identifiable as such are what we call the gameworld rules."*

[79] http://www.gameontology.org/index.php/Gameworld_Rules

Fig 4.2– *Portal*'s portals.

Gameworlds are worlds with space and time rules. The game rules and mechanics will depend on those gameworld rules: if physics are realistic one can use momentum and acceleration to jump higher and longer. Some videogames go as far as making those gameworld rules the centre of their design: in *Portal*, the player has a weapon that creates connected inter-spatial portals, thus modifying her possibilities to progress through space. She has to calculate where and when to open those portals to teleport simple objects and herself and solve the game's puzzles. In *Braid* players have to manipulate time in various manners to solve puzzles: rewinding it, slowing it down…

If I push an object, will it move? How does gravity works? Are there day/night cycles? Which consequences do my acts have? Physics laws, passage of time and their manipulation are only examples of the many rules that determine how the gameworld works.

- 4.2.3 · Gameworld limits and worldness

As representations of model worlds, gameworlds are *not* complete. Gameworlds have to be designed to favour the gaming experience: they need to be comprehensible, present spots where the player has to use her abilities in a challenging manner and, overall, contain the artificial conflict I mentioned in my definition. Gameworlds resemble more a training field with obstacles than a real world location. The videogame *Wheelman* takes place in a representation of Barcelona, but the streets, their order and other significant elements have been altered to permit a more satisfying driving experience.

Fig. 4.3 – A virtual Vin Diesel in a virtual Barcelona in *Wheelman.*

Every part of the world not relevant for the gaming experience will likely be left outside. Besides, since they are not natural but created, gameworlds will always have limits, no matter how big they are. Those limits exist for design and practical reasons.

One of the first noticeable limits when analysing a videogame is how the gameworld is *structured*, how it is divided into manageable bits. This is mainly due to design choices. If we think of *Pac-Man*, we will see that its action unfolds inside a single stage, completely visible in the screen all the time. *Super Mario Bros.,* in turn, presents a succession of stages of varied lengths, which in turn are grouped into 8 main clusters. *Grand Theft Auto* series features an open-ended world that the player can travel across at any moment. There are numerous structure options, and even more combinations can spawn from them. Let's take a look at the main structure conventions[80]:

· *Levels* or *stages* are a continuous stage with a clear beginning and a clear goal. They are one of the shortest divisions in the gameworld's partition.

· Levels can be grouped in larger clusters commonly known as *worlds*. Those worlds tend to be coherent thematically and challenge-wise (they present a similar type of obstacles to overcome), and show a sense of progression, normally punctuated by a boss fight at the end.

· Levels and worlds can be progressed through in a linear manner (as in *Super Mario Bros*.), meaning that a level has to be completed to access the next, they can be completed in groups (the player has free access to any level within a limited group, and once he has completed them –or at least a required minimum– he can access the next set) or they can be all accessible from the beginning, as in the *MegaMan* series. In these

[80] The terms used for these segments and concepts are up to the designers.

videogames, the player has a number of bosses to defeat (one per level), and once she has defeated them all she can access the last level[81].

Fig. 4.4 – *MegaMan 3*'s stage selection screen.

· Videogames that permit non-linear progression (or at least backtracking) often have a *hub map* from where to chose the level.

· This map can be something more complex: a *hub world* to explore and from where to access the different levels or dungeons.

· Other videogames present the totality of their gameworlds as a *unity* that can be seamlessly covered by the player with no interruption. These games can present a linear progression or be *open-ended*, encouraging a sense of free roaming.

Inside these partitions we can still find solutions to delimit the gameworld, often answering to technical limitations, such as *invisible walls*[82] or doors[83] to allow

[81] Every boss gives a special weapon to the player once defeated that can facilitates the progression in other levels. The game, therefore, favours a specific order, but the player can decide to complete it the hard way.

the platform time to load the next chunk of gameworld information. These technical limits are what Terry Harpold (2007) calls *medial determinisms*, and are marked in related structures of the program and the gameworld. He talks about "common threshold structures of the world" that represent the world and "masks the technical requirement that it fulfils". Those thresholds match "the program trait to the gameworld trait concurrently". That is: there is a correspondence between what the remediation channel can generate and what the gameworld shows, and in these junctions (or *entanglements*) there are *threshold structures* that hide the *mediality* to a variable degree. Harpold says:

> *"The gameworld recaptures traits of hardware or software, repurposing them to its own ends and masking their potential disruption of the world with information that is notionally distinct from it".*

When in a junction between gameworld and mediality, the gameworld design has to *disguise* this limitation: this is what Harpold calls *recapture*. An invisible wall is far more annoying for the player than a closed door: the closed door belongs to the gameworld, while an invisible wall is a departure from it.

According to Harpold (2007), some players may want to transgress the gameworld limits (and experiment with them: let's remember the anarchist player type I described in Chapter 1). In answer to that, Harpold states, some videogames stop hiding their virtual, remediated nature and express it openly to

---

[82] A common gameworld limit in 3D videogames.

[83] Several doors in *Metroid Prime* for the GameCube take some time to open once activated, but no "Loading…" sign is shown, thus minimizing the break of pace. In the other side, we have *Resident Evil'*s infamous trademark doors: a non-interactive animation of a door opening the player has to behold every time she goes to another room.

remind the rules. He uses the term *metalepses*, from narrative theory, and cites Gérard Genette (1980, 1988):

> *"A metalepses occurs when the ostensible boundary between two narrative worlds is breached."*

This works as a reminder of the absolute power of the rules within the videogame. Harpold (2007) compares it to fictions that "break the fourth wall", and links it with the theatre of alienation. As Harpold states:

> *"Metalepses may draw attention to the fact that a story is being narrated by someone, signalling thus her control over elements of the narrative."*

It is in these entanglements between gameworld and mediality (and their mutual dependence) where game designers can "convince us that there is more in the gameworld that meets the eye when there is, exactly, nothing more." This perception of the gameworld as being bigger and richer than it actually is can be compared to Lisbeth Klastrup's (2009) notion of the *worldness* of the videogame.

Klastrup studies the worldness of *EverQuest*[84], and defines online gameworlds as "new form of engaging fictional universes." She defines the study of worldness as the "systematic study of virtual worlds as virtual worlds." (2003: 262) That is, without forcedly comparing and trying to adjust them to other

[84] A MMORPG (Massive Multiplayer Online RolePlaying Game).

representational models and their analysis methods. This is how she (2009) describes *EverQuest*:

> *"It presents an invented universe that is characterised by the fact that is simultaneously used by several users who can explore the world from within and with each other."*

For her, the key of the allure of these worlds is that when we enter them, "we engage in a game of make-believe." It is a matter of "willing suspension of disbelief": we accept to believe whatever the gameworld throws at us as long as it is coherent and stable.

According to her, the worldness of emerges in the complex interplay between:

- *a) "the aesthetics of the gameworld as both an actualised explorable and mentally imagined universe"*
- *b) "the experiences and means of expression the world as a game system and tool allows and affords"*
- *c) "the social interaction in and about the world"*

Thus, worldness could be defined as follows:

> *"Worldness in general seems to be the sum of our experiences within the framework provided by the gameworld in its instantiation as a particular and new genre of a fictional universe that you can actually inhabit and*

share with others, and of our experiences with it as particular game design, which both enables and restricts our possibilities of performing and interacting in and with the world. However, the importance of also taking into account the time lived in the world cannot be emphasized often enough. […] *And as in real life, it is the sum of your experiences."*

Klastrup (2009) emphasizes the social aspect of the gameworld, focusing only on massive multiplayer videogames. I would like to extrapolate her concept of worldness to all gameworlds. In my opinion, what construct the worldness of the gameworld are the elements of this world that make it "both an actualised explorable and mentally imagined universe", and the possibilities this gameworld adds to the player experience.

The actual elements in the gameworld have to be detailed enough to make us imagine what is not shown as a part of that gameworld. Douglas Brown (2007) explains that *World of Warcraft* has unseen game content or one that has never been beaten: according to the designers it "makes the world seem bigger to everyone". He calls these elements of the gameworld "surrogate narratives". In order to avoid confusion, I will call them *implicit elements*, in contrast to the present *explicit elements*. The worldness of the gameworld would be more or less intense depending on those two types of elements and their conjunction.

- **4.2.4 · Information**

Gameworlds are an interface and they feature dynamic entities with changing states. The player needs to understand all the traits of this gameworld, its rules and the entities to be able to interact with them. As Jesper Juul (2007) puts, "a commercial game has to communicate its goal in some way."

Gameworlds needs to be easily *readable*. *Mirror's Edge* includes an element in its fiction called "runner's vision" that paints the parts of the scenery that the player can interact with in order to advance in a bright red colour. *Uncharted: Drake's Fortune* shows the path in a more subtle manner: cracks and ledges the player can use stand out while still having a visual aspect that does not clash with the gameworld reality.

Fig. 4.5 – In *Uncharted* the player can read the path with little training thanks to a clever, subtle design.

But besides the physical information of the gameworld (its cardinality) there is more information that needs to be shown to the player. Aki Järvinen (2007) talks about:

· *Information*: what the players need to know and what the game system stores and presents in game states.

· *Interface*: in addition to direct, physical means for the player to access game elements.

Consalvo and Dutton (2006) include Interface Study in their methodological toolkit for the qualitative study of games:

> *"Any on-screen information that provides the player with information concerning the life, health, location or status of the character(s)".*

Videogames have important information about the game state that needs to be communicated to the players in some way, be it *diegetical* (as part of the gameworld fiction) or *extradiegetical* (outside this fiction). Extradiegetical information includes in-game menus (usually accessed by pausing the game), text boxes, etc. Some menus exist in a space separated from the gameworld, while others are shown in a layer over it. This is commonly known as the *HUD* (*Heads-Up Display*). In general, the information relayed in the HUD is the one the player needs to be conscious of constantly, such as health, time, ammunition…

Fig. 4.6 – *Metroid Prime* features a first-person view that uses the helmet of the character,

Samus Aran, as a diegetical HUD.

Fig. 4.7 – The blue line is the character's health bar. *Dead Space* integrates the information typically displayed in the HUD in the suit of the main character, thus making it diegetical.

For Douglas Brown (2007) a good way to communicate with the player in a coherent and satisfactory fashion is by using the narrative possibilities of the game system. He states that the gameplay "has to be constantly tweaked and altered" in order to not become boring, and narrative helps in marking a rules-shift. Narrative gives gameplay clues and:

> *"*[…] *shift some of the responsibility for ludic failure through not making the arbitrary choice back onto the player.* […] *Narrative and context takes on the role of explicating what the game has to offer in terms of content and gestalt features."*

Narrative features are an informational tool, then. In *Half-Life*, the player is stuck in some secret underground facilities where an experiment has gone

wrong[85]. The survivors of the incident are eagerly waiting for the marines to come and rescue them, but when they do, they attack every living form in the complex, alien or human. At that moment, a new enemy for the player to fight and/or hide from is introduced, and that is made clear through narrative features: the marines are there to kill you.

The videogame has to explicitly relay the information required for the comprehension of the gameworld and the rules, but this does not mean that it cannot hide some information. Salen and Zimmerman (2003) stress the distinction between games with perfect information and games with imperfect information (i.e. chess and poker, respectively). Or, as Consalvo and Dutton (2006) say:

> "[What is important is] *the information and choices that are offered to the player, as well as the information and choices that are withheld."*

The way some information is hidden or has to be revealed is one of the elements that move the game process (will there be enemies behind this door? How can I defeat that boss?).

- **4.2.5 · Gameworld objects**

So far I have been talking about gameworld as the virtual space of the game, but this space is not empty: according to Gonzalo Frasca (1999) "the environment

[85] Note to scientists in videogames: do not even try it. It'll go wrong, always. It is not worth the effort.

includes topology, objects and other characters." In a broad sense, "other characters" are objects, too, just another type of them. Dakota Brown (2005) even affirms that objects are "players and playthings". I do not think the player can be considered an object within the gameworld, but I see the point: their *representation* inside the game is an object of the gameworld.

The Game Ontology Project team (2005) has a category for entities, and they describe them in this manner:

> "[Entities] *are the objects within the game that the player manages, modifies or interacts with at some level."*

For them, entities are the objects that make up the reality of the gameworld. Gameworld objects possess a set of attributes (the "adjectives" of these objects) and a set of abilities (the "verbs" that can alter the attributes). Abilities can be gained permanently or temporarily, and permit entity manipulation[86]:

> *"Entity manipulation consists of altering the attributes or abilities of game world entities".*

They talk about "static entities", which have no abilities. Thus, they seem to distinguish entities as a specific type of objects: the one that players can interact with. Within entities, they separate dynamics (the ones with attributes and abilities) and static entities (the ones with only attributes). This distinction can

[86] This has to do with game mechanics, which we'll see in a moment.

lead to troublesome cataloguing, since some objects may have faint attributes. A table in the middle of a room that can not be moved or altered is merely decorative or serves the gameplay in some way? Anyhow, the separation is useful enough; we will just have to bear in mind that there can be unclear cases.

Another division that can be made is between *agent representations entities*, *non-representational entities*[87] and *items*. An entity can represent an agent by being linked to the mechanics available for that agent. That means that, if the actions of the entity are executed by an agent, that entity is a representation; if they are not (they are intrinsic), that entity is not a representation of an agent. In *Uncharted* the mechanics available for the player are moving, shooting, jumping, climbing, taking cover… The player performs these mechanics, and the one "physically" doing them is the entity "Nate Drake", the main character. We can say that Drake is a representation of the player.[88]

Items are commonly known just as "objects" in the gaming community. Mia Consalvo and Nathan Dutton (2006) in their methodological toolkit for the qualitative study of games include "object inventory" amongst the main categories to analyse, and describe it like this:

> *"Objects that are used to enhance the avatar or gameplay, to help in solving puzzles, or to aid in ultimately 'winning' the game".*

[87] I refuse to separate characters in avatars and non-playing characters. The reality is not that simple. More on that in a moment.
[88] More on that in a moment. As of now, that will do as an introduction to the entity/character/avatar problem.

I would include also those items that have *negative* effects on the player, such as poisonous or rotten food in some of the *Castlevania* games. *Items alter the attributes of the entity they are linked to*. They can be used temporarily, have a single use or be attached to the entity for an indefinite period.

Fig. 4.8 – The item menu in *The Legend of Zelda: A Link to the Past*

Gameworlds have objects that obey their rules, some of them with attributes and abilities to modify them. These attributes and abilities make for the *game state*, which is a picture of the artificial conflict the gameworld has to contain.

4.3 · ENTITIES AND CHARACTERS

The gameworld is inhabited by entities, objects with at least attributes (and possibly abilities) that the player manages, modifies or interacts with at some level. Depending on its model environment, its degree of realism or abstraction and its fiction, these entities will likely be *characters*. In this section I will analyze characters as part of the gameworld, the different types of them as well as the concept of "avatar" and the agents

represented. To study them, I will have to describe them as entities, thus this section is both a study of entities and the fictional layer that can be built upon them: character. My goal is to study these characters and their contribution to fiction and agency in videogames in a systematic manner.

- 4.3.1 · Entity functions

As I said, a common entity distinction made in the gaming world (both in the industry and the community) is the one between avatars, non-playable characters (which I changed to agent representation entities, non-representational entities respectively) and items. To be true, entities can perform numberless tasks inside a videogame, so any attempt to categorize them (and thus, any attempt to categorize characters) will end up being reductionist. With that in mind, I can still try to do it for practical reasons, while looking for ways of complementing my descriptions.

Leaving their representational potential aside for a moment, a useful criterion that can be employed to classify entities is their attitude towards the player:

· *Player-controlled* entities

· *Hostile computer-controlled* entities

· *Allied computer-controlled* entities (that is, any entity from whom the player can get some benefit; considering the slightest sign of help or participation as an alliance –a shopkeeper, for example).

· *Neutral computer-controlled* entity (entities that do not take part in the artificial conflict, usually serving as ornamental elements of the gameworld).

· *Item* entities, entities that have to be linked to any other entity to modify their attributes, *modifiers*. This last type is not incompatible with the other ones: in some videogames (often in RPGs) some entities (teammates) can link their powers to other entities allied of them to modify their powers.

Entities will always be about attributes and abilities, therefore they are *functional* elements. By giving them certain qualities related to audiovisual depiction and fiction they can become characters.

- 4.3.2 · What is a character?

"Character" is a term that appears to be pretty clear at first glance but can lead to confusion if not properly defined. It refers to "one of the persons of a drama or novel"[89], thus, characters come from narrative forms and are a pivotal part of them. But describing characters as a "person", in my opinion, is too narrow: depending on the world of the fiction they can be virtually anything: aliens, robots, inanimate objects that come to life, animals… A narrator can create characters out of nearly anything, not only people.

[89] As the Merriam-Webster online dictionary puts it: http://www.merriam-webster.com/dictionary/character

Rune Klevjer (2006:116) defines character as a "general category that applies equally to novels or films as well as to drama or computer games":

> *"By definition, a character is an independent subject, someone who can act, and who can be related to as a human person or some sort of animated being with goals and intentions."*

Characters in videogames, for Klevjer, are part of the diegetical world of the videogame, hence being a key element of its fiction:

> *"In other words, the primary function of character has to do with narrative; when we play with characters, we play with a story."*

A character, then, is *any kind of subject with signs of intelligence, personality and will (therefore being able to act and have intentions) that inhabits a fiction*. Thus, in videogames characters are *entities with at least attributes that simulate traits of intelligence and will and strengthen the solidity of the fiction*. Again, the limits are not always clear. Let's take, for instance, a soccer videogame. The audience in the background may be animated (rooting for one of the two teams playing) but they serve as nothing more than decorative objects: they add little to nothing to the game process or the ruleset. The referee, in turn, embodies the rules and controls the game process: he is a character. But how do characters contribute to the videogame system?

- **4.3.3 · The "character" layer**

Characters are an advanced fictional layer built upon an entity to enrich the game fiction. By adding traits of intelligence, personality and will to an entity the engagement of the player can potentially increase. In *Super Mario Bros.,* goombas walk silently towards the player with no attack patterns at all, a deed that could perfectly be executed by any kind of inert object. But they feature simple anthropomorphic traits, like feet, big eyes and eyebrows that make for an angry facial expression: the player quickly interprets that this being is evil and is approaching her with intentions to harm her. In addition to that, goombas being goombas and not rolling stones add to the worldness of the gameworld: the natives of *Super Mario Bros*. gameworld are distinct from the ones in other gameworlds, hence making this one feel more complete and unique.

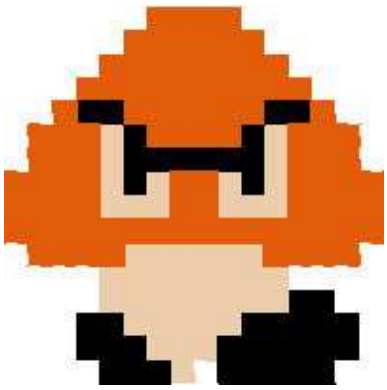

Fig. 4.9 – A goomba as portrayed in *Super Mario Bros.*

From this, I can extract that turning an entity into a character will:

· Expand the fiction of the videogame; strengthening the worldness of its gameworld. Since gameworlds are representations of a model world, this model world will be more compelling and believable if the player finds characters in it with whom she can relate to.

· Add narrative possibilities to the videogame. Detailed characters, with personality and intentions, are the basis of a narrative. A videogame is more likely to show elaborate narrative characteristics if it has characters in it: the more detailed these characters are, the more detailed the narrative can be. Celia Pearce (2005) talks about the relation between characters and narrative and, citing Tracy Fullerton, she states that "narrative arises out of empathy".

· Help explain the entity's functions and the rules and goals of the game. The goomba having evil eyes helps the player understand that it is indeed evil. It is implied in the notion of character that this character will have the ability to express itself; therefore it can communicate important information to the player in a clear, direct fashion. A player may need to "catch" an entity: if that entity is a character shouting for help, the player will easily understand that it needs to be rescued.

Characters aid the videogame's fiction and its gameworld. It is mostly because of them that we can speak of "illusory agency". Douglas Brown (2007) cites Justin Parsler to describe it:

> "[…] *a feeling of potential player agency and world scope which is implied through the game but not necessarily present in the mathematical bones of the object itself."*

The player can feel she has more agency than she actually has because of her character's potential abilities. Illusory agency is to characters what worldness is

to gameworld: the feeling that there is more to these elements than we actually see (when there is in fact nothing more).

- 4.3.4 · Entity/Character study in videogames

Characters in videogames are built upon entities; therefore to study them I should first identify their attributes, abilities and functions.

Traditionally, videogame characters are separated in three categories:

· *Avatar*, the character controlled by the player, and consequently the main character in the videogame. As an entity, this would be a player-controlled entity.

· *Enemies*, the ordinary obstacles in most videogames (particularly action-based ones), beings able to harm the player and hinder her progression. Normally showing aggressive behaviour: as entities, they are hostile computer-controlled entities.

· *NPCs* (Non-Playable Characters), usually holding a neutral position in the artificial conflict or being allied with the player, in contrast with the hostile enemies. This label can be traced back to pen-and-paper roleplaying games, where there are PCs (Player Characters), controlled by players, and NPCs (Non-Player Characters), whose actions and behaviours are determined by the Game Master (thus, they are controlled by them). If I extrapolate this to videogames, NPCs would be the non-hostile characters that are part of the program and are not controlled by any player.

I find this categorization to be far too simplistic. For starters, it appears to leave out the idea of *agents*, the beings behind the characters' actions. I spoke of *agent representation* entities because, in many cases, the player is *not* the only agent in the videogame: artificial intelligences are an indispensable element of most modern videogames.

In videogames, the actions of characters not controlled by a player are often scripted or automated. A goomba just moves forward. An enemy soldier in *Contra* will just shoot in a straight line no matter what. It is almost as if they did not care about the player: they would be shooting anyway. Other characters feature more detailed behaviour, like moving towards the player[90] and trying to attack her, or reactions triggered by player's actions (if the player enters a designated area, attack her). Still, that is automated. More sophisticated videogame characters, however, seems to be able to identify what is going on and act accordingly. They adjust their reactions to the current actions, thus showing a more spontaneous and *intelligent* behaviour: they are being controlled by another part of the videogame code, an *artificial intelligence*.

These characters seem to be more or less aware of their environment, can identify patterns, make judgments about them and adapt their actions in order to reach their goal. While any character has to mimic intelligence and intention to be a character, artificial intelligences (AIs) *really* have them in a basic way. Characters feature these traits in their characterisation; AIs belong to the

[90] Well, her character in the videogame, thus metonymically "the player".

structure. They are intelligent in the sense that they can identify patterns and reason. AIs are agents within the videogame system that can have their own character representation.

Fig. 4.10 – *Street Fighter IV*'s character selection screen.

The player can choose any character from the roster on the right side.

Videogames are all about agency, that is, being able to act in the gameworld, and the player is not the only being capable of that. I will deal with that soon, but for now, suffice to say that some characters (and *non-character* entities) may be agent representations (be it player or AI representation) and others scripted or automated characters. Still, at the highest level, we can differentiate characters in two categories, as Gonzalo Frasca (1999) says: the "puppet" controlled by the player and "computer-controlled".

This "puppet" is what is often called the player's "avatar", and here I find the next problem. The term "avatar", in general, refers to an "embodiment", a "bodily manifestation". If I extrapolate it to videogames, it points to an embodiment of the player inside the gameworld, and this means more than plain

agency: it has to do with the fiction of the gameworld. Is every player-controlled character an avatar of the player? Some videogames have a God-like point of view, like *The Sims* or *Black & White*, while others, like *Eternal Darkness*, feature multiple characters that the player has to control forcedly to complete the game. What about fighting games, where players can choose a different character in every fight? One of the conventions of soccer videogames is that the player can change the soccer-player she is controlling at any time: she controls the whole team, not just a single character. In my opinion the player is embodied in the videogame by *a set of mechanics*, and these mechanics does not have to be embodied by a single videogame character.

Fig. 4.11 – Olimar (the astronaut) and his pikmins in *Pikmin*.

This brings us to the third point I would like to question: NPCs. In *Pikmin*, the player controls a character, Olimar, who embodies several mechanics, the most important ones being about *giving orders* to a bunch of creatures called, precisely, *pikmin*. Every challenge the game poses to the player has to be solved using the pikmin, but the player has direct control of another character. Imagine,

for a moment, that Olimar were not in the videogame: the mechanics would not be that different. The player would still have to give orders to the pikmin and use them to demolish walls and others obstacles, to carry collectable items and so on. *Pikmin* plays like a hybrid between a God-like strategy videogame like *StarCraft* and an avatar-based videogame. The player plays with Olimar as much as she plays with the pikmin, even if she does not have direct control over them.

If a researcher wants to make a more accurate description of a character, or any entity, I propose we should depict it asking questions like these:

· *Who controls it*, the player or the computer?

· Its *representational capabilities*: It is computer-controlled? Is its behaviour scripted or is it a representation of an AI? If it is controlled by a player just temporarily, what happens when they player is not controlling? Does an AI take over from there, does it disappear, does it portray scripted behaviour?

· Which position does it have within the *artificial conflict*? Is it hostile towards the player, neutral or allied with her?

· What *attributes* does it have?

· Does it have *abilities*? Does it show *initiative*? Is it active, reactive or passive? (It will act on its own initiative, it will act reacting to a player's action or it will not react at all.)

· What *relation* does it have with the player? And with the gameworld? And with other characters in it?

And two extra questions if it has the "character" fictional layer upon it:

· If it is player-controlled, is it an *avatar*[91] of the player?

· What *narrative traits* does it have? Does it have lines of dialogue/monologue? Does it act on its own in narrative sequences (cut scenes, scripted events)?

By asking these questions and complementing them with a brief description of the entity/character and its role in the fiction of the videogame we will have a more complete and accurate profile of it.

Take, for example, the character of The Boss[92] in *Metal Gear Solid 3: Snake Eater*. She is a legendary American soldier, the mentor of Naked Snake (the main character) and a mother figure to him. She "lost" a son, and sees Snake as the son she never had the opportunity to raise. In the beginning of the game she apparently defects to the Soviet Union, but it is later discovered that she was working undercover and willing to sacrifice herself for her homeland. She is the leader of the Cobra unit, the group of bosses in the videogame. As an entity, she is always controlled by the computer: actually, she only appears during sections where the player has control[93] once in the whole game: at the final battle. Before that, she can be seen numerous times in cut scenes, interacting with the main villains, her own unit and Snake himself. She is hostile to the player (the only time she appears is to fight her) but, in the *Metal Gear* tradition, she is just a pawn in a grander scheme, and she loves Snake as a son (that is part of her narrative role, though, but I could not resist mentioning it). As a game entity, she shows traits of intelligence and intention not only in aspect but in her behaviour:

[91] In a moment I will focus on the avatar and its relation with the player.
[92] On a personal note, one of my favourites (if not my favourite) characters in a videogame.
[93] Remember the allowed interaction continuum.

we can affirm that she is controlled by an AI. She has her own health bar, several attack mechanics and is active (will attack the player even if she does nothing) and has lines of speech while fighting, though the player can not answer them. She is only seen in cut scenes until the time of her sacrifice, when it is the player who has to fight her and kill her.

Had The Boss been a moving steel block with no backstory, would the player's interest and engagement be the same? As an entity, she is the final boss of the game, nothing more[94]. She shows up in the end, acts in a hostile manner towards the player and is eventually defeated (if the player succeeds). End of the game. But that is not why The Boss is such a well remembered character; it is because of her narrative traits. She is given a strong emotional connection with the main character, and through the many cut scenes she appears in players can get a good grasp of her personality and her intentions. Her courage and sacrifice are what leave an impact on the player, specially the fact that the player, controlling Snake (embodied by him), is *forced* to be the executioner.

Fig. 4.12 – The Boss in *Metal Gear Solid 3: Snake Eater*.

[94] Her name as a character is her role as an entity, and it is perfectly explained in the fiction of the videogame.

If we just say that The Boss is a hostile computer-controlled character that serves as the final boss of the game, we would not do her justice. By turning the entity "final boss" into the character "The Boss", the gameworld is expanded (she has a common story with many of the main characters and adds a blend of historical facts and mythology to the saga), the narrative is given more possibilities (the whole plot revolves around her, and player can empathize with her) and explain the functions and goals (she is the final boss, she is your target). The genius of *Metal Gear Solid 3*, in my opinion, lies in using the narrative possibilities that characters bring to clearly express the game goal while making the player *not wanting* to reach it. As a player, one feels compelled to finish the game, but does not want to kill The Boss.

I said that the magic circle allows meanings to be made, and that technological remediation adds a level of complexity unattainable by any other game form. The case of The Boss is a perfect example of how that complexity (which injects an extra dose of fiction and narrative) can complement the system and put it under a new light, creating unique player experiences.

Next, I would like to draw attention to two particular types of characters: Avatars and AI-controlled characters.

- **4.3.5 · Avatar**

The player needs a "body" to interact with the gameworld; otherwise she would be just a spectator. She needs to be given a functional body that belongs to that gameworld: our first intuition would be that this body is her *avatar*, but I already said I believe that that embodiment is provided by the game mechanics.

There are videogames in which the player does not control any character to interact with the gameworld, like *The Sims*. In these cases, it is easy to see that the player is embodied by the mechanics available to her. When the player does control a character, the relation becomes rather unclear. Gonzalo Frasca (2001) affirms that:

> *"It is easy to see that the distance between the gamer and the videogame character is minimal."*

There seems to be a deep bond between the player and the character she controls; it is reasonable to think so. For James Newman (2002), however, the player-character relationship is "one of vehicular embodiment" (or functional embodiment). For the controlling player during gameplay sequences, "character" is just "a suite or characteristics or equipment utilised and embodied by the controlling player". Simply put: all the mechanics available to the player are arranged around *one single entity* for the player to control. The player does not relate to just her controlled character, but to the whole gameworld:

> *"The player encounters the game by relating to everything within the gameworld simultaneously."*

Chaim Gingold (2003) shares that view:

> *"Player characters organize controls, goals, and fiction into consistent and coherent bundles."*

It is hard to deny that even if a player is controlling a character she is not forced to mimic its behaviour just to act in character, as Frasca himself (1999) admits:

> *"It is almost impossible to create a puppet of a shy, calm nun and pretend that players will behave according to those traits."*

That may be an extreme example, but it proves the point. Just because a player controls a character it does not mean that there will be an immediate transfer of behaviours and values. In case of conflict, and if the game system has no constraining rules, the player's intentions will always prevail. Imagine a videogame where the player has control that shy, calm nun. That videogame has no rules that prevent that shy, calm nun from going to a gun shop, buying a couple of shotguns and go on a killing spree. I know, that would be a weird, deranged videogame, but anyhow, let's suppose that the rules include no punishment for such acts. What would stop the player from doing that instead of the more boring mechanic "pray"[95]?

[95] Bear in mind that a videogame is unproductive and with no consequences in real life. We're talking about acts within the magic circle.

Another convention regarding videogame characters, and particularly player-controlled characters, is that they have to be sketchy: Frasca (2001) states that characters in videogames are "flat for functional reasons" (and he uses "flat" according to E.M. Foster's classification for literary characters):

> *"The more freedom the player is given, the less personality the character will have."*

Newman (2002) is a little bit more specific about that: he judges that characters are different when in an On-line[96] state than when in an Off-line state. On-line, the characters are just vehicles:

> *"On-line, the 'character' is a complex of all the action contained within the gameworld."*

But he does not believe that player-controlled characters have to lack "characterisation": that "characterisation" comes in the Off-line cut scenes and contextualising narratives of the introductory sequences.

This dual nature of player-controlled characters is an essential feature of them. They are functional entities, acting as vehicles for the player**,** and at the same time they are characters of their own, therefore simulating (in their fictional appearance) intelligence, personality and intention. It is not a contradiction. In

[96] Again, the allowed interaction continuum. On-line, the player is controlling; Off-line, the player is not.

fact, it is a condition to act as an avatar, and with this we are getting closer to what an avatar *is*. Rune Klevjer (2006: 130) writes:

> *"The avatar is not a cursor or a mere instrument, but gives the player a meaningful embodied presence and agency within the screen-projected environment of the game. Because it is a model –a dynamically reflexive pop– the avatar is not just significant because of what it can do, but because of what happens to it. It is this vicarious body, this re-oriented subject-position, that establishes what we may call –following Bateson– the 'framing' of the fictional world for the player. Through the avatar, instrumental agency is replaced with fictional agency and fictional destiny; the player is incarnated as a fictional body-subject who belongs to and is exposed to the environment that it inhabits."*

Being player-controlled does not make an entity an avatar: it also has to establish the "framing" of the fictional world for the player. In other words: the character and the player have to share the same *point of view*[97] and there has to be *fictional* agency. Klevjer uses the example of the paddle in *Breakout*: it embodies the mechanics available to the player, but it does not create fictional agency. Klevjer (2006:130) writes about the paddle in *Breakout* or the falling blocks in *Tetris*:

> *"They are more like buttons or tangents on an instrument than they are agents in an environment."*

[97] I do not mean as a perspective (1st person or 3rd person view), but as a narrative mode, the way the events are presented and experienced.

The avatar is more than a tool. While the mechanics are the functional embodiment of the player, the avatar is her *fictional embodiment*. The player and her avatar endure the same events together and experience them from the same point of view. The avatar is at the same time an instrumental and fictional embodiment of the player and an independent being, and players seems to have no problems with that. They key here is *unity*: if the fiction requires the avatar to act in some way, the game rules should require the player to act in the same way (thus solving our nun-with-guns problem).

The avatar can have as much characterisation as the designers want; that will not detach the player from the gameworld. In *Uncharted: Drake's Fortune*, the main character, Nate Drake, is almost constantly speaking to himself in reaction to what happens in the game while the player is playing. These commentaries give Nate more personality *and* make him closer to the player, since he seems to be verbalizing what the player is thinking ("No, no… oh God, no!" when an enemy launches a grenade, for example). When controlling her avatar the player is a *witness* of the avatar's actions, the agent behind those actions and the avatar itself. All at the same time, and it works just fine.

In *Metal Gear Solid 3: Snake Eater* the player plays as Naked Snake, The Boss' former pupil. Naked Snake has plenty of time to express his personality in cut scenes and conversations, and here the player acknowledges him as an independent character. During controlling sections, the player is focused on the mechanics, but Snake does not disappear. He could not be replaced by a character with the same mechanics without the player noticing. In fact, he more

or less was, half-way through *Metal Gear Solid 2: Sons of Liberty*. In that videogame players begin playing as Solid Snake (Naked's "son") just to find out that the majority of the game has to be played controlling another character called Raiden. It got complains like this[98]:

> *Everyone has the hots for snake.*
> *well raiden was a newbie that spend most of his time playing VR gameswhile snake was an hardcore genetically engineered super soldier / veteran. hard to choose?*

Raiden and Snake embodied the same mechanics in *Metal Gear Solid 2*. This forum user is using fictional (and not functional) reasons to explain why he prefers one character above the other. If characters are just vehicles during the sections where the player has control, why bother? The answer is obvious: it is not *just* a vehicle. During controlling sections, the avatar hands its control over to the player, but it does not disappear. The avatar is always there, just as we have seen with Nate Drake and his continuous grumbling. Players like to control characters that *they like*.

Back to *Metal Gear Solid 3*: Snake and the player infiltrate the enemy base "together", they undergo the experience of fighting the Cobra unit men together and they have to execute The Boss together. When the time is due, Snake is the one pointing at The Boss with his gun, but it is the player who has to press the button. More than that: in the fiction of the videogame, Snake has no other

[98] User hot114 at the GameSpot.com forums, August 2, 2007.
http://www.gamespot.com/pages/forums/show_msgs.php?topic_id=25819411

option than pulling that trigger (or World War III would break out) and in the structure of the system, the player is not allowed any other mechanic than to press the shooting button in her input device. The game is not going to advance until she presses that button, until Snake kills The Boss. As we saw in Chapter 2, agency creates the opportunity for regret: it makes us as responsible for our actions as the avatar is, even the ones that are for the greater good.

Fig. 4.13 – Naked Snake (later Big Boss) as portrayed in *Metal Gear Solid 3*

But at that point, Snake (and therefore the player) still believe that The Boss had really defected. He had to kill his mentor because she turned evil. It is in one of the final cut scenes that he discovers the truth. Both Snake and the player feel they have been working on someone else's agenda: they have been manipulated. Fans of the *Metal Gear* saga will know how this impact will affect the future of Naked Snake, and player will share his motivations: the emotional link between them has been forged carefully during hours and hours of fictional agency.

- 4.4.6 · AI-controlled characters

Artificial intelligences are agents encoded in the videogame's program that can analyse their environment, identify patterns, make judgments and act in a way that maximizes its chances of achieving its goal. In videogames they can take control both of enemies and allies, hence performing mechanics: according to Miguel Sicart (2008) game mechanics can be invoked by "both to human and artificial agents".

Gonzalo Frasca (1999) describes computer-controlled characters like this:

> "[They] *have anthropomorphic behaviour, they seem to be independent, somehow intelligent, perform different actions and communicate with the player."*

Their behaviour may be scripted or operated by an artificial agent. Those artificial agents, or "intelligent bots", can be used to "represent certain characters that are generally refused by human players." Guards in *World of Warcraft* could be an example of this: they protect their cities, ask questions about them to players of their same faction, attack any player of the enemy faction or hostile creature on sight and are able to call out for help.

Sometimes a character is designed to be a representation of a human agent, but there is no human agent. For example, *Army of Two* is designed around the

concept of cooperative play: two players have to play simultaneously to progress. When there is only one player playing, the other will still be around: a *substitute* AI takes control of it and tries to mimic average player behaviour. The same design choice can be found in *Gears of War* and its sequel and *Resident Evil 5*.

Fig. 4.14 – Chris and Sheeva in *Resident Evil 5*. In single-player mode, the player controls Chris and an AI controls Sheeva. When a second player steps in, she will take control of Sheeva.

Frasca separates paidia games from ludus games: the last one has "a system of rules that defines a victory or a defeat, a gain or a loss", while the first one do not. As a result, he talks about paidia and ludus characters:

> *"As adventure players have less freedom of action than paidia players, the characters in ludus will have to react to a smaller amount of stimulus."*

I will not use this distinction between paidia and ludus characters, but I will keep his rule: the more specific the rules are about what a character can not do, the "dumber" that character can be; the more freedom of interaction with the character the player has, the more reaction aptitude this character needs to have.

Frasca writes about "narrative characters", and I understand he is talking about complex characters with detailed behaviours. He argues that they could be an important part of the videogames' future:

> *"Narrative characters are a very important component of traditional narrative, and that potential could be translated to the computer*. […] *We believe that once narrative characters are introduced in paidia environment (if that is technically possible), the player experience will be enhanced, adding to paidia videogames some of the pleasure that traditionally is found in narrative."*

The point is that characters capable of spontaneous, intelligent behaviour will add freedom and interaction possibilities to videogames. Let's consider the *conversation tree*, a common mechanic used mainly to interact with other players. When the player is a conversation with a character, she is given several sentences to say. The character will give an answer to that sentence, and from there the player will get more possible sentences to say, following a branching structure. This mechanic can depict character personality, organize valuable information and keep player agency, but it is limited.

Fig. 4.15 – A conversation tree in *Mass Effect.*

If an artificial intelligence within a videogame could recognise a natural human language, it could choose its answer from a database instead of following a fixed structure. Even more, it could *generate* its own answer. Maybe this would not be very practical (after all, the idea is to meticulously interrogate the character in search of valuable information, and having limited possibilities to explore can be an advantage), but what I am trying to say here is that sophisticated AI-controlled characters that could judge and improvise would generate endless situations that were not anticipated by the designers, thus moving videogames away from scripted and linear experiences and increasing player agency.

4.4 · MECHANICS

Entities in the gameworld have attributes that can be modified via abilities. Those abilities are the actions (the "verbs") that the player can perform to interact with the game state. They are what I will call *mechanics*. As Miguel Sicart (2008) describes them:

"Methods are the mechanisms an object has for accessing data within another object. A game mechanic, then, is the action invoked by an agent to interact with the game world, as constrained by the game rules."

Mechanics permit entity manipulation and connect player's actions "with the purpose of the game and its main challenges." Sicart relates them to rules and challenges, and affirms that defining them requires "acknowledging rules, challenges and emotions".

- **4.4.1 · Defining mechanics**

Sicart (2008) lists several definitions of mechanics by different scholars looking for common elements. He starts with Avedon (1971), who talks about a formal structure of games with "specific operations, required courses of action, methods of play", which he defines as the "procedure for action", as opposed to the "rules governing action". Simply put, he is telling mechanics apart from rules.

Sicart (2008) continues with Lundgren and Björk (2003), who go into the connection between rules and mechanics in depth:

> "[Game mechanics are] *a part of the rule system of a game that covers one, and only one, possible kind of interaction that takes place during the game, be it general or specific* […] *mechanics are regarded as a way to summarize game rules."*

For them, game mechanics are the game rules that determine one possible kind of interaction, thus they *are* rules. Given that game rules[99] do govern the action in the videogame, it is reasonable to think that they determine what actions are possible. But still, mechanics seem to be different from game rules. Sicart (2008) cites Fullerton, Hoffman and Swain (2004), who define "game procedures" as:

> "[…] *the actions or methods of play allowed by the rules.* […] *they guide player behaviour, creating interactions".*

Mechanics are actions or methods of play *allowed* by the rules. The game rules establish what the player can and can not do, but these actions are not rules. Game designer Richard Rouse (2005: 310) puts game mechanics at "the guts of a design document", and defines them as:

> "[…] *what the players are able to do in the game-world, how they do it, and how that leads to a compelling game experience."*

Aki Järvinen (2008: 254) also distinguishes rules from mechanics. He speaks of mechanics as:

> "[…] *making a particular set of rules available to the player in the form of prescribed causal relations between game elements and their consequence to particular game states."*

[99] Game rules can be identified with Frasca's "ludus rules", different from gameworld rules. I will keep calling them "game rules", though: the term seems quite self-explanatory.

Mechanics link game elements (or entities) with consequences to particular game states in a prescribed (that is, fix) causal fashion. Or what is the same: when the player performs a mechanic, she knows that the game rules determine that the involved entity will have a particular consequence in a particular game state. They are the abilities that modify the entities' attributes or, in some cases, the gameworld's state. Such is the case, for example, of *Fracture*, a videogame based on *deformable terrain* mechanics: the player has weapons that can raise or lower the terrain, thus creating platforms to jump from, walls to take cover or ditches to capture enemies.

Let's take a look at Sicart's (2008) own definition:

> *"Game mechanics are concerned with the actual interaction with the game state, while rules provide the possibility space where that interaction is possible, regulating as well the transition between states.* […] *Rules are normative, while mechanics are performative."*

Mechanics are the actions that the player *performs,* and they are possible because of the rules. The difference between game rules and mechanics may be subtle, but it is there.

Nick Montfort (2003:26) catalogues two types of actions the player can perform in a videogame:

· *Commands* are instructions by the player that should effect some change in the gameworld,

· *Directives* effect changes related to operations of the program.

I will be focusing on commands (or mechanics), but it is important to acknowledge that to play the game the player has to perform directives: starting the game, choosing to start a new game or continue a saved one, pausing the game…

Before going on, I will describe a practical example. Consider *Gears of War*, an action videogame based on covering mechanics. The gameworld rules establish that when a bullet hits a wall, it will stop it, and that that wall will never collapse. Therefore, the player can take cover behind one of these walls to avoid enemy fire. The character can stick to the wall and enter a "covering" mode where he[100] walks close to that wall, consequently being safe: that is a game rule, "walls can protect you from harm". To do so, the player has to press the A button near a wall: *taking cover* is a mechanic allowed by the properties of the gameworld (the gameworld rules) and a game rule. From that position, the player can dispatch her enemies aiming and shooting at them: another mechanic (*shooting*) available because of the game rules (firearms can be used to kill enemies).

[100] All the playable characters in *Gears of War* are big, bulky steroid-inflated men.

Fig. 4.16 – Taking cover and shooting in *Gears of War*.

- 4.4.2 · Mechanics and the player

As I saw in the previous chapter, player actions depend on the player's cognitive, psychomotor and physical abilities, the possibilities of the input device and the mechanics in the core system.

Fig 4.17 – A reminder of the three components of player actions[101]

When a player takes cover behind a wall or a column in *Gears of War*, it is because she has the cognitive and psychomotor abilities to do it, the input device allows it (the analog stick permits her to approach the wall and the A button to

[101] Created by the author.

perform the action) and there is a mechanic that establishes that characters can take cover behind some parts of the scenery.

To perform a mechanic, the player has to be aware of and understand that mechanic, acknowledge which abilities are required from her, learn to do it and send the input via the input device. The player has to learn and master a skill. Daniel Cook (2007) states that "a skill is a behaviour that the player uses to manipulate the world."

Aki Järvinen (2007) declares that any game has to offer "opportunities for the skill to develop". The player has to be able to learn and master the action (or skill) by practising it in the game. These actions, though, can be similar or even identical to other actions in other videogames, since most videogames share gameplay patterns[102].

Daniel Cook (2007) analyses how the process of skill-learning and recognition activates the game and moves it forward. He talks about "skill atoms", a small unit in the game's progression. Those skill atoms have tokens, verbs and rules aesthetics as their basic ingredients. Those ingredients are remixed in a "self contained atomic feedback loop called a skill atom."

A skill atom feedback loop is composed of four main elements:

· *Action*, performed by the player

· *Simulation*, based off the action

[102] Previous skills and knowledge, Chapter 2.

· *Feedback*, from game to the player; can be auditory, visual or tactile

· *Modelling*, the player absorbs the feedback and updates their mental models on the success of their action).

This fits rather well with what I have been defending so far: the player performs an action (input), which creates a reaction in the core system, which sends outputs to the player, the player modifies her knowledge and skills. This model is repeated constantly and for every player action. By linking more and more atoms in, Cook says, you build a network that describes the entire game.

According to Cook (2007), the atom is often looped through multiple times before the user understand what it teach. Players learn by repetition and experimentation: Cook affirms that upon the acquisition of a "shiny new skill from a skill atom", players experiment with it. These short processes within the game process keep the player interested: as long as the short term rewards keep coming, she assumes that there will be some final benefit from her efforts.

Cook lists four skill types: mastered skills, partially mastered skills, unexercised skills (yet to attempt) and active skills. If the game process is a "chain of atoms", we can easily see how it progresses: the acquisition of skills lead to new ones; we have mastered skills, a skill that is active at the moment and is leading us to acquire a partially mastered skill, and we have unexercised, unknown skills ahead.

This idea of the game process as a chain of skill atoms, Cook (2007) affirms, helps us identify problems in the game design. If a skill atom is not well designed (the skill is too hard to acquire, or the atom spends too much time teaching an already mastered skill) the player will "burn out". When a player burns out on a particular atom, the consequences ripple up and down the chain:

> *"You can think of learning curves in terms of managing early stage burnout.* […] *Burnout is a very clear signal that our game design is failing to keep the players attention."*

We can identify this with Järvinen's (2007) assertion that the use of abilities soon becomes routinised. Once more, videogames need to have "uncertainty factors":

> *"It is relevant to identify the abilities that make a successful performance of the mechanics uncertain*. […] *The uncertainty factors both regarding the core mechanics, and their succession in pursuing the global goal, are the same*."

As I said in my definition, videogames need to create challenge by favouring less efficient means to overcome obstacles and achieve the goals. Järvinen (2007) states that we need to identify which player abilities contribute to the margin of error: uncertainty "fuels most games and motivates players to play."

The balance between mechanics and obstacles has to be right. The player has to be provided with mechanics that serve to overcome those obstacles and reach the goal but without it being too easy. This notion of the game process as skill atoms creates a chain of challenges which have to be surmountable but uncertain. The player plays *Gears of War*; she sees an enemy and realizes that she has to knock him down in order to progress. She finds out about the shooting mechanics in the game, learns the abilities and input device combinations required to perform them and practice them a few times: aiming, controlling the crosshair, shooting. Her goal is to beat that enemy, but she does not know yet if she is going to be able to do it. She gets progressively excited because she does not know the outcome of the confrontation. After a few attempts, she learns to perform the mechanic properly and beats her enemy: goal achieved.

To conclude this point about mechanics and players, I would like to emphasize the experimentation that is inherent to these mechanics and these skill atoms. Mechanics allow players to learn by experimenting with the gameworld; that exempts us from having to do complicated mental calculations. *We learn by doing*. In this sense, it is similar to how philosopher Mark Rowlands (2003: 83) talks about the mind-body problem. He examines the hypothetical design of an advanced cyborg and the complexity of his simulated mind (the neural network brain) necessary for it to be operative:

> *"We often act on the world to reduce the burden on our brains. If we couldn't ever play around with the world, use it to solve the cognitive tasks we need to accomplish, our brains would have to be*

correspondingly more complex. But the result is that if we find our neural network brain an appropriate cyborg body, one capable of manipulating and exploiting the information contained in its environment –as we do when we pick up jigsaw pieces, or use pen and paper to solve a multiplication problem- then our neural network brain may have to be nowhere near as complicated as we might have thought."

Inside the gameworld, the player is a mind without a body. As I previously said, it is by using mechanics that we acquire a "virtual body" to experiment and interact with the world. Mechanics are the *embodiment* of the player inside the gameworld.

- 4.4.3 · Types of mechanics

Miguel Sicart (2008) states that "mechanics is thus tied to agency in the game system." He starts his own list of mechanics types with core mechanics:

"[Core mechanics are] *the game mechanics (repeatedly) used by agents to achieve a systemically rewarded end-game state".*

Within core mechanics he distinguishes two subcategories: *primary mechanics* and *secondary mechanics*. The former are "readily available in the early stages of a game":

> *"Primary mechanics can be understood as core mechanics that can be directly applied to solving challenges that lead to the desired end state."*

Primary mechanics, as its name suggests, are the mechanics that structure the game process, whereas secondary mechanics come in their aid:

> "[Secondary mechanics] *are core mechanics that ease the player's interaction with the game towards reaching the end state.* [They] *are either available occasionally or require their combination with a primary mechanic in order to be functional"*.

In *Gears of War*, shooting and taking cover structure the whole game process: they are primary mechanics. *Gears of War* feature a mechanic named Active Reload: when reloading a weapon, the HUD displays a meter with white and grey areas and a progress bar moving along that meter. By tapping the right bumper when that progress bar reaches the grey or white are of the meter, the player can reduce the reload significantly. That is a secondary mechanic.

Fig. 4.18 – Active Reload meter in *Gears of War*.

In addition to core mechanics, Sicart (2008) mentions *context mechanics*: mechanics that are triggered depending on the context of the player presence in the game world. Context mechanics can:

> "[…] *expand the possible interactions of the player with the gameworld, without overtly complicating the layout of the controller device."*

In *Resident Evil 4* and *Resident Evil 5* the button mapping includes a *contextual button* that activates contextual actions: if the player is close to a ladder, she will climb it, if she is close to a window, she will jump through it. This way, the game developers can include numerous actions that will be used only a few times (some of them even just once) without complicating the array of buttons and combinations the player needs to learn. This also increases the number of entities the player can interact with and the ways to do it, therefore permitting a richer and wider agency.

Mechanics (gameplay patterns) can be found in different videogames, and they can be primary in one and secondary or contextual in another. In *Resident Evil 5*, the gameworld has specific points where the player can take cover in a manner not unlike that of *Gears of War*. Those locations, however, are too scarce and disperse to be considered a pivotal part of the gameplay. They are not needed to progress through the bulk of the videogame, just for some specific sections. Hence, taking cover in *Resident Evil 5* is a context mechanic.

Lastly, Sicart (2008) mentions *compound game mechanics*:

> *"A set of related game mechanics that function together within one delimited agent interaction mode."*

As an example he cites *driving*: driving in a videogame usually encompasses simpler, individual mechanics such as steering, braking, accelerating and hand-breaking. I have been talking about shooting: it is, in many modern cases, a compound mechanic, composed by aiming, moving the crosshair and pulling the trigger of the gun.

Sicart concludes admitting that those are not rigid categories: there are mechanics beyond those tied to the goal/reward structures, and they depend on the player's strategies.

So Sicart (2008) lists three types of mechanics: primary (core) mechanics, secondary (core) mechanics and context mechanics, and a fourth type that is the result of combining other mechanics, compound mechanics. Let's compare this classification to Aki Järvinen's (2007) one. He also starts with core mechanics, and cites Salen and Zimmerman (2003) to define them:

> "[Core mechanics] *consist of the possible combinations of primary game mechanics and submechanics, possibly complemented with modifier mechanics."*

Primary mechanics and submechanics are available globally, whereas "a third type of game mechanic, a modifier game mechanic, may be available locally."

> The correspondence is almost exact: his core mechanics would be Sicart's (2008) compound mechanics, they both speak of primary mechanics, and submechanics would be secondary mechanics. Finally, modifier mechanics can be identified with context mechanic. In any case, I will use Sicart's (2008) terminology: core mechanics (primary and secondary), context mechanics and compound mechanics.

4.5 · RULES AND GOALS

As of now, I have virtual environments, entities that occupy them and mechanics for the player to interact with the game. But I still lack one thing to have a complete picture of the core system: *rules*. Rules, as mechanics, have to do with what the player can and can not do in the game, but they are not the same. Miguel Sicart (2008) differentiates them by saying that:

> *"Game mechanics are concerned with the actual interaction with the game state, while rules provide the possibility space where that interaction is possible, regulating as well the transition between states.* […] *Rules are modelled after agency, while mechanics are modelled for agency."*

For him, rules are "normative", while mechanics are "performative". Rules define what the player can do in the videogame, mechanics how she can do it. In *Gears of War*, a rule establishes that certain parts of the scenery can be used to take cover; pressing the A button when near one of these parts is the mechanic to do it.

In my definition I said that videogames are rule-based, and those rules create challenge to demand player effort. As Rune Klevjer (2001) says:

> *"A simulation that offers no challenge, no goals to achieve, is not a game."*

Sicart (2008) describes the relation between mechanics and challenges:

> *"Designers create the basic mechanics for the player correlating the central challenges of the game with the set of mechanics useful for overcoming them".*

Challenge is produced by the uneven balance between mechanics and obstacles. I will define challenge as *the struggle to surmount obstacles using an available set of actions to reach a particular goal or a desired state.* The scenario for this struggle has to be set by the rules.

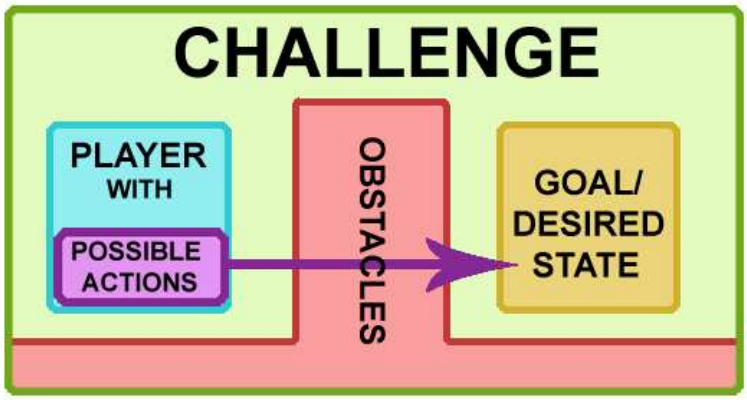

Fig. 4.19 – A simple map of the game challenge.[103]

[103] Created by the author.

Game rules define what can and can not be done in the videogame; they present a goal (or a desired state) and favour less efficient means to attain it. In this section, I will study rules and goals as well as their relation with the player.

- 4.5.1 · Rules

Game rules structure the core system. Gonzalo Frasca (2001) says that "if narrative is about description then simulation is about legislation." Rules are the *legislation* of the videogame and construct the "rigid structure" Salen and Zimmerman (2004:304) talk about when they say that "play is free movement within a rigid structure."

Dakota Brown (2005) gives this definition of "rule":

> *"A rule is anything that defines an association or relationship between objects in a system.* […] *The establishment of a rule creates a common context."*

She also cites Salen and Zimmerman (2003), who say that rules are "guidelines that guide and direct behaviour":

> "[Rules] *specifically limit player action, are explicit and unambiguous, shared by all players, fixed, binding, and repeatable."*

Jesper Juul (2003) affirms that rules "must provide different possible outcomes" and that "the game must also fit the skills of the player(s)". They have to create a balanced challenge and provide desired states, a *goal* for the player to pursuit. Rules, then, are about valorisation:

> *"The rules of a game add meaning and enable actions by setting up differences between potential moves and events."*

This example may sound obvious, but "getting caught in an explosion hurts the player" is a common rule in videogames. It defines an event ("getting caught in an explosion") and its valorised outcome ("it hurts the player", therefore it is bad). The rules have to be clearly established and presented to the player, for videogames do not have to follow natural rules.

Fig. 4.20 – *'Splosion Man* can not wait to explode.

An example of this would be *'Splosion Man*, a videogame built around the main character's ability to blow himself up. That character is a humanoid made of a lava-like matter that can explode up to three consecutive times, and use these

explosions to jump, bounce on walls, kill enemies and trigger other events. The rule "getting caught in an explosion hurts the player" does not apply here, while "touching water will kill the player" and "sprinklers will put the character's fire out leaving the player defenceless" do.

Some rules, as some mechanics, can be similar or even identical to some other rules in other videogames. Game rules, therefore, can be a part of the player's previous knowledge and skills. Once the player sees an element that had a rule attached to it in a previous videogame (for example, a spiky ceiling) she will associate it with that rule. In *The Legend of Zelda* series, for example, there is an item called a "piece of heart". It is a heart-shaped glass container with a small heart inside, and if four of them are collected the player's health bar will increase by one heart[104]. If a player that is familiar with the *Zelda* videogames finds an item that looks like a piece of heart in any other videogame, she will associate it with the rule "collecting pieces of heart increases your health bar".

A pretty illustrative example of this could be *Syobon Action*, a free PC videogame designed with expert *Super Mario Bros*. players in mind. *Syobon* mirrors *Super Mario Bros.* in appearance, but tweaks almost all its rules. The challenge is not to take everything for granted when playing it. At the end of *Super Mario Bros.*'s levels players find a flagpole, and they can score points by jumping on top of it. Try to jump on the flagpole at the end of one of *Syobon* levels, and it will instantly kill you. *Syobon* shows how knowledgeable players internalize game rules.

[104] That is like this in *Ocarina of Time*. In other *Zelda* videogames, however, the measures and pieces required may be different, but the rule is more or less the same.

Juul reminds us that the player enters the game in a lusory attitude, thus accepting to be emotionally attached to the possible outcomes: she accepts to feel "happy" for winning and "unhappy" for losing, and also mentions a primary axiom of videogames:

> *"The positive outcomes are harder to reach than the negative outcomes."*

Rules are designed to demand player effort. When winning is easier than losing, the game offers no challenge, evidently. As I said in Chapter 2, challenge, effort, learning and mastery are at the foundations of the videogame system.

- **4.5.2· Goals**

The Game Ontology Project (GOP) team[105] (2005) defines goals as "the objectives or conditions that define success in the game." They state that:

> *"[Goals are] the in-game objectives or conditions that the player must meet in order to succeed at the game.* […] *Goals must be considered at the level in which they affect the decisions the player is making."*

In *'Splosion Man*, the player keeps trying to surmount obstacles to get to the end of the level, and she does so to get to the next level and beyond: she plays to

[105] José P. Zagal, Michael Mateas, Clara Fernández-Vara, Brian Hochhalter and Nolan Lichti.

reach the end of the last level. To do that is to successfully complete the game (at least its single-player mode). Juul (2007) talks aboat goals as *imperatives*:

> *"To say that a specific game has a goal is to say that it is an activity which contains an imperative: in a game, some of the possible outcomes are assigned positive values, and players should work towards these positive outcomes."*

The GOP team (2005) affirms that goals can be *short-term* or *long-term*. I agree, and I will add that goals can be subdivided into a long list of small tasks: Aki Järvinen (2007) suggests that videogames should be analyzed "by dividing the game into analysable 'slices'". He argues that "goals are present either globally or locally", and that mechanics and goals are linked. When he talks about core mechanics (what I call compound mechanics) he says that their goal is not necessarily the ultimate goal, but can be an instrument for it:

> *"I will name these instrumental goals of core mechanics as glocal goals.* [They] *represent a goal hierarchy that is nested within higher order goals."*

I agree with him: goals can be related to mechanics (since they are the means the player takes to attain those goals), and most videogames include a hierarchy of goals, where one local goal helps achieving a bigger one and so on: surmounting the current obstacle in *'Splosion Man* is a short-term goal, while completing the game is a long-term one. We could subdivide the whole game in 50 levels

(which are grouped in 3 clusters), every level in several sections (each time the player touches a checkpoint) and every section in different obstacles.

Järvinen (2007) proposes an analysis template for the study of game mechanics and the goals they relate to, that should include:

· 1) *The global goal* of the game

· 2) *The core mechanic*, consisting of a primary mechanic and its possible submechanics (what I call compound, primary and secondary mechanics, respectively)

· 3) The *glocal goal* that the core mechanics relate to

· 4) Possible *modifier mechanic(s)* (what I call context mechanics)

· 5) The *local goal* they relate to

Thus, we can extract three levels of goals from Järvinen's template:

· A *global goal* of the whole game. For example, "save Princess Zelda (and the Kingdom of Hyrule)" in *The Legend of Zelda.*

· *Glocal goals*, related to compound mechanics; can be an instrument to reach the global goal. In *The Legend of Zelda*: collect each one of the eight pieces of the Triforce of Wisdom.

· *Local goals*, related to context mechanics. For example, the goal of the minigame at Spectacle Island in *The Legend of Zelda: Wind Waker*: shoot all of the pirate ships with 10 or less cannonballs.

Goals are the particular game states the player tries to reach when playing. But do they *have to* be imperatives?

- 4.5.3 · End states and desired states

In Chapter 1 I presented examples of videogames that do not feature a clear goal: *Animal Crossing, The Sims, Noby Noby Boy*… But as I have seen, videogames need to have some sort of challenge, to offer some resistance to the players' actions. I've seen they do: artificial conflict is inherent to any gameworld. I have been deliberately avoiding the term "goal" as a mandatory part of the core system, since I already said (also in Chapter 1) that some videogames do not have clear goals, but all have *desired states*.

Fig. 4.21 – *Animal Crossing* never ends, thus it does not have an end state.

The concept of "desired states" is used by Miguel Sicart (2008), who defines challenge as "a situation in which the outcome desired by the player requires an effort to accomplish." Since rules valorise the different outcomes, some of them would be more *attractive* than others. In some videogames that desired outcome could be completing the game but, as Jesper Juul (2007) says, a goal can be to achieve as high a score as possible. Both are *clear goals*. The first one is an *end state* (the game ends there), whilst the second one is not: the player can beat her

previous score and re-attain that outcome. Sicart (2008) says that videogames with no end states, as *SimCity* or *EverQuest*, have "desired states": the player wants to achieve a particular state and, if the game does not end, prolong it.

Juul (2007) examines the traditional arcade game:

· Goals are explicitly communicated.

· There are dual goals between progressing in the game and getting a high score.

· The game strongly punishes the player that tries not to reach the goal, ending the game.

· The range of playing styles offered by the game is relatively narrow.

That is the goal-oriented nature of videogames at its rawest, and may I add, more demanding. There is nothing more to do in the game than pursue its goal. Dakota Brown (2005) utilizes Salen and Zimmerman's (2004: 255) notion of *zero-sum threshold*, "a game where the winnings equal the overall losses." She considers that it is that zero-sum threshold what defines the outcome:

> "[…] *in a ludus activity a player's actions are quantified towards a designated outcome as defined by a zero-sum rule or set of rules."*

By using a zero-sum threshold the goal will be as clear as possible and, as Juul (2007) declares, "clear goals also mean clear failure". The conditions for winning and losing are presented in a highly understandable manner.

Videogames are a complex system, one that creates many possibilities. Sometimes players many want to explore those possibilities away from the designated goal. Goals, then, may also run counter to what the player wants to do. Juul (2007):

> *"Players may care more about the aesthetic or sentimental value of game choices than about the optimal way of playing the game."*

Some videogames are not *that* strict about their own rules and give players some freedom. Games without enforced goals, Juul states, generally have large expressive potential and provide a wide range of possible experiences. He cites *Grand Theft Auto: San Andreas,* which occurs in an open world that the player can explore freely and interact with in abundant ways that diverge from the main goal. Juul labels these departures "optional goals", and affirms that *San Andreas* "does not force the player into pursuing the stated goal."

He also analyses *The Sims 2*, which he considers "has no imperative", yet the characters "generally become miserable if the player does nothing". That means that, while the videogame has neither an end state nor clear outcomes, it has valorised states, and some of them will be more appealing (one may think that the player wants her Sims not to be miserable[106]). For Juul (2007), *The Sims 2* is "not a dollhouse":

[106] While some players may, in fact, want exactly that. Well, these players can get what they want in *The Sims 2*.

"[It is] *a game with many constraints and resistances to the players' plans.* […] *The resistance offered by these games is also a challenge."*

In *The Sims 2*, players can play "based on aesthetic considerations": decorating their houses in a fashion they find pleasing may be one desired state. This videogame, Juul says, "can be used for a variety of goal-oriented and goal-less activities." In *The Sims* series, players can define their own desired states and, since the game will always offer some resistance (they have to earn money to buy furniture, for example), the pursuit of these desired states would still provide some challenge.

Fig. 4.22 – *The Sims 3*

All videogames have desired states, be it a clear outcome, a state with an optimal valorisation in a videogame with no end or a player-designated desired state.

- **4.5.4 · The problem of freedom**

Since videogames are about agency, the will always have a degree of *freedom*. Juul (2007) quotes game designer Sid Meier, who says that "A game is a series of interesting choices". Stéphane Bura (2008) declares that *choices* imply "that the player has a certain degree of freedom." When a player starts playing *The Legend of Zelda*, she may walk in any direction, enter caves, run from enemies or towards them… For Bura, choices have to be "interesting" and "challenging" and they have to meet three conditions to be considered real choices:

> *"Next, a choice is only real if it is informed, meaningful and irreversible."*

Let's see how Bura (2008) describes these three conditions:

> · *Informed* choice: *"To be able to make a choice, the player must be provided with a system of rules which logic he can understand and that he can trust to be consistent."*
> · *Meaningful* choice: *"The player must have sufficient data to describe the context of his choice, the objects of his desire, his options, and the costs associated which each of them."*
> · *Irreversible* choice: It has to have a cost, a "high degree of persistence."

Playing a videogame is a continuous decision-making process where the player is constantly presented with informed, meaningful and irreversible choices. Consalvo and Dutton (2006) talk about an "interaction map":

> "[The interaction map] *involves examining the choices that the player is offered in regards to interaction-not with objects, but with other player characters, and/or with Non-Player Characters (NPCs)."*

One way to analyse videogames would be to describe the complete map of choices available to the player. Consalvo and Dutton call this the "gameplay log": "the overall 'world' of the game and the emergent gameplay that can come into being."

I have come across an important term here: *emergent gameplay*. Sicart (2008) describes it as follows:

> *"In the act of playing, players will appropriate agency within the game world and behave in unpredicted ways."*

Emergent gameplay is part of *player strategies*. Aki Järvinen (2008: 258) states that the intersection of rules and mechanics leads to the creation of player strategies. They are the way the player uses mechanics according to the rules, be it to attain her goal or not: Sicart (2008) says that games also have "pleasurable interactions with(in) a game that are not determined by any in-game goal."

Once a player becomes accustomed with the game, its gameworld, mechanics and rules, she will be able to experiment (as I said, experimentation is inherent to mechanics) and discover new ways to play that were not even considered by the videogame designers. In *Quake III Arena*, many players shoot a rocket at the

ground while jumping to propel themselves into the air. *Rocket jumping* is a compound mechanic invented by skilled *Quake III Arena* players and not by its designers. That is emergent gameplay. Gonzalo Frasca (2001) talks about this experimentation:

> *"If videogames are to become a space for experimentation, their rules should be open enough to allow players to try different possible approaches."*

And here I get to the crux of the matter: it may seem that the fewer rules a videogame has, the more freedom the player will have when playing it. I believe this is a misconception. Freedom is not playing without rules or goals, but playing with *lots* of them. Players can have a clear goal but be presented with optional goals and even decide their own goals: that is freedom. Rules define what can be done in a videogame, therefore the more rules that videogame has, the more things the player can do in it. *Metal Gear Solid 4: Guns of the Patriots* includes many rules about camouflage, infiltration, engaging in combat, distracting enemy soldiers… The rule set of the videogame has to be rich and open enough to provide varied and interesting choices.

Fig. 4.23 – A Playboy magazine in *Metal Gear Solid 4*. It can be used to distract enemy soldiers.

These available choices will make up for the experience. Bura (2008) cites Noah Falstein, who affirms that we can map the availability of choices during a given challenge to a *convexity* (with fewer choices in the start and the end, and more in the middle). Since goals have hierarchy, this pattern can be repeated for each local goal: Bura (2008) talks about *fractal convexities*, with pieces inside a big piece.

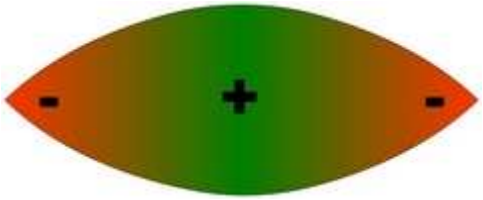

Fig. 4.24 – Bura's graphic for the convexity of available choices during a challenge.

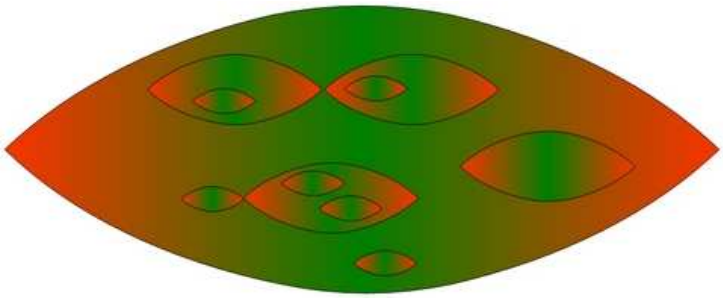

Fig. 4.25 – Bura's graphic for the sequence of fractal convexities in a videogame.

The designers have to plan carefully their videogame's interaction map (or choice map) keeping the experience they want the players to have in mind. As Bura (2008) says, they have to look for "ways of attaining the ranges in which they procure the experience we want to design."

We should not overestimate freedom. Videogames should not have freedom at any cost: constrains are part of the experience; Bura's model becomes narrow in the end. If the player could decide not to kill The Boss at the end of *Metal Gear Solid 3: Snake Eater* it would be incoherent with the fiction of the game, and it would treason what the whole game has been building up to. Sadness and remorse, in my opinion, are a main ingredient of the *Metal Gear Solid 3* experience.

Sometimes players ought not to have control of the events in the game process. Some videogames, for example, feature different endings depending on the choices made by the player, like *Silent Hill 2*. Others, like the aforementioned *Metal Gear Solid 3*, have just one ending, which is vital for its experience. That is a design option, and designers have to be aware of how it will affect the resulting experience of their videogames.

Fig. 4.26 – Distorted camera angles and unnatural filters create a sick atmosphere in *Max Payne 2*'s hallucination sequences.

Anders Sundnes Lövlie (2005) analyses *Max Payne,* a videogame with a narrative thread that starts with the ending result and continues with a long flash-back (the majority of the game events). Lövlie states that the player is moved by "the desire to witness the dramatic sequence of events". The player, for Lövlie, is an *enactor*: more than a spectator, but not the author of her own experiences:

> "[The enactor] *has less freedom than what is normally associated with the role of a player in a game.* […] *While the actor is acting out a script, the enactor is reacting to a script."*

He uses the example of several sequences in *Max Payne* that occur in Max's nightmares and hallucinations. In the beginning of the game, the player is informed that Max is a cop whose wife and only child were murdered. At some points, players get to control Max in his own dreams and hallucinations, which are devious and ghostly versions of these murders. Max relives that moment

time after time, and so does the player with him. In these sections there is almost no challenge (there are no enemies and no obstacles). They, in Lövlie's (2005) opinion, are "an experience that potentially can immerse her into Max's experience in a way that older media could not have done." *Enactment* (forcing players to react to fixed events) is a powerful tool of videogames.

Videogames have to give choices and freedom to the player regarding her own actions, but not unlimited control of the external events. Some events *can not* be changed no matter what. Imagine a videogame based on the sinking of the Titanic: that is an event that has to happen in the game process forcedly. Videogames are about agency and freedom to act within a rigid structure.

4.6 · NARRATIVE POSSIBILITIES OF VIDEOGAMES

Most of the elements in the core system have an important fictional side to them. Gameworlds are fictional environments. Entities become characters when fictional traits are added to them. Rules and goals use to disguise their functional aspects with fictional features (saving the Princess in *The Legend of Zelda*). Rune Klevjer (2001) says that "a computer game represents the world in two ways: the narrative and the procedural". Some narrative elements are often found in videogames: characters, landscapes, historical settings, plot… though they do not work the same way as in other narratives. I believe that the core system of a videogame has a number of elements that contain fiction, and that that fiction creates *narrative possibilities*. These narrative possibilities can be developed within the systemic structure of the videogame and not in a traditional

narrative fashion. Videogames, then, can tell *stories*, in the way Doug Church (1999) defines them:

> ***"****The narrative thread, whether designer-driven or player-driven, that binds events together and drives the player forward toward completion of the game."*

- **4.6.1 · Defining narrative**

When discussing if videogames are narratives, the main problem tends to be the very definition of *narrative*. Marku Eskelinen (2001) quotes Gerald Prince's definition:

> "[Narrative is] *the recounting (as product and process, object and act, structure and structuration) of one or more real or fictious events communicated by one, two or several (more or less overt) narrators to one, two or several (more or less overt) narratees."*

Another key term is *plot*. Craig A. Lindley (2002) focuses on the dramatic narrative of videogames (which he considers to be "typically constructed according to the conflict-driven model of dramatic narrative") and differentiates "story" from "plot":

· *Story* is the "set of significant events within the narrative world"

· *Plot* is the "subset of those events that are actually explicitly represented, in their order of presentation"

That is a good way to put it: plot is the rearrangement of the events of the story.

- 4.6.2 · Narrative in the videogame system

Since videogames are being acted out at the moment of the process, this tends to clash with the notion of narrative: narrative is the recounting of past events, videogame events happens in real time. But this should be no problem: the particularities may vary from session to session, but the system is the same. Marku Eskelinen (2001) states that videogames contain open series of events, contrary to closed sequences of events in narrative. A traditional narrative has a fixed, linear structure, while videogames are systems that allow for many different sessions. Jörgen Kirksaether (1998) declares that videogames are never played in straight line, plot-wise. Instead, the player moves through them "in circles". Skipping sections in a videogame is not allowed[107], and they always have a degree of randomness. But this does not detract them from being able to tell a story, as I said. Videogames are not narrations, nor do they need to have narrative traits to be more complete: they are just *systems with narrative possibilities*. When a player plays a videogame, she accesses a system with numerous possibilities, and a few of them are crystallized in her session.

[107] Some current videogames give players the chance to skip sections, though, like *Alone in the Dark: Inferno*.

This difference between system possibilities and actual session is studied by Gonzalo Frasca (1999). He distinguishes "ludus" from narrative: "the first is a set of possibilities, while the second is a set of chained actions":

> *"Our ludus scheme represents the possibilities of the game (wining or losing), but not a particular session of ludus.* […] *The session is not the ludus, it is just a product of it."*

For an external observer the session might look like a sequence. "It is a completely different activity to watch a game and to play the game." Some kinds of ludus can produce narrative sequences, but "producing narrative and being narrative are different things". Still, these "ludus schemes" are not that different from narrative. Frasca (1999) quotes Aarseth (1997)

> *"To claim that there is no difference between games and narratives is to ignore essential qualities of both categories. And yet, as this study tries to show, the difference is not clear-cut, and there is significant overlap between the two."*

Celia Pearce (2005) considers that "games bear more in common with architectural storytelling forms". She uses the term "spatial narrative". A videogame may have elements with narrative possibilities, and these elements may be arranged to create several sessions with its own plot each one.

Eskelinen (2001) studies the notion of "event". He cites Chatman (1978: 32-45) to say that in narratology they are divided into:

· Actions and happenings based on their agency

· Kernels and satellites based on their relative importance

· Punctual and more durational acts

In videogames, Eskelinen (2001) says:

· Satellites are not important

· Instead of actions and happenings we have user events and system events (or transient and intransient events)

· Events are either independent or dependent of the player. They can be considered successful and unsuccessful.

Klevjer (2001) studies the many layers of narrative in videogames. He affirms that "a complex narrative frame has many layers, the inner layers being more central to the meaning of the action than the outer layers". These layers, to be precise, would be three:

· 1st layer: *objects, actions, rules* (I shoot bad guys with guns who fight back, and who can be killed)

· 2nd layer: n*arrativity* (characters, locations, objects and basic conflict situations), gives motivation and reason-to-be

· 3rd layer: a complete *narrative chain of events* framing the gameplay

The more related these three layers are the more solid the narrative of the videogame will be.

Some elements in the videogame may have narrative possibilities, and for these possibilities to develop videogames need to have *narrative spaces*. A narrative space, then, is *any part of the videogame system that allows the narrative possibilities of its elements to unfold*. The correct integration of these narrative spaces in the game is a common concern amongst designers, and they keep coming with new ideas to blend them seamlessly. Making a definitive list, then, would be complicated, but I will mention the most frequent:

· *Cut scenes,* a non-playable sequence often with a film-like aesthetic representation. Since they are like small pieces of film, this is the narrative space that is closest to traditional narrative.

· *Scripted events*, actions that happen while the player is playing, although she has little to no control over them. The videogame *Half-Life* featured an intense use of scripted events.

· *Dialogues*, conversations between characters. They can appear while the player is playing without breaking the process or have their own interface (like the codec in the *Metal Gear Solid* series). Can be automatic, scripted, triggered by the player or even part of a mechanic, like the conversation tree mentioned earlier.

· *Logs*, players can find text files that complement the videogame narrative and even tell parallel ones. A huge part of the narrative of *Resident Evil* and *Alone in the Dark* is explained through notes, letters and diaries.

· *Recordings*, like a hybrid of logs and scripted events, the player may find video or audio recordings of events that happened prior to her

presence in that part of the gameworld, messages or even advertisements that belong to the fiction of the gameworld.

Fig. 4.27 – The codec in *Metal Gear Solid.*

As we can notice, most of these narrative spaces are not obligatory to complete the game. Videogames have the option to contain optional levels of narrative that players can access and ignore at will.

- 4.6.3 · Functions of narrative

So videogames can tell stories. What *does* telling stories add to the videogame system?

Rune Klevjer (2001) talks about simulation and narrative as modes of discourse, and defends that "in computer games there is also a relation of dependency between these two modes of discourse." Douglas Brown (2007) speaks of them

as “gestalts”, and states that narrative and gameplay do not compete; they come “to each other’s aid over the course of a game”:

> *“Sometimes one gestalt is recessive while the other is dominant, but elements of the weaker persist in the stronger and characterise the experience through unity.”*

It is a matter of balance. Narrative serves as a “breathing space”, a “reward” and a mean to cover up “for the inadequacies of gameplay” and vice-versa. Narrative and gameplay have to work together to create unity. Chaim Gingold (2003) sees narrative as a way to unify and express the videogame’s rules:

> *“Continuity is usually used to create coherent and playable games.* […] *While the fiction for a particular game may seem arbitrary, the relationship between each game’s fiction and its rules is not.* […] *While fiction has a certain amount of free play, it is ultimately grounded in a need to explicate rules.”*

Narrative is a breathing space, a reward; it creates unity and coherence and explicates the rules, the same way I said characters made the gameworld more solid and explained the entity’s functions to the players. But I think the most important contribution of narrative to videogames is the new heights the gaming experience can reach. As Douglas Brown (2007) says:

"The new narrative dimension of gaming is the cost of thrusting more complex gameplay experience onto players."

4.7 · CONCLUSIONS ON THE CORE SYSTEM

Videogames are games: that is the part of the videogame system that I call the "core system". As a game, a videogame comprises a gameworld, entities that can be characters, mechanics and rules.

The *gameworld* is the fictional or virtual environment where the actions in the videogame take place. It is a representation of another space, be it completely real or totally imaginary. Gameworlds need to be stable and reliable; they need to have *rules* to how the representation works. Gameworlds are structured in a systematic way and depend on the medial determinisms of the remediation channel, which can be hidden by threshold structures of their design. Gameworlds feature explicit and implicit elements. The latter amounts to what I call the "worldness" of the gameworld, the feeling of there being more than what it actually is. Gameworlds need to be easily readable and provide clear information to the player (via diegetical or extradiegetical elements). Videogames are inhabited by objects, and I call the ones the player can interact with entities.

Those entities have at least attributes, and possibly abilities. They can be controlled by the player, feature scripted behaviours or be controlled by artificial intelligences. They are functional elements. By giving them certain qualities related to their depiction and fiction they can become characters. A character is any kind of subject with signs of intelligence, personality and will (therefore being able to act and have intentions) that

inhabits a fiction. I proposed a complete list of questions we could use to describe an entity or a character, like its position within the artificial conflict, the agent controlling it, its relation with the player or its narrative traits. A character will become an avatar if the player and it share the same narrative point of view and it serves as the framing of the fictional world for the player: it provides fictional agency. Artificial intelligences are agents that can analyse their environment, identify patterns, make judgments and act in a way that maximizes its chances of achieving its goal. In videogames they can take control both of enemies and allies, hence performing mechanics. They add more interaction possibilities to the game.

Entities in the gameworld have attributes that can be modified via abilities. Those abilities are what I call mechanics: actions or methods of play allowed by the rules and performed by the agents. Mechanics are the embodiment of the player in the gameworld. They can be core mechanics (both primary and secondary), context mechanics and compound mechanics.

Rules are the legislation of the videogame; they establish the outcomes of the game and demand player effort. Rules define goals, which can be short-term or long-term. Some videogames do not have clear goals, but all have desired states. Playing a videogame is a constant decision-making process, and player can use their own strategies. The rules have to consider as many possible actions and reactions as possible, thus giving more freedom to the player: freedom is not playing without rules or goals, but playing with lots of them. The rule set of the videogame has to be rich and open enough to provide varied and interesting choices. The player is an *enactor*: more than a spectator, but not

the author of her own experiences. Videogames are about agency and freedom to act within a rigid structure.

The core system of a videogame has a number of elements that contain fiction, and that that fiction creates narrative possibilities. Videogames are systems with narrative possibilities. Narrative can explain the rules of the game, create unity and coherence and serve as a reward, but above all narrative enhances the player's experience.

CONCLUSIONS

In this thesis I developed a guide to the videogame as a complex system that includes a detailed definition of videogame and a comprehensive study of each one of the parts of that system. I hope that this work will serve, at least, to illustrate the need to incorporate the player, her experience and the emotions and psychology behind it as a crucial part of Game Studies.

Videogames can and should be analysed in a systematic way before anything else and player and experience, although they are not mathematical elements, need to be taken into account in these analysis.

I would like to present my definition of videogame once more:

- 1) Videogames are *games* of any kind
- 2) *Remediated* by an electronic platform that creates a virtual space and adds *automation* and *complexity*
- 3) With *fiction*, happening in a fictional space with components that present some sort of *artificial conflict*
- 4) Existing in a delimited real-world *context*
- 5) *Unpredictable, unproductive* and without *obligation*
- 6) Played by a player with a *lusory attitude* and an *attachment* to the game state

- 7) *Rule-based*, and those rules create *challenge* to demand player *effort*
- 8) With several possible valorised states, and amongst them *desired states*
- 9) Giving *agency* to the player by *game mechanics*
- 10) Forming a *complex system* where the code, the context, the platform and the player interact to create a *stream of experience*.

I do not intend to mark it as the ultimate definition of videogame, but it is useful enough to determine what is and what is not a videogame and to understand their very basic fabric.

The videogame is a logical system built upon human psychology. When I set out to write this thesis, I did not think this would be such an important notion. Knowing the player, her reasons to play and the experiences she can get from a videogame is very significant in Game Studies. I presented models to try and analyze the player and the components that construct her experience: emotions and gratifications. I tried to consider every possible role of the player and every possible interaction with other players, since that will influence her experience as well. Once again, I do not intend to present the list of player attributes, emotions and gratifications as definitive. It is the need of a model to analyse them what is important, and I would gladly receive any comments about my analysis of those elements.

The player and the core system exist inside a context that is another vital part of the videogame system. Videogames are part of human culture and they are connected to it. Beside that, when a player plays a videogame she does it under certain conditions: what could be called a gaming pact or the "magic circle", a space where the videogame has meaning and its rules hold absolutely, but separated from the real world. Outside the

magic circle, the videogame has no consequences. That importance of the context and the magic circle is something I did not contemplate at first, but it turned out to be a key element.

Videogames differ from traditional games in that they are processed by an electronic device, a platform that brings a high degree of automation and complexity. These platforms create what I called a remediation channel, in which the player inputs and the representational outputs are administered by a set of technological elements: an input device, a processor, a data storage medium to store the code and representational devices. It is very important to know this remediation channel and its specific characteristics (there is not a single platform but many) to know how it allows the videogame process.

At the core of the videogame we find the game elements: a gameworld, entities that can be characters, mechanics and rules. That is why I call this part of the system the "core system". This is the part of videogames that has been studied the most, and I had the chance to expand my knowledge about it when doing this research. The representational nature of the gameworld, for example, is its most important feature: it needs specific rules to how this representation works.

The most difficult part of the core system to analyse was the one related to entities, characters and avatars. That is the part that I find more interesting, and I did not know exactly how it was going to work. I found out that the player is not embodied by the avatar in the gameworld, but by the mechanics. There is an important distinction to make between functionality and fictionality: entities and mechanics are functional,

characters (avatars included) are fictional. Avatars are the fictional embodiment of the player within the gameworld. And that led me to consider the extra layers of fictionality that the elements in the core system can have: these elements have space for narrative traits, and thus narrative possibilities.

I discovered that the player is not the only agent that can operate in a videogame. Complex artificial intelligence can take the reins of entities (and characters). I would like to explore how they work and the possibilities they add to videogames in future researches.

Every possible interaction within the videogame is governed by a game rule. Rules are the legislation of the videogame; they establish the valorisation of the game states and create the condition to demand player effort. The rule set of the videogame provides choices to the player, who is an enactor inside this structure: videogames are about agency and freedom to act within a rigid structure.

While I studied the core system, I had the chance to see that its elements have space for fictional traits, and that a narrative can emerge from the sum of these traits. Videogames are not narratives: they are systems with narrative possibilities. Narrative can explain the rules of the game, create unity and coherence and serve as a reward, but above all narrative enhances the player's experience. And that is the ultimate goal of the videogame system: to create experiences for the player.

REFERENCES

· BIBLIOGRAPHY

· Aarseth, E.J. (1997). *Cybertext: Perspectives on Ergodic Literature.* The Johns Hopkins University Press.

· Avedon, E.M. and Sutton-Smith, B. (1971). *Study of games.* John Wiley & Sons.

· Bjork. S. and Holopainen, J. (2004). *Patterns in Game Design*. Charles River Media.

· Caillois, R. (2001). *Man, Play and Games.* University of Illinois Press. Reprint of (1961) Free Pr. Translation of (1958) *Les jeux et les homes.*

· Castronova, E. (2005). *Synthetic Worlds: The Business and Culture of Online Games.* Chicago: The University of Chicago Press.

· Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience.* Harper Perennial.

· Gadamer, H. G. (1989). *Truth and Method.* New York: Crossroad.

· Goffman, E. (1972). *Strategic Interaction.* Ballantine.

· Huizinga, J. (1955). *Homo Ludens: A Study of the Play-Element in Culture.* Boston: The Beacon Press. Translation of (1938) *Homo Ludens.*

· Järvinen, A. (2008) *Games without Frontiers: Theories and Methods for Game Studies and Design.* Tampere: Acta Electronica Universitatis Tamperensis; 701.

· Juul, J. (2005). *Half-Real: Video Games between Real Rules and Fictional Worlds*. The MIT Press.

· Kelley, D. (1988). *The Art of Reasoning*. New York: W. W. Norton & Company.

· Koster, R. (2005). *Theory of Fun for Game Design*. Paraglyph Press.

· Montfort, N. (2005). *Twisty Little Passages. An Approach to Interactive Fiction*. The MIT Press.

· Motte, W.F. (1995). *Playtexts: Ludics in Contemporary Literature (Stages).* Nebraska: University of Nebraska Press.

· Murray, J.H. (1998). *Hamlet on the Holodeck: The Future of Narrative in Cyberspace.* The MIT Press.

· Parlett, D. (1999). *Oxford History of Board Games.* USA: Oxford University Press.

· Plutchik, R. (1980). *A general psychoevolutionary theory of emotion.* In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research, and experience: Vol. 1. Theories of emotion* (pp. 3-33). New York: Academic.

· Rouse III, R (2005). *Game Design Theory and Practice*. Plano, Texas: Wordware Publishing Inc.

· Rowlands, M. (2003) *The Philosopher at the End of the Universe.* Ebury.

· Suits. B. (1978). *The Grasshopper: Games, Life and Utopia*. Scottish Academic Press.

· WEBLIOGRAPHY

· Aarseth, E. J. (2003). *Playing Research: Methodological approaches to game analysis.* http://www.spilforskning.dk/gameapproaches/GameApproaches2.pdf First consulted: January 7th, 2009.

· Brown, D. (2005). *The Paidia / Ludus Continuum* http://www.avantgaming.com/papers/paidialudus.pdf First consulted: March 2nd, 2009.

· Brown, D. (2007). *Gaming DNA – On Narrative and Gameplay Gestalts* http://www.digra.org/dl/db/07311.40380.pdf First consulted: June 1st, 2008.

· Bura, S. (2008). *Emotion Engineering: A Scientific Approach for Understanding Game Appeal* . http://www.gamasutra.com/view/feature/3738/emotion_engineering_a_scientific_.php First consulted: June 9th, 2009.

· Church, D. (1999). *Formal Abstract Design Tools.* http://www.gamasutra.com/features/19990716/design_tools_01.htm First consulted: June 9th, 2009.

· Consalvo, M. and Dutton, N. (2006). *Game analysis: Developing a methodological toolkit for the qualitative study of games.* http://gamestudies.org/0601/articles/consalvo_dutton First consulted: March 2nd, 2009.

· Cook, D. (2007). *The Chemistry of Game Design.* http://www.gamasutra.com/view/feature/1524/the_chemistry_of_game_design.php First consulted: June 9th, 2009.

· Eskelinen, M. (2001). *The Gaming Situation.* http://www.gamestudies.org/0101/eskelinen/ First consulted: January 21st, 2009.

· Esposito, N. (2005). *A Short and Simple Definition of What a Videogame Is.* http://www.utc.fr/~nesposit/publications/esposito2005definition.pdf

First consulted: March 2nd, 2009.

· Frasca, G. (1999). *Ludology Meets Narratology: Similitude and Differences between (Video) Games and Narrative.* http://www.ludology.org/articles/ludology.htm

First consulted: January 21st, 2009.

· Frasca, G. (2001). *Rethinking Agency and Immersion: Videogames as Means of Consciousness-raising.* http://www.digra.org/dl/db/05164.32231.pdf

First consulted: June 1st, 2008.

· Frasca, G. (2003). *Ludologists love stories, too: notes from a debate that never took place.* http://www.ludology.org/articles/Frasca_LevelUp2003.pdf

First consulted: January 21st, 2009.

· Gingold, C. (2003). *What WarioWare can teach us about Game Design.* http://gamestudies.org/0501/gingold/

First consulted: May 25th, 2009.

· Harpold, T. (2007). *Screw the Grue: Mediality, Metalepsis, Recapture.* http://gamestudies.org/0701/articles/harpold

First consulted: May 25th, 2009.

· Hunicke, R., LeBlanc, M. and Zubek, R. (2004). *MDA: A Formal Approach to Game Design and Game Research.* http://www.cs.northwestern.edu/~hunicke/pubs/MDA.pdf

First consulted: January 21st, 2009.

· Järvinen, A. (2004). *A Meaningful Read: Rules of Play reviewed.* http://gamestudies.org/0401/jarvinen/ First consulted: June 9th, 2009.

· Järvinen, A. (2007). *Introducing Applied Ludology: Hands-on Methods for Game Studies.* http://www.digra.org/dl/db/07313.07490.pdf First consulted: January 7th, 2009.

· Juul, J. (2000). *What computer games can and can't do.*

http://www.jesperjuul.net/text/wcgcacd.html First consulted: January 7th, 2009.

· Juul, J. (2003). *The Game, the Player, the World: Looking for a Heart of Gameness*

http://www.jesperjuul.net/text/gameplayerworld/ First consulted: January 7th, 2009.

· Juul, J. (2007). *Without a Goal. On open and expressive games.*

http://www.jesperjuul.net/text/withoutagoal/ First consulted: June 9th, 2009.

· Kirksaether, J. (1998). *The Structure of Video Game Narration.*

http://cmc.uib.no/dac98/papers/kirksaether.html First consulted: January 7th, 2009.

· Klastrup, L. (2009). *The Worldness of EverQuest: Exploring a 21st Century Fiction.*

http://gamestudies.org/0901/articles/klastrup

First consulted: May 25th, 2009.

· Klevjer, R. (2001). *Computer Game Aesthetics and Media Studies.*

http://folk.uib.no/smkrk/docs/klevjerpaper_2001.htm

First consulted: January 21st, 2009.

· Konzack, L. (2002). *Computer Game Criticism: A Method for Computer Game Analysis*.http://www.digra.org/dl/db/05164.32231.pdf First consulted: June 1st, 2008.

· Kramer, W. (2000). *What is a game?*

http://www.thegamesjournal.com/articles/whatisagame.html

First consulted: May 25th, 2009.

· Lindley, C. A. *Game Taxonomies: A High Level Framework for Game Analysis and Design.* http://www.gamasutra.com/features/20031003/lindley_01.shtml

First consulted: June 9th, 2009.

· Lindley, C.A. (2002). *The Gameplay Gestalt, Narrative and Interactive Storytelling.*

http://www.digra.org/dl/db/05164.54179 First consulted: June 1st, 2008.

· Lövlie, A.S. (2005). *End of story? Quest, narrative and enactment in computer games.*

http://www.digra.org/dl/db/06276.38324.pdf First consulted: June 1st, 2008.

· Newman, J. (2002). *The Myth of the Ergodic Videogame.*

http://gamestudies.org/0102/newman/ First consulted: March 2nd, 2009.

· Pearce, C. (2005). *Theory Wars: An Argument against Arguments in the so-called Ludology/Narratology Debate.*

http://www.lcc.gatech.edu/~cpearce3/PearcePubs/PearceDiGRA05.pdf

First consulted: January 7th, 2009.

· Rodriguez, H. (2008). *The Playful and the Serious: An approximation to Huizinga's Homo Ludens.* http://gamestudies.org/0601/articles/rodriges

First consulted: March 2nd, 2009.

· Sicart, M. (2008). *Defining Game Mechanics.*

http://gamestudies.org/0802/articles/sicart First consulted: January 21st, 2009..

· Zagal, J.P et al. (2005) *Towards an Ontological Language for Game Analysis.*

http://www.digra.org/dl/db/06276.09313.pdf First consulted: February 14th, 2009.

· LUDOGRAPHY

· 3D Realms. (1997). *Duke Nume 3D*. (MS-DOS).

· Alexey Pajitnov. (1984). *Tetris.* (Various platforms).

· Arika. (2007). *Endless Ocean.* (Wii).

· Atari, Inc. (1976). *Breakout.* (Arcade).

· BioWare. (2007). *Mass Effect.* (Xbox 360).

· Blizzard Entertainment. (1998). *StarCraft.* (Windows).

· Blizzard Entertainment. (2004). *World of Warcraft*. (Windows).

· Capcom. (1987). *Rockman/Megaman.* (Famicom/NES).

· Capcom. (2009). *Resident Evil 5.* (Various platforms).

· Capcom Production Studio 4. (1996). *Resident Evil.* (Various platforms).

· Capcom Production Studio 4. (2005). *Resident Evil 4.* (GameCube).

· Cing. (2005). *Another Code: Two Memories.* (Nintendo DS).

· Cing. (2007). *Hotel Dusk.* (Nintendo DS).

· Cing. (2009). *Another Code R.* (Wii).

· Day 1 Studio. (2008). *Fracture.* (Xbox 360/PlayStation3).

· Dimps/Capcom. (2008). *Street Fighter IV*. (Various platforms).

· EA Digital Illusions CE. (2008). *Mirror's Edge.* (Various platforms).

· EA Montreal. (2008). *Army of Two.* (Xbox 360/PlayStation3).

· Epic Games. (2006). *Gears of War.* (Xbox 360).

· Eden Games. (2008). *Alone in the Dark: Inferno.* (Various platforms).

· Harmonix. (2007). *Rock Band.* (Various platforms).

· Harmonix Music Systems. (2005). *Guitar Hero.* (PlayStation2).

· id Software. (1993). *Doom.* (MS-DOS).

· id Software. (1999). *Quake III Arena.* (Windows).

· Indies Zero. (2005). *Electroplankton.* (Nintendo DS).

· Infogrames. (1992). *Alone in the Dark*. (MS-DOS).

· Kojima Productions. (2008). *Metal Gear Solid 4: Guns of the Patriots. (*PlayStation3).

· Konami. (1986). *Castlevania.* (Various platforms).

· Konami. (1987). *Contra.* (Various platforms).

· Konami Computer Entertainment Japan (West). (1998). *Metal Gear Solid*. (PlayStation).

· Konami Computer Entertainment Japan (West). (2001). *Metal Gear Solid 2: Sons of Liberty*. (PlayStation 2).

· Konami Computer Entertainment Japan / Kojima Productions. (2004). *Metal Gear Solid 3: Snake Eater.* (PlayStation 2).

· Konami Computer Entertainment Tokyo. (1997). *Castlevania: Symphony of the Night.* (PlayStation).

· Konami Computer Entertainment Tokyo. (1998). *Dance Dance Revolution*. (Arcade).

· Konami / Team Silent. (2001). *Silent Hill 2.* (PlayStation2).

· Lionhead Studios. (2001). *Black & White.* (Windows).

· London Studio. (2004). *Singstar.* (PlayStation2).

· Maxis. (1989). *SimCity.* (Various platforms).

· Maxis. (2004). *The Sims 2*. (Windows).

· Media Molecule. (2008). *Little Big Planet.* (PlayStation3).

· Midway Studios Newcastle / Tigon Studios. (2009). *Wheelman.* (Various platforms).

· Namco. (1980). *Pac-man.* (Arcade).

· Namco Bandai. (2009). *Noby Noby Boy.* (PlayStation3 -PSN-).

· Naughty Dog. (2007). *Uncharted: Drake's Fortune.* (PlayStation3).

· Nintendo. (2005). *Brain Training / Brain Age.* (Nintendo DS).

· Nintendo EAD. (1985). *Super Mario Bros.* (Famicom/NES).

· Nintendo EAD. (1991). *The Legend of Zelda: A Link to the Past.* (Super Nintendo).

· Nintendo EAD. (1998). *The Legend of Zelda: Ocarina of Time.* (Nintendo64).

· Nintendo EAD. (2001) *Animal Crossing.* (Nintendo 64/GameCube).

· Nintendo EAD. (2001). *Pikmin.* (GameCube).

· Nintendo EAD. (2002). *Mario Sunshine.* (GameCube).

· Nintendo EAD. (2002). *The Legend of Zelda: Wind Waker.* (GameCube).

· Nintendo EAD. (2004). *The Legend of Zelda: Four Swords Adventures.* (GameCube).

· Nintendo EAD. (2005). *NintenDogs.* (Nintendo DS).

· Nintendo EAD. (2007). *WiiFit.* (Wii).

· Nintendo R&D4. (1986). *The Legend of Zelda.* (Famicom/NES).

· Number None, Inc. (2008). *Braid.* (Xbox 360 –Live Arcade-).

· Param / Nintendo. (2002).*Doshin the Giant.* (Nintengo64DD/GameCube).

· Remedy Entertainment. (2001). *Max Payne.* (Windows).

· Remedy Entertainment. (2003). *Max Payne 2.* (Windows).

· Retro Studios. (2002). *Metroid Prime.* (GameCube).

· Rockstar North. (2004). *Grand Theft Auto: San Andreas.* (PlayStation2).

· Sega-AM2. (1999). *Shenmue.* (Dreamcast).

· Silicon Knights. (2002). *Eternal Darkness.* (GameCube).

· Sony Online Entertainment. (1999). *EverQuest.* (Windows/Mac OS).

· Team Ninja. (2005). *Dead or Alive 4.* (Xbox 360).

· ThatGameCompany. (2009). *Flower.* (PlayStation3 -PSN-).

· Twisted Pixel Games. (2009). *'Splosion Man.* (Xbox 360 –Live Arcade-).

· Valve Corporation. (2007). *Portal*. (Various platforms).

· Valve Software. (1998). *Half-Life*. (Windows).

· Valve Software. (1999). *Counter Strike.* (Windows).

· Visceral Games. (2008). *Dead Space.* (Various platforms).

· Vivarium. (2006). *Odama*. (GameCube).