

ORDINARY EXTRAORDINARY GAMESPACES
VIDEOGAMES AS TRANSIENT SPACES OF EVERYDAY LIFE

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ABSTRACT

This thesis explores the concepts of space and time in videogames. From the designer's monitor to the player's screen, spatiotemporal elements shape the player's experience of videogame spaces, expanding on her perceptions of everyday life. I draw on theories from art, architecture, geography and anthropology in order to understand how the spatiotemporal elements in videogames relate to contemporary approaches to space and time where the ideas of “non- places” and “everyday life” are paramount.

My central argument is that spatiotemporal experiences in videogames occur within the context of everyday life, rather than residing within the realm of “virtual reality”, a simulation that evokes the construction of a space of representation that can be related “as if” it were real, effecting a separation from the “really real” (Shields in Slater 534). Everyday life happens within the context of non- places with unique characteristics and singular manipulations to which space and time are susceptible in videogames, thereby expanding on the player's field of everyday reality in particular ways.

Henri Lefebvre suggested that every society produces a certain kind of space of its own (Production of Space 8) and Marc Augé affirms that our supermodern times have spawned a new type of space: the non- place (78). Non- places are transient spaces, devoid of relational and historical elements and Augé argues that they are the opposite of “anthropological places”, where inscriptions of the social bond or collective story can be seen (VIII). Anthropological places are being lost to supermodern non- places, and by using gamic examples, I will extend the concept of supermodernism to the

experience of space within the game realm. These transient passages through videogames challenge us to adapt to new paradigms of interaction in space and time.

Rather than trying to conform gamespaces to notions of *genius loci* as in Michael Nitsche's influential model of game spatiality (160), I will argue that deterritorialized gamespaces are sites of perpetual transit, within each successive game title that the player explores.

These gamic non- places reflect the way we experience multiple kinds of transience. Such non-places correspond to the emergence of dislocatednesses, which marks the experience of the quotidian. My position is that we might as well enjoy the ride through such non- places, which can also inspire radical spatiotemporal approaches, urging us to change our lives and the way we interact in space and time.

This research aims to contribute to videogame theory through the clarification of spatial paradigms in gamespace. I will argue that the binary opposition of real and virtual was never valid in the first place, because of the way games dialectically influence reality and vice versa. I propose that spatial experience is a continuous one and that videogames are capable of reconfiguring the spatiotemporal experience within everyday life. I also take a critical look at gamespaces such as *Echochrome*, *Braid* and others, from within contemporary spatial theories. Drawing on the notion of transience which is inherent to non- places will help me link the realities of gamespace to those of the physical world I call fleshspace.

INTRODUCTION

For a large number of people born after the 1970's, videogames are an important part of everyday life and influence how the world is experienced and perceived. This thesis starts from the premise that videogames are spatial constructs which concur with quotidian life, as articulated by Henri Lefebvre. In his "Critique of Everyday Life," Lefebvre brought together space and the everyday, two concepts which have since become indistinguishable (45), and he defines everyday spaces as social constructs particular to each society's practices (26).

Videogame spaces embody the idea of supermodern space which describes the present conditions of deterritorialization and transience. This supermodern space has been transformed by the acceleration of history and multiplication of events. Our increasing ease to access information contributes to this superabundance of events (Augé 27-8).

Scholars have approached videogames as artifacts from a variety of spatial perspectives. For instance, after Espen Aarseth (152), whose approach inspired the study of videogames as essentially concerned with spatial representation and negotiation of space, numerous studies have been conducted that deal with the spatial nature of gamespace. Mark J.P. Wolf defined several categories of spatiality inside videogames, based on how space was formally presented inside the game world (11-23), Georgia Leigh McGregor provided a comprehensive list of spatial patterns in

gamespace (154-196), and Ruben Meintema conceptualized videogames as environments which players make sense of by means of navigational strategies (4).

I would like to complement these representational theories by looking into the expanded everyday experience of space that videogames facilitate, which is based on certain spatial practices as well as social, economic and political conditions mentioned by Lefebvre which in turn become paramount in order to understand Augé's elaborations on space.

There are perspectives that define gamespace as representation and merely concentrate on the screen's events, while other discourses incorporate the player's own physical space to the elements that problematize its perception, such as in the work of Michael Nitsche and Alexander Stockburger which contribute to understanding game worlds, not only as separate entities which exist on a two-dimensional screen, but are also part of the player's realities, manifest in their everyday lives. For instance, in order to understand the experience of space, Nitsche includes the space of the player into his "five planes for the analysis of gamespaces (15)," and Stockburger introduces the "user space" to the previously explored "mediated" and "rule-based" spaces of the videogame (87).

In this thesis I will use anthropologist Marc Augé's idea of non-place as a framework to analyze the relationship between the player and the gamespace, in order to understand the experience of gamespace. In doing so, I will demonstrate the ways videogame

spaces act like non-places by the means of extrapolating Augé's constructs to the gamific realm. To achieve this objective, I will use examples from videogames to probe concepts and critical perspectives derived from the fields of art, architecture and geography.

0.1 The real, the virtual and the expanded field.

My first premise is that videogame spaces cannot be reduced to a “virtual” reality, a realm that has been seen by some as binarily opposed to fleshspace; a simulation which is close to reality but yet is not. This distinction is rooted in the early theory of “virtuality” as well as in the idea of “magic circle” (Lehdonvirta 1) in game studies. The theories of virtuality are a legacy from early Internet studies in which scholars such as Howard Rheingold, appraised the emergence of “virtual communities,” and about the time when the term “cyberspace” was borrowed from William Gibson (and which by semantic satiation very quickly became meaningless) in order to describe BBS's², IRC rooms³ and websites. Similarly, the idea of magic circle, attributed to Johan Huizinga, presupposes that gamespaces are “magically” separated from reality; temporary worlds within the ordinary world, dedicated to the performance of an act apart (10).

By contrast, I argue that videogame worlds not only expand the quotidian experience but in fact, they are part of a continuum of spaces that reconfigure everyday life. The player is exposed to manipulations which are not possible to attain in fleshspace, such

² Bulletin Board Systems.

³ Internet Relay Chat is one of the first “chat room” protocols.

as subverting the spatial and temporal perceptions by the means of play, which has been credited to be a primary formative element in human culture (Huizinga 1).

For Augé, non- places are spaces formed in relation to certain ends (transport, transit, commerce, leisure) which support capitalist globalization and the relations that individuals have with these spaces (94). A non- place, as Augé describes it, is non-relational, historical or concerned with identity, it is a state of excess and a multiplicity of meanings, of identities (63). Augé's text laments the loss of a stable system of places which, as a result, alienates us from the experience of self.

Although in agreement with the transitory qualities of non-places, I will argue that gamic non- places are rife with possibilities for integrating new experiences of time and space into everyday life. We may have lost stability, but we also gained new modes of spatial and temporal understanding.

I also intend to analyze the act of playing videogames as sequential in time. By this I do not only refer to playing a single game from start to finish, but I address the gamer that plays several different videogames over a larger span of time. Through this practice, the player traverses a wide array of spatial conditions and carries on a number of different acts in the gamic realm, saturated by non- places.

The player may have created cities or civilizations⁴, exterminated Nazis or zombies⁵,

⁴ In games such as *Sim City* (Maxis Software. 1989) or *Civilization* (Micro Prose. 1991)

⁵ Nazis and zombies are commonplace enemies in First Person Shooters. Nazis can be fought off in

stopped the shutdown sequence of a computer supernetwork, hunted Osama Bin Laden⁶ or rolled the entire known universe into a giant ball⁷. She has been Mario, Chell, Leon S. Kennedy or Dr. Gordon Freeman, once she even was a pulsating sphere of energy which evolved into an anthropomorphic being⁸.

The player might never return to the damned Spencer Estate⁹, nor construct additional buildings on the streets of her first SimCity¹⁰, and neither will she go back to the labyrinthine hallways of Castle Wolfenstein or joyride the streets of Vice City¹¹. These have been places of transit. She is now, probably, traveling through new portals¹² or clearing Arkham city¹³, maybe she is trying to reproduce a human personality in Eden¹⁴.

She is traversing non- places, a collection of spaces of consumption in which experiences and identities implode and shift perpetually. She has perceived and interacted with spaces and situations we humans could only dream of just a few decades ago, radically expanding her experience of everyday life.

games such as *Wolfenstein 3D* (idSoftware. 1992), *Call Of Duty* (Infinity Ward. 2003), *Company of Heroes* (Relic Entertainment 2006). Zombies can be found in games such as *Resident Evil* (Shinji Mikami 1996), *Cold Fear* (Ubisoft. 2005), *Left4Dead* (Valve Corporation. 2008). In the Wolfenstein series, the player must dispose of a horde of undead Nazis. For a comprehensive list of games in which zombies are feature, see: http://en.wikipedia.org/wiki/List_of_zombie_video_games

⁶ In *Kuma War*. Kuma Reality Games, 2011.

⁷ In *Katamari Damacy*. Takahasi, Keita. 2004.

⁸ In *Rez*. United Game Artists. 2001.

⁹ *Resident Evil*. Mikami, Shinji. 2006.

¹⁰ Wright, Will. 1998.

¹¹ Rockstar Games. 2004.

¹² *Portal 2*. Valve Corporation. 2011.

¹³ *Batman: Arkham City*. Rocksteady Studios. 2011.

¹⁴ *Child of Eden*. Mizuguchi, Tetsuya. 2011.

The average game player is 37 years old and has been playing games for 12 years¹⁵, which means that this idealized player has been in a constant flux between various different gamespaces over this span of time. She has traveled through a series of spaces which are finite yet never-ending. A ubiquitous multiplicity of spaces *a la carte* is available to immerse herself in, at any given time.

The spaces referred to in the previous paragraphs are also global and played everywhere, from trailer parks in Oklahoma, to Las Lomas neighborhood in Mexico City, Singapore HDB units and Forbes Park in Manila. Probably more people worldwide are familiar with the Counter-Strike¹⁶ map “de_dust¹⁷” than with the locations I just mentioned.

Therefore, in order to develop a viable theory of gamespace it is necessary to discard the idea that videogames belong in some niche or simulation of reality and accept that they occupy reality in its entirety. For this purpose I will re-reframe the semiotic square model¹⁸, made popular by Rosalind Krauss’ postulate of the “expanded field (283)” as others have attempted in different disciplines¹⁹, Any viable model has to leave behind an oppositional contrast of concepts, in favor of an integrated view towards a nuanced

¹⁵ See: Entertainment Software Association. <http://www.theesa.com/facts/index.asp> Retrieved June 06, 2011.

¹⁶ Valve Corporation. 2003.

¹⁷ Le, Minh "Gooseman" and Cliffe, Jess "Cliffe" 2003.

¹⁸ The Semiotic Square is a way of visually representing a matrix of possible relationships generated by a given opposition: Any principal opposition between contrary terms, can be expanded to include a secondary pair of "contradictory" terms. (You get, in Krauss words, "a quaternary field which both mirrors the original opposition and at the same time opens it.") Davis, Ben. <http://www.artnet.com/magazineus/reviews/davis/art-and-social-media8-4-10.asp> Accessed January 1, 2012

¹⁹ Amongst other theorists that have done so I may note Douglas Eklund (photography) and Anthony Vidler (architecture).

approach to complexity, or as Jan Avgikos expresses: “Breaking down the oppositional logic of Krauss’s Euclidean-derived model ... we stand to appreciate more fully the meanings of multivalence, impurity, and intertextuality ... There is far too much difference and nuance to account for the gaps between things than the model of opposition describes.”²⁰ In this thesis I want to affirm that gamespace should be viewed as a totalizing entity instead of being relegated to a niche reality and that this space partakes of the social, political and economic conditions which creates non-spaces, embodying the same paradoxes and uncertainties.

In order to understand the concept of gamespaces as non- places that in turn are places of global consumption, transient identity and capable of infinite manipulations, I would like to discuss how the ideas of space and place evolved in discussions of architecture. I understand architecture as the original practice of building places through the erection of edifices that thus contributing to shape everyday experience.

0.2 Chapter Structure

Architectural theory's main preoccupation for centuries has been concerned with spatial phenomena and such preoccupation has been expressed in diverse approaches to space and place which I will put to use later on.

²⁰ Avgikos, Jan. <http://www.sculpture.org/documents/scmag98/avgkos/sm-avgik.shtml> Accessed January 13,

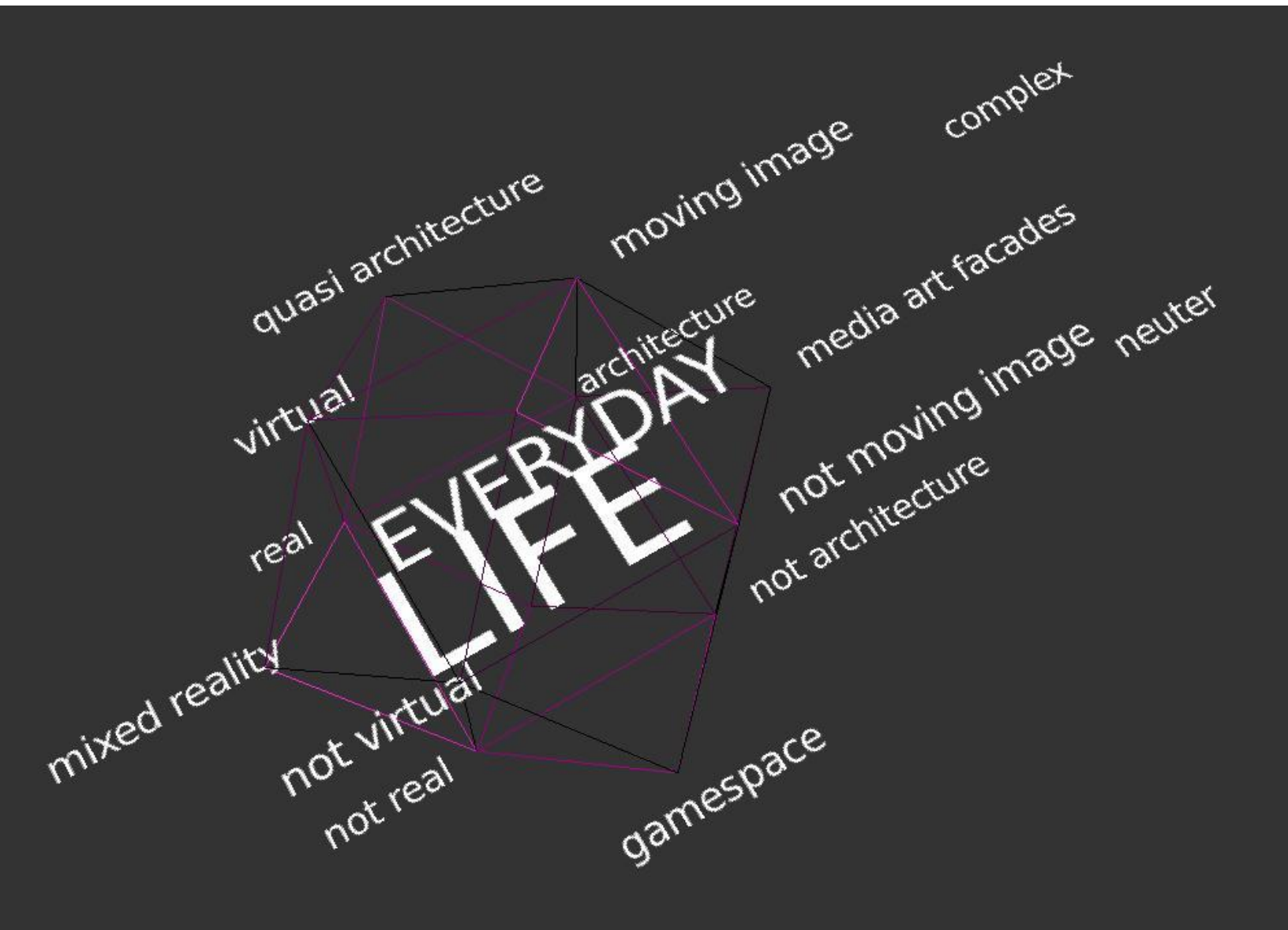


Figure 1. Gamespaces in the Expanded Field of Everyday Life.

In Chapter 1, I will explain why some of the current theories for understanding gamespaces are failing to connect with the contemporary world that the players live in. I will critique the adoption of the phenomenology of space and contrast it with a poststructural critique, arguing for a more holistic model.

I will also draw on Massive Multiplayer Online games to exemplify how a more accurate model of spatiality might be closer to Henri Lefebvre's idea of space as social production, an idea that is also present in Doreen Massey's critique of the phenomenology of architecture.

While in the first chapter I will emphasize the ways in which space is socially generated, in the second chapter I will approach the representation of gamespace as a substrate based on geometrical arrangements that “might structure, contain and enable certain forms of movement and interaction (Dourish)” in order to clarify how gamespace emerges and its understanding from a perceptual standpoint. The third chapter deals with time and navigation. It is generally understood that navigation is the key tactic that helps us make sense of space. If we were unable to move, our perception would not be different from looking at a still picture. In this chapter I will reference two models of understanding time in videogames, namely the formalist and the experiential. I will examine how videogames are able to provide the player with specific temporal frameworks and I will highlight particular gamespaces that challenge the perception of time as linear and non- malleable.

I will conclude that videogames are a part of everyday life and that they not only embody the temporal and spatial qualities of the contemporary world as no other medium is capable of, but are able to manipulate these qualities in novel and meaningful ways. I will argue that videogames actively enrich our perceptions and expand the experience of time and space in the sensorial plane and that they also

create a social space which is teeming with emergent phenomena. Finally I will reflect on further ways of exploring this topic, such as framing the player's interaction under Henri Lefebvre's theory of rhythm analysis in order to find the place where the player's actions in the game and in fleshspace converge.

CHAPTER 1. GAMIC NON- PLACES

In order to propose a conceptual model which examines the ideas about space and place inside computer games, I will present concepts of space and place which fall outside of the usual dichotomic categorization of virtual and real. I will start with the phenomenology of architecture and its relation to the idea of place (and non- place), and its critique from a poststructuralist point of view in order to explain why more paradoxical concepts like non- space are better fitted to explain the present explosion of gamespaces and their feedback they exert into our daily lives. I will argue that the model based on phenomenology of architecture, adopted in gamic studies by scholars such as Nitsche and Walz, needs a radical readjustment in order to attain a satisfactory analysis of gamespace. Therefore, I will complement the phenomenological understanding of gamespace by addressing the critique to such model from the point of view of Massey et. al.

Christian Norberg- Schulz proposes a phenomenology of architecture and a definition of place based on Heidegger's idea of dwelling. I will critically examine the appropriation of the phenomenological definition of place by game scholars, arguing that this concept needs further expansion if it is to be adopted in order to analyze gamespace. For Norberg- Schulz (and the game scholars who embrace his theories in order to make sense of the spatial characteristics of videogames) places are understood as aggregate phenomena of qualities irreducible to single idiosyncratic features (Walz 102), yet little or no importance is placed on the social, economic or political factors. A place exhibits a “genius loci” (or spirit of place) and such “spirit” is more or less inherent to human understanding.

In Norberg- Schulz's vision, dwelling equals to gain an "existential foothold" by the means of belonging to a given space. He postulates that when we identify with a place, we dedicate ourselves to a way of being in the world (The Concept of Dwelling 12). Shapes, textures and colors contribute to shape the totality of "place" and together they determine an "environmental character," which is the essence of place. Therefore, a place is a qualitative "total" phenomenon (Genius Loci 8).

I argue that assigning totalizing genius loci- like qualities to gamespace is limiting, especially when the social realities prevalent both in gamespace and the player's fleshspace are taken into account. Instead, an understanding of gamespace is enhancing by considering w the fine- grain dynamics of the social construction of space.

The plural, transient identities of players²¹ are not looking for a place to dwell, a place to contemplate the sky, but rather, they seek to be engaged in stimulating performance. This performance is framed within the players' realities and as such is imbued with political, social and economical considerations.

I am going to draw on Massive Multiplayer Online games to exemplify how a more accurate model of spatiality might be closer to Henri Lefebvre's idea of space as social production, an idea that is also present in Doreen Massey's critique of the phenomenology of architecture.

²¹ I prefer the use of the word "player" over "gamer" since the latter has the connotation of being "commonly used to identify those who spend much of their leisure time playing or learning about games (From Wikipedia)." And in this study I will also like to include the "casual" player, which "[does] not fit any stereotype of the adolescent male video game player. In fact, they often [do] not think of themselves as playing video games (even though they clearly [are]) (Casual Revolution Juul, Jesper 1)."

By the means of looking at social factors prevalent in networked games, my argument tries to overcome the shortcomings of the idea that genius loci is irreducible to single idiosyncratic features and propose a model that takes such peculiarities into account and is able to accurately respond to them.

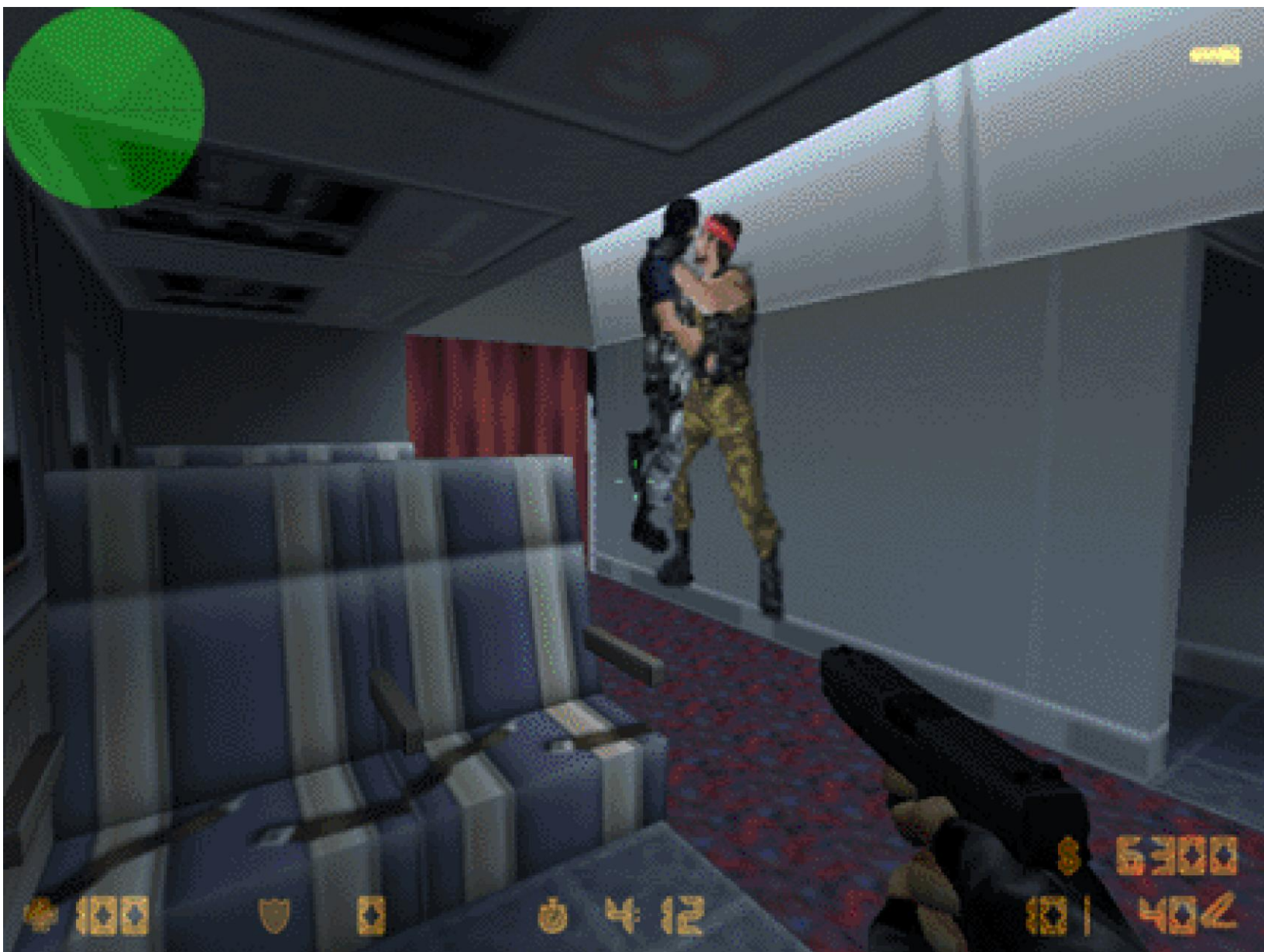


Figure 2. Velvet Strike. 2002 Schleiner, Leandre and Condon.

Players engage in varied emergent activities in gamespace, ranging from mere “cheating,²²” which has been hailed as an avenue to induce learning and appropriating a videogame (Consalvo 8), to emergent phenomena which the game designers could not have foreseen will occur in said space. For instance, in “gold-farming” inside MMOG's²³, professional player- laborers collect game- world treasures and level- up²⁴ game characters and this labor can later be exchanged for real world currencies. Their behavior differs from (and sometimes enrages) players who engage in quests and activities in the game that are not primarily driven by monetary aims.

Gamespaces have also been reclaimed or manufactured by artists and activists in order to take certain discourses to the gamic arena, such as in the early “Velvet Strike²⁵,” in which gamers disseminated anti- war rhetoric by the means of “spraying²⁶” the walls of the popular Counter Strike²⁷ game. Other examples of gamespace politization are Under Siege²⁸, a first person shooter played from the point of view of a young Palestinian facing Israeli occupation during the first Palestinian intifada²⁹; or the practice of Molleindustria, an Italian collective that makes videogames “to spread a political message and to criticize the mainstream videogames as a cultural form³⁰”, just to name

²² Cheating involves a player generally making use of computer code used by the designer(s) for play-testing purposes, or created by third- party software or hardware. This practice, although prevalent, is often looked down upon in gaming communities.

²³ Massive Multiplayer Online Games.

²⁴ Adding in- game experience points, wealth or items, such as weapons, clothes or hats.

²⁵ Schleiner, Leandre and Condon. 2002.

²⁶ Sprays are image textures that can be applied to different surfaces of an existing game and then become visible to all players within the same server.

²⁷ Counter-Strike (Valve, 1999) is a tactical first-person shooter video game which pits a team of counter-terrorists against a team of terrorists in a series of rounds. Each round is won by either completing the mission objective or eliminating the opposing force. (From Wikipedia)

²⁸ Kasmiya, Radwan. 2001.

²⁹ The game ends if [the protagonist] Ahmad gets shot. If he shoots civilians, the game is over. The 12-hour game features no medic packs. If you get shot, you're shot... The game is not easy, but then again, neither is the situation in Palestine. In the end of the game, there is no reclaiming territory and Ahmad cannot win. From <http://kotaku.com/5654958/a-game-about-insurgency> Retrieved December 8, 2011.

³⁰ Interview with Paolo Pedercini <http://www.culture-jamming.de/interviewVIIe.html> Accessed February 14, 2012.

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تحت الحصار

تحت الرماد 2

' A bit like life really'
BBC News

الأكثر انتشاراً

ما ستراه ليس وهما ... إنه الحقيقة
ملحمة إنسانية نضجها أمانة بين يديك كي لا تنسى ... أرضك وجذورك

نمت الحصار ونمت الرماد إسمان تطايران مملوكان لأفكار ميديا وبصطبان بجمليه موالين تنظيم الهلكنه المكريه في العالم
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Figure 3. Under Siege. © Kasmiya, Radwan. 2001.

Thus, gamespaces cannot be reduced to a singular essential property; their usage is socially constructed by different types of players.

The poststructuralist critique charges the phenomenology of architecture with a denial of changing contexts and evolutionary historical conditions (Kuo 47), faulting phenomenological studies of space with an overidealization (Massey 315) of the idea of place. This poststructuralist view perceives space as an ever- evolving social construct and in consequence, proposes that there is no static ontological nature of a given place (Kuo 52). I will then use these ideas to complement the phenomenological approach and show how this is particularly evident inside Massive Multiplayer Online Games, which are places of experiential transience.

Layers of Spatiality

The phenomenological idea of *genius loci*, is central to Michael Nitsche's "Video Game Spaces", which is one of the most comprehensive books written to date about gamespace because it takes into account not only how game events are presented on the two- dimensional screen, but includes the player space and suggests an analysis of networked spaces.

Nitsche defines gamespace by the means of five different "planes of spatiality (15)³¹", which are the rule- based, the mediated, the fictional, the play- space and lastly, the social. In his view, each of the preceding layers of space informs the posterior one and it is this chain of events that facilitates the emergence of gamespace.

³¹ It is noteworthy that Nitsche uses the figure of planes to define spatial characteristics.

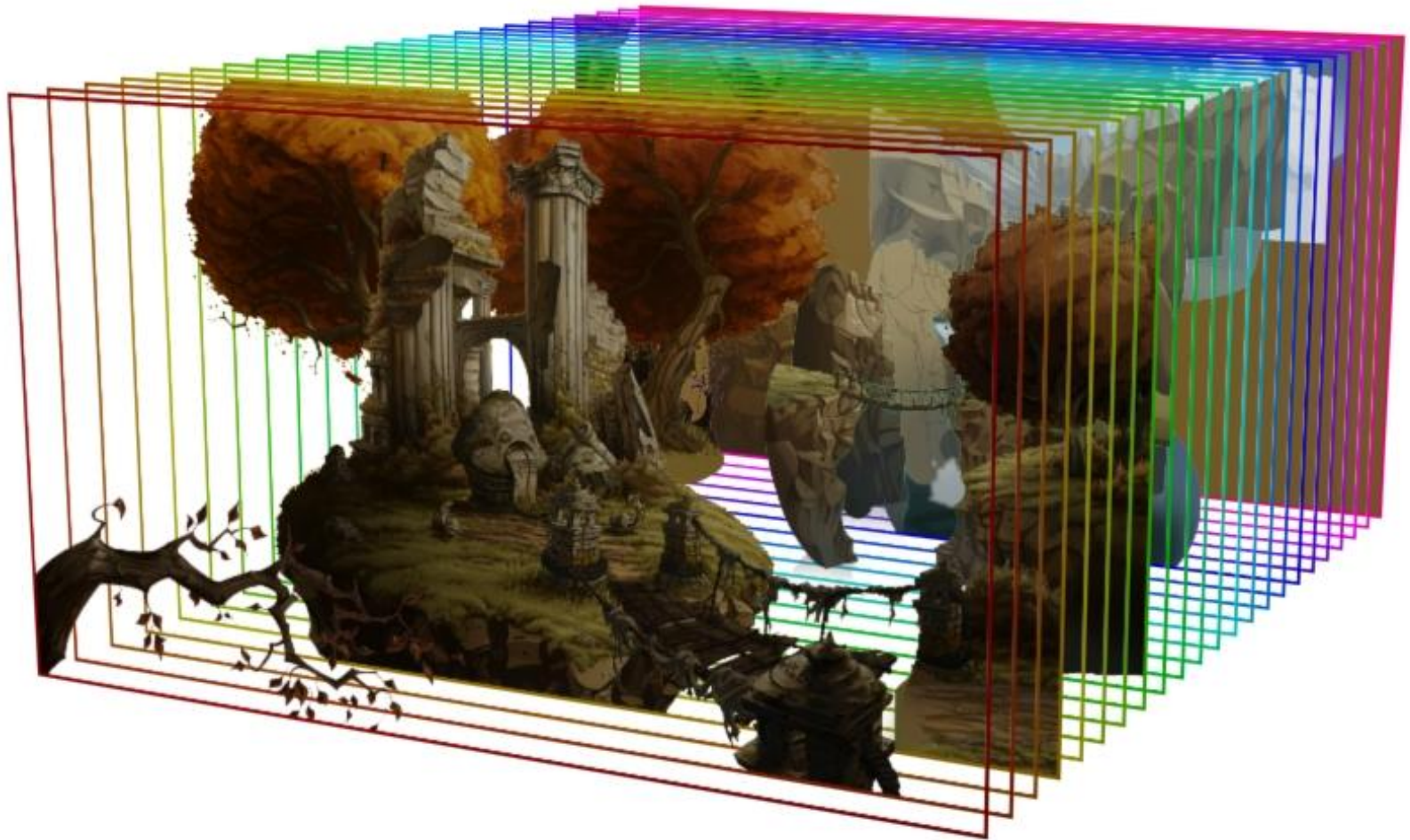


Figure 4. Hullen, Marco. *The Whispered World*. 2009. Parallax arrangement. ©Claas Paletta

The rule-based space defines how the game is played and it is based on mathematical rules, code, data and hardware restrictions. The mediated space is defined by the presentation of the space in the image plane via the output system. The fictional space is the space “imagined” by players based on the perception of the images attained. The space of play includes the player and the game hardware and it is inside this space where decisions and actions that affect the game outcome take place. Finally, the social space is defined by the interaction between players affected by the same gamespace.

Nitsche states that his model relies heavily on phenomenology in order to elucidate the experience of space and he quotes that “if cybespace is a representation of human beings’ space experience (Qvortrup in Nitsche, 15),” to continue the phenomenological approach will then answer issues about our perception of space, our positioning in its relation and finally, how it is practiced (15). In doing so, his model focuses primarily on the interaction between the rule- based, the fictional and the play- space, and little attention is paid to the social aspect of gaming. By addressing the social component of gaming, I am not referring to “social games” such as FarmVille³², which are played inside social networking sites (and parodied in Ian Bogost's “Cow Clicker³³”) but instead I refer to how the social dynamics inside certain games, particularly MMOG's³⁴, play a substantial role in the spatial configuration of such games. This is an aspect I deem as significant because it facilitates emergent social phenomena inside the gameworlds.

1.1 Phenomenology of architecture

The phenomenology of architecture that has played a prominent role in recent discussions and books on gamespace recurrently draws upon Christian Norberg-Schulz's re- elaboration on the notion of “genius loci.” Working with Heidegger's ideas of “being” and “dwelling,” Norberg-Schulz emphasizes the importance of the ontological essence of a place, in other words its genius loci. In Norberg- Schulz’s vision, the meaning of human existence is necessarily integrated with places (Genius Loci 6) and he states that places are qualitative totalities of a complex nature, and therefore, cannot be described by means of analytic “scientific” concepts (8).

³² Zynga. 2009.

³³ See: Bogost, Ian. http://www.bogost.com/games/cow_clicker.shtml Accessed January 15, 2010.

³⁴ Massive Multiplayer Online Games.

The phenomenological identification of being with dwelling leads Norberg- Schulz to divide spaces into two classes: the natural and man-made phenomena, namely “landscapes” and “settlements” to which the binary relations between the “categories of earth- sky (horizontal- vertical) and outside- inside” are of extreme importance. These relations are expressed through the place’s “character”, or the basic mode in which the world is given, and alongside the spatial organization of elements in three dimensions, they structure “the lived space (Phenomenon of Space 435).”

Norberg- Schulz argues that our perception of *concrete space* is not isotropic, meaning that it is not uniform in all directions, but instead it is apprehended throughout a series of “principles of organization” of a topological kind, which stem from Gestalt theory (Intentions in Architecture 34). These principles are Extension and Enclosure, or the relation between inside and outside, where the enclosing properties of a boundary are given by its openings, and Figure- Ground, or how a settlement relates to landscape and becomes a *focus* for its surroundings. Enclosure, he states, is defined by a boundary and he goes on quoting Heidegger: a boundary is not that at which something stops but, as the Greeks recognized the boundary is that from which something begins its presencing (Heidegger in Norberg- Schulz, Genius Loci 13).

Furthermore Norberg-Schulz develops the notions of Centralization, Direction and Rhythm, based on the vertical- horizontal axes, and Proximity, which relates the natural elements in the landscape (such as hills, in his example) and the settlements. Norberg- Schulz argues that these principles of organization based on individual perception and meaning- making help us identify qualities which are immanent to any human being, and that therefore, place comes from an intrinsic knowledge about the space. Genius loci then, exalts the notion of a *spirit*, or *sense of place*, and affirms the individuality and

uniqueness of particular places. Then the phenomenological view of architecture reduces places to purposeful spaces where humans feel at ease and gain an “existential foothold” (Genius Loci 5). A place stands in distinction to space, which is merely an entity to be measured and reduced to a mathematical function and susceptible to being built upon in order to then create a place. A place is where the act of dwelling is possible, where a meaningful relationship between man and a given environment is established.

Nitsche extrapolates Norberg- Schulz ideas into the gamic realm, affirming that the players’ relation with gamespace is paired with such postulates. The possibilities of this affirmation are poetic indeed, however as I will further demonstrate, the limits reside in that gamespace is entirely *generated* and by the means of such poiesis, it acquires different qualities than, say a vacation chalet in Todtnauberg.

Augé affirms that nowadays Hestia, the goddess of earth which stood at the warm center of the house has been replaced by the outward- looking Hermes, thus, we live in an intellectual, musical or visual environment that is wholly independent of the immediate physical surroundings (VIII). I deem this affirmation to be more atoned to contemporary life as experienced, rather than as idealized.

In “Video Game Spaces”, Nitsche revises three paradigms, namely the gamic, the generic (genre- like), and architectural in order to understand gamespace. These paradigms follow Norberg- Schulz's understanding places as dwelling and being, in Nitsche’s case in the game- world, expressed as a relation between the player and the game. In Norberg-Schulz tripartite model, the attention to how human- made places relate to nature is manifest in three ways:

They make natural structure more precise by the means of visualizing man's understanding of nature, an expression of his gained "existential foothold", for example, when nature indicates direction, the man makes a path. Secondly, they complement nature by adding what is "lacking" and it is by such processes that man finally symbolizes his understanding of nature, including himself. He states that it is by the act of symbolization that the production of a cultural object is attained (Genius Loci 17).

While it is clear that culture is produced by the means of symbols, the argument about the creation of place as a human response to the natural conditions which are present in a given environment becomes troublesome when we examine gamespaces, since such natural conditions are not preexisting. However though, there are other types of existing preconditions to which gamic architecture has to respond to, which are indeed provided by the medium's own nature, and the way to address them is at the core of successful game design. These boundaries lay in the relation between the presented game content (texture and model details, particle systems, real time lights, etc) and the machine (computer, console handheld device or other) performance measured in terms of frames per second.

Gamespaces are not only experiential, but also mathematically generated. For example, in fleshspace a bridge makes sense because it responds to the vectorial force of a broken path, providing a specific material answer to an otherwise incomplete place. It makes the place whole, the bridge generates a place and imbues it with meaning. A market stands at the convergence of multiple paths and it is by the sum of the forces which are deposited at such intersection, that this place comes into being. As it makes for a natural meeting point, the market has the capability of containing a growing number of activities besides just trading, gradually turning into a key node in the city fabric.

Nitsche argues that Norberg- Schulz's phenomenological outline can describe the possible nature of an evolving relationship of the player to virtual space, using evocative spatial elements whose visual appearance affects the overall context projected into space (164).

1.2 Landscapes and Settlements

The adaptation of Norberg- Schulz's ideas to videogames, in particular in Nitsche's approach, is problematic because in his model, videogames are understood merely as simulations in virtual space and his depictions of the spatial elements which populate gamespace tend to lean more towards the depiction of the "evocative", rather than their intrinsic purposefulness and capabilities of providing radical spatial experiences. If we were to follow Norberg- Schulz, we would hit a wall when we realize that in gamespace there is no difference between landscapes and settlements, or between the natural places and the human- made responses to such. Another important difference is that for phenomenology, the idea of mathematically represented space is seen as a reductive way of understanding space, which actually stands in opposition with the spatial richness that procedurally generated spaces are able to attain.

Internally, a videogame not only represents space mathematically but is also capable of *generating it*. In a seminal paper, Jesper Juul argues that videogames pose "a certain level of abstraction," he shows that although games present a fictional world and within it players are only allowed to perform certain actions because the fictional world of the game is only implemented to a certain detail, the only "unabstractable" entity, is precisely space.

Juul's approach to a certain level of abstraction resonates with De Certeau's idea of the practice of everyday life, where the spatial order organizes an ensemble of possibilities and interdictions, where the walker actualizes some of these possibilities, making them exist and emerge, but also inventing others while transforming or abandoning certain spatial elements (98). "The user of a city picks out certain fragments of the statement in order to actualize them in secret (Barthes in De Certeau 98)."

Since the polygonal world is designed in its entirety (and sometimes algorithmically generated) it is all a continuous mesh where "natural" landscapes are an integral part of the game's environmental challenges, although sometimes serving as mere "backdrops" (McGregor 186) whose function is purely ornamental. Landscapes in gamespace are thus by no means the pre-existing conditions to which settlements respond to. Even in those cases when the game contains a natural terrain, it has been designed ex professo. In gamespace more often than not, a mountain exists because there was a need to design a barrier, but a mountain, otherwise subject to centuries of tectonic movements, glaciations, erosion and other forces, might be easily be substituted by a waterfall, or a dense forest if the designers decide so, just as the decision to place, say a church in- game, may shape that church in the Roman- Catholic, Gothic or Gregorian styles, while in fleshspace the erection of such a structure would have necessarily obeyed to a number of factors such as an historical timeline and the forces exerted at a specific geopolitical location.

This phenomenon can be synthesized by the pop- culture rephrasing of Louis Sullivan's quote "Form follows Function"³⁵ as rephrased by the editors of the book *SpaceTimePlay*

³⁵ "It is the pervading law of all things organic and inorganic, Of all things physical and metaphysical, Of all things human and all things super-human, Of all true manifestations of the head, Of the heart, of the soul, That the life is recognizable in its expression, That form ever follows function. This is the law." Often shortened and which spawned all kind of reinterpretations and rephrasings, such as Frank Lloyd Wright's "Form follows function - that has been misunderstood. Form and function should be one, joined in a

“Form follows fun (132).”

To illustrate this lack of an evolving interaction between natural environmental features and the man-made in videogames, we can take as an example “Half- Life 2: Lost Coast,³⁶” which is a small additional level to Half- Life 2³⁷ that was not included in the original game and was later released as a standalone level. Lost Coast is also a first person shooter in which the protagonist, Gordon Freeman is set to destroy an artillery launcher sitting atop of a cliff, aimed to fire at the nearby town of St. Olga. “The game is viewed from the perspective of the player [’s] character, and plot information is imparted through scripted sequences rather than cut scenes.³⁸” The fisherman at the bottom of the cliff urges Gordon to go uphill and take down the target.

The path is a steep one, and while the player takes Gordon up the cliff, she not only fights numerous enemies, but also a sense of vertigo. In the game, the cliff is a conscious design decision rather than a happening of nature (it makes sense that if you were to deploy a heavy artillery canon to fire at surrounding towns, you will place it where the topography makes it favorable for such purpose as well as making such a site easier to defend) but this decision in particular is based on the designer’s will to force the player to explore the vertical space by the means of gameplay.

On the in- game commentary provided, the player can hear designer Robin Walker explaining: “The area you’re currently entering is called the cliff side arena. We were particularly happy with the vertical cliff side in Half-Life 1, and regretted that we didn’t iterate further on that concept in Half-Life 2. Vertical space allows us to force the player

spiritual union,” and Bernard Tschumi’s “Form follows Fiction.”

³⁶ Valve Corporation, 2005.

³⁷ Valve Corporation. 2004.

³⁸ From Wikipedia. http://en.wikipedia.org/wiki/Half-Life_2:_Lost_Coast. Retrieved February 12, 2011.

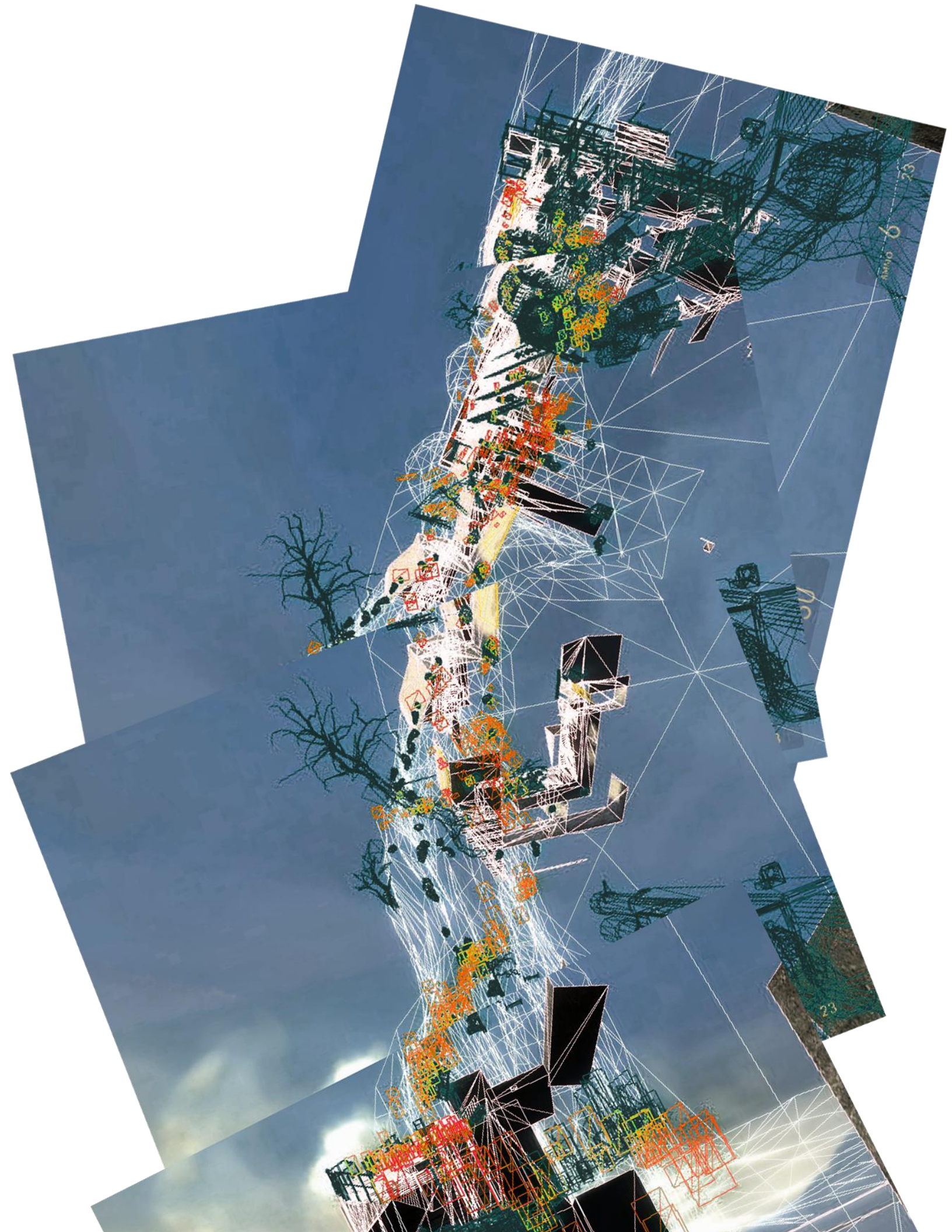




Figure 5 Half-Life 2: Lost Coast. Valve Corporation.2005. Hillside topology with overlaid wireframe. Luis Hernandez Galvan.

to deal with threats from above and below. We find that players focus their view on the direction they're traveling, so by using a cliff side, and having the player ascend it, we ensure the player will look up and be prepared for enemies. If the player's path was to move past the bottom of the cliff side, it would be unlikely he would notice the soldiers rappelling down from above. Dying from unknown threats never feels fair, and certainly isn't fun.³⁹

1.3 Genius Loci

Thus the layered response to the forces that contribute to the formation of an ideal place in Norberg- Schulz view, and ultimately culminate in “symbolizing the human understanding of nature,” are synthesized all at once in a gamic construction of space instead of being deposited as sediments over time. Gamic topology responds primarily to the act of play, as opposed to being concerned with “being on earth under the sky.” As Eric- Jon Rössel puts it: “In games, meaning and purpose come from acting, from fulfilling tasks and progressing towards a preordained goal. Finding the best place to sit and look at the skyline is not the experience most people expect from a PlayStation game.” Nevertheless videogames possess elaborated aesthetical concerns which synthesize the artistic and architectural traditions as I will further discuss in Chapter 2.

Probably the most evocative idea in the discourse of phenomenology of architecture is that of Genius Loci, the “spirit of place” which as shown before, Steffen Walz synthesizes as “an aggregate phenomena of qualities irreducible to single idiosyncratic features (102).” Norberg- Schulz disregards the importance of socio- economic factors in shaping genius loci, as in his view existential meanings have more profound roots

³⁹ Transcription <http://www.cheatbook.de/wfiles/halflife2lostcoast.htm> Retrieved April 30, 2011.

and are determined by the structure of our being- in- the- world (Genius Loci 6).” He also states that in the case of settlements which are organically related to their environment, such a relation will establish them as foci where the environment is condensed and explained (10). Yet as I argued with the example of HL2: Lost Coast, where the gamic operations of shooter play determine the morphology of the landscape, an organic relation between settlement and environment as described by Norberg-Schulz is not possible to be established in such terms within the gamespace. The continuous mesh of the gamic topology merely suggests such a link in order to satisfy the game world’s operativeness.

1.4 Place-making and Social Conditions

In order to elaborate on the concept of non-places, that I believe is essential in the understanding of gamespaces as part of the everyday life and which develops from the aforementioned phenomenological idea of “places”, I will present Doreen Massey’s critique of phenomenology, using this critique to exemplify the importance of the social, political and economic factors underpinning some game worlds. Doreen Massey challenges the phenomenological approach to the understanding of places on the basis of its disregard of socio- economic and political factors. She observes: “An (idealized) notion of an era when places were (supposedly) inhabited by coherent and homogeneous communities is set against the current fragmentation and disruption. The counterposition is anyway dubious, of course; 'place' and 'community' have only rarely been coterminous.” This critique of phenomenology suggests that the sense of place is a continuously changing social product and that therefore there is no static ontological nature of a given place (Kuo 47), being the identity of place as the outcome of a number of social contingences, which emerge in a specific historical moment (51).

Kelly Chien-hui Kuo argues that phenomenology places a very strong emphasis on “experience,” and that this is a vague, blanket term used in order to deny dealing with the political or social milieu which makes certain experiences possible. She suggests that this process alienates individuals from confronting socio- political activities and their implications in spatial use.

A nuanced approach allows me to integrate the socio- political aspects of challenges and game action that define the space and interaction in games, and propose a model of ludic space which is enriched by the means of integrating the player's inherent social conditions to the phenomenological ideas of place. These conditions play a very important role in spatial perception and the interaction within it and they are especially visible in MMOG's⁴⁰, not to mention the postulate that technology is inherently political, as Paul Virilio or Jamais Cascio, among others, have argued.

According to Doreen Massey, “place” is affected by our mediated subjectivity which is a complex socio-political issue (68). This idea is tied with that of genius loci addressing the notion of place as a product of cultural signification, shaped by the systems that construct our subjective experience. Similarly Gillian Rose, whose work deals with social subjectivities, asks us to consider and understand places beyond the idea of a mere “science of landscape” (368) and reaffirms the idea of places as a social product.

Massey urges us not only to think about places as merely areas or maps, but to understand them as “constantly shifting articulations of social relations through time,” that in her vision claim coherence and particular meanings for specific envelopes of space- time (25). Therefore the identity of a given place can be variable over time and is

⁴⁰ Massively multiplayer online games.

dependent on the person or persons experiencing it.

While Massey et. al. might have missed some nuances of the phenomenological synthesis of temporal and spatial consciousness, her adaptation of the phenomenological accounts of space is helpful in order to place a strong emphasis in the social, economic and politically charged gamespace and by such means expand the gamic model of space solely based in the idea of genius loci.

This model does not deny the existing forces which shape the identity of the space, but instead complements the notion of place through the convergence of the natural and the social.

1.5 Social Space

At first the post-structural discourse may seem to stand in polemical opposition to that of phenomenology, however as I said before I see both approaches as complementary. The concept of intersubjectivity referring to the social and shared construction of spaces will help us understand how both perspectives are important for understanding games as extension of contemporary transformation of spaces. Intersubjectivity “plays a fundamental role in our constitution of both ourselves as objectively existing subjects, other experiencing subjects, and the objective spatiotemporal world,⁴¹” by the means of empathy, therefore these unique and individual experiences are susceptible of being transformed into something societal, cultural. These ideas about space being made through social interactions and apprehended through subjective means thus can be related to the intersubjective approach to space, a concept that is complementary to the

⁴¹ From <http://plato.stanford.edu/entries/husserl/#EmpIntLif> Retrieved January 05, 2012.

universal perspective of phenomenology, rather than standing in complete opposition to it.



Figure 6. Dutsch, Todd. 1999. Picture from the "Gamers" series. © Todd Dutsch.

Meaning is developed early on in Lefebvre's assertions about space, in which he refuses to acknowledge it as an empty area. He posits that space is not just about inert geometry, scholarly adjectivized as 'Euclidean', 'isotropic', or 'infinite', but that space is a dynamic social production (Production of Space 1).

In this view, everyday space is "neither a frame... nor a form or container of a virtually neutral kind, designed simply to receive whatever is poured into it. Space is social

morphology (9).” Furthermore his view of space is socially and culturally informed as it is evolutionary. Lefebvre states that every mode of production generates a particular space, its own space. A city is not to be understood as a simple cluster of people and things in space, it possesses its own spatial practice through the means of creating its own space. We can successfully take these assertions to the gamic realm.

Let us look at an example of how gamespace is heavily influenced through the agency of the players’ socioeconomic conditions using World of Warcraft⁴² as an example. World of Warcraft is a very vast MMORPG⁴³, both territorially speaking and in terms of providing interminable gameplay for its massive population of players. This expansive gamespace is filled with quests, missions that are played in order to achieve experience points, items, and in- game currency, for the most part the missions are performed as a part of a collective.

These “collective projects of action” (Golub 17) identify places in gamespace of which some are known to contain treasure or valuable items that are susceptible of being exploited, or “farmed.” The world, therefore, has an active economic system which (although game operators expressly ban the practice) is correlative to real- world currencies, meaning that items from the game can be exchanged by USD, EUR, CNY, etc. The market economy in WoW⁴⁴ is fairly complex and there are a large number of websites containing trading and auction advice, gold- making tips, and in- game market theories and speculations. The existence of a market economy is not a unique WoW phenomenon, but also exists in many other online environments such as Second Life⁴⁵ or Team Fortress2⁴⁶, Lineage⁴⁷, etc. The existence of markets, paired with the fact that

⁴² Blizzard Entertainment. 2004.

⁴³ Massively Multiplayer Online Role Playing Game.

⁴⁴ Stands for World of Warcraft.

⁴⁵ Linden Lab. 2003.

⁴⁶ Valve Corporation. 2007.

much time needs to be spent in- game to level up a character or earn currency, has spawned the phenomena of professional gold- farmers, who either perform in- game repetitive tasks (also known as “grinding”) in order to acquire currency for its posterior trading against “real” money, or level- up other person's toon (or avatar) while being paid for it.

Around 2004 the phenomenon of gold farming hit the mainstream media. To the public's amazement, people were paid to play online games, more often than not in sweatshop-style conditions (Dibell). On May 25, 2011 the newspaper “The Guardian” reported on Chinese prisoners being forced to play online games as gold miners. “We kept playing until we could barely see things,⁴⁸” a former prisoner is quoted as saying.

When Johan Huizinga defines “play,” he acknowledges such an activity as being distinct from ordinary life, arguing that play is voluntary and is not serious (7-8).

Salen and Zimmerman argue that games on the one hand, are a subset of play in that they formalize play, and on the other hand, that play is an essential game component, and therefore games and play are necessarily intertwined (303). Furthermore, in his essay “Narrative, Interactivity, Play and Games” Eric Zimmerman defines “game” as “a voluntary interactive activity, in which one or more players follow rules that constrain their behavior, enacting an artificial conflict that ends in a quantifiable outcome (160).” If we are to acknowledge the definitions mentioned above, it is clear that these MMO's are not only blurring a series of concepts about volunteerism constituting play, but they also introduce a different kind of complex gamespace that is irreducible to a single type of play.

⁴⁷ NCsoft. 1998.

⁴⁸ See <http://www.guardian.co.uk/world/2011/may/25/china-prisoners-internet-gaming-scam> Retrieved June 06, 2011.

As Corneliussen and Walker point out, in early videogames such a “quantifiable outcome” was certainly less complex than in contemporary MMORPG's such as WoW. In a 1980's style arcade game when the player attained a highscore, maybe her initials were inscribed in the local arcade's list as an all- time- high- score. Yet in WoW “the quantifiable aspect of a player's achievement is not marked with a single number, but by many different types of metrics. The avatar has an overall level between one and seventy. Attributes such as strength, intelligence, agility, spirit and stamina define the player's avatar quantitatively. The basis of these metrics is determined to some extent by the character's race and class (for example priest, hunter) and to a greater extent by the level the player has achieved. The particular weapons, armor and other items also affect those basic attributes which in turn affect the player's armor, melee attack and ranged attack capabilities.”

In these gamespaces, both in- game and the players' own prevalent political, social and cultural conditions play a pivotal role in the articulation of a diverse experience for the multiple players involved, and this experience is not homogeneous, or encompassed by a universal genius loci for all who experience the place.

For instance, in all multiplayer games there is a very clear distinction between the players who are “noobs” and the ones who aren't: two distinct groups of players who experience the game in very different ways. Noobs are the relatively new players, adjusting themselves to the specific mechanics of the game, such as the gamespace itself, the weapons, strategies, etc. They are easily spotted by other, more experienced gamers, and most of the times ridiculed. More often than not, noobs will have very basic weaponry and skills, as opposed to the inventory of weapons, garments, and prestige items, such as a rare sword or hat that experienced players build with time and in- game

skill.

Team Fortress 2⁴⁹ saw the emergence of a new type of player, traders who play the game distinctly from the others. Even though trading servers exist in order for the players to exchange hats⁵⁰ and weapons, there are players whose only activity in the game is to advertise their wares and trade with other players. This might be due to the fact that TF2's economy (or MannConomy, as it is called in- game) is relatively new and that players acquire hats and weapons via random drops. This means that items of disparate value are handed at random times to random players regardless of their skill or the time they have spent playing the game. This practice -in theory- permits a noob player to get a rare, valuable item and this is the very situation that these traders are able to take advantage of when the new player is not familiar with the item's real value.

When introduced, TF2's in- game objects didn't really had a high resell value, as compared to games in which the economical factor is a stronger part of the game mechanics, back then, I asked a trader the reason why he was just trading instead of playing the combat game more normally. He replied that he just enjoyed the trading process and that he was a “small- time speculator.” However, just two years after the introduction of the in- game economy, single items can fetch high prices (online reddit user “adamater” claims he made \$10,000 USD selling TF2 hats⁵¹) and such economy has been credited to be worth \$22 million USD⁵².

Gamespace, then, is perceived through different optics by different types of players.

⁴⁹ Valve Corporation. 2007

⁵⁰ Team Fortress 2, possesses a modest type of economy which is by no means as sophisticated as the one on WOW or Lineage, so the goods transacted are weapons and hats.

⁵¹ See: http://www.reddit.com/r/tf2/comments/kmzuq/ive_made_10000_usd_selling_hats_ama/ Accessed November 10, 2011.

⁵² See: <http://theonlinesociety.com/2011/12/the-50-million-virtual-millinery/> Accessed January 1, 2011.

In addition to the discrepancy between those who have and those who have not in games like World of Warcraft, where gameplay is geared towards the accumulation of powerful weapons, armor, spells and other prestige items, there are the have and have-nots, whose given conditions are extrapolated to the gamespace and exert a strong effect on its perception. As explained, the gold farming phenomena is prevalent within MMOG's and most of the farmers come from developing countries, in particular from China, which has both, a widespread broadband internet infrastructure and cheap labor due to the country's primarily manufacturing background. Or as one reporter put it: Youths prefer to work 12 hours a day playing games in a gold farm rather than spend such hours in a Chinese coal mine.

Chinese gold farmers commonly report that they are target of racist attacks and jokes. Moreover, there are in-game "death squads," set to kill gold farmers under the rationale that the farmers are exploiting *their* territory and its resources. When a player is killed she respawns at a given point far from the farming grounds and her displacement back to such grounds is not just tedious and time consuming, but its timing might let the player out of a specific raid to a location or an epic battle with a boss⁵³ which outcome yields considerable wealth to the fighters.

So far, we have seen that gamespace is experienced under disparate optics conditioned by such factors as player expertise, play style inclination and external to the game forces, such as low-income play laborers compelled to play for work. Multiple players inhabit the gamespace and these players should not be universalized into one overarching player-navigator of a given gamespace. Thus it also makes little sense to extrapolate a universal "genius loci" to a gamespace. Although gamespaces often

⁵³ A very strong, computer-controlled opponent. Boss battles are generally seen at the climax of a particular section of the game. Most of the times treasure can be found after defeating a boss.

appear to mimic natural environments with hills, oceans, horizons and other familiar features of the earthly world, the contours of gamespace are ordered by play mechanics which are heavily embedded in the economic and social effects and conditions of the game. This situation is a radical departure from the natural conditions contributing to a phenomenological analysis in architecture, such as an understanding of place as a dwelling that has arisen to protect humans from nature. Yet even here we should avoid the danger of reducing gamespace to mere play mechanics. A more nuanced critical understanding of gamespace accounts for a multiplicity of players passing through a given place, with different play objectives and subjective frameworks.

1.6 Non- Places

In many ways gamespaces, as a recent stage of cultural, technological and urban development, embody what anthropologist Marc Augé noticed when reflecting on how *places* are disappearing and being replaced with other ways of negotiating space. Augé's term for these shifting localities is non- places and he states: "If a place can be defined as relational, historical and concerned with identity, then a space which cannot be defined as relational, or historical, or concerned with identity will be a non- place (77)." For Augé, contemporary life happens (takes place?) increasingly in such non- places as airports, hotels, supermarkets or in front of TV sets, ATMs or computers. I should add to that also, following Richard Coyne elaboration of non- places, that within them "the chief cognitive demands are way-finding, following a bureaucratic procedure, or mere consumption."



Figure 7. Half-Life2. Valve Corporation. 2004. God Mode. Luis Hernandez Galvan.

Through the rising importance of signage and a flowchart- like approach to design, these places tell us what to do, just the opposite of traditional places where the sense of orientation and belonging are achieved by the means of inhabitation instead of transit.

Videogames are spaces of transit, as I said before, not only the player flows from the beginning to the end, but also transits through multiple instances of videogames. Non-places have an ephemeral nature, they accommodate human activities at given points in space and these points are susceptible to either being displaced or replaced.



Figure 8. Half-Life2. Valve Corporation. 2004. God Mode. Luis Hernandez Galvan.

While the Brandenburg Gate's grounds make sense in- place, and we could hardly imagine the gate lying next to, say, an autobahn, the non-place of Kansai airport may be theoretically displaced along the coast of Osaka without any major shock. At these non-spaces that supermodernity has spawned, speed and efficiency take precedence over thought and engagement. As Richard Coyne ironizes: "Non-places deploy signs and symbols in the supposedly unambiguous language of the propositional clause ("wait



Figure 9. Half-Life2. Valve Corporation. 2004. God Mode. Luis Hernandez Galvan.

here”), rather than relying on the rich layering of custom, history, and meaning found in places. A sign saying “wait here” would be superfluous in the vestibule of a cathedral or temple, as the appropriate behavior or action is already inscribed in the architecture and ritual practices of the place. Neither would we require a text saying “think of god,” or “consider your finitude” in such places (3).”

Ephemeral architecture has a volatile nature: it is not built to last (although in some cases does), but most of the time it is built and then forgotten. This concurs with those

gamespaces that have a very specific life, spanning from the beginning of the game towards its completion. Although of course some games have certain degree replayability, this generally doesn't occur due to the series of rhythms marked by the consumer market.

Parallel to Augé's affirmation that the city becomes *a la carte*, the player can choose from a wide array of gamespaces to traverse by ranging from the inner workings of Eden, the rogue supercomputer which is to be shut down in the game Rez, to hunting Osama Bin Laden in Pakistan or just taking a stroll in the generic city of CityVille. The gamespaces the player traverses in the space of weeks, months or years have not come into existence through a phenomenological interaction between natural and built environment and they do not exhibit a spirit of genius loci unique to each location, although as I pointed out before, the local conditions of the player are an important component of her subjective experience. These ephemeral sites of transit are primarily shaped by both game mechanical functions and the players' differing social uses of the space. Gamespaces are an important addition to the social fabric of everyday contemporary life and I shall explore more of their unique qualities in the chapters to come.

CHAPTER 2. TOPOLOGICAL REPRESENTATIONS IN GAMESPACE

“Very often the perfection of an image depends on its not resembling the object as much as it might. For instance, engravings, which consist merely of a little ink spread over paper, represent to us forest, towns, men and even battles and tempests. And yet, out of an unlimited number of different qualities that they lead us to conceive the objects, there is not one in respect of which they actually resemble except shape. Even this is a very imperfect resemblance: on a flat surface, they represent objects variously convex or concave; and again, according to the rules of perspective, they often represent circles by ovals rather than by other circles, and squares by diamonds rather than by other squares. Thus very often, in order to be more perfect qua images, and to represent objects better, it is necessary for the engravings not to resemble them.”

René Descartes (245).

In order to see gamespaces as non-places it is necessary to understand geometry as the substrate that facilitates space. Augé makes a distinction between geometrical and anthropological space akin to the one between doing and seeing, which in turn suggests a picture and organizes movements (80). In the following chapter I will analyze the representational spaces of computer games and show, through radical design strategies, the capacity of gamespace for expanding everyday experience.

I will discuss the most prevalent projection systems within game worlds, in order to understand the experience of the player in space. Projection systems are deployed to help or hinder the gamer in her negotiation of the topology of gamespace. Formal

aspects of the representation of gamespace have evolved from artistic and scientific practices which predate the digital age.

The main argument of this chapter is that such systems of representation are capable of propitiating a wide range of responses to gamespace and that such processes in turn, enrich everyday life by the means of taking the player's perceptions to an expanded spatiotemporal field. A player may experience a very strong involvement with gamespace that is often visceral, as is the case in the vertiginous skyscraper hopping game of *Mirror's Edge*, in which the player's own proprioception is affected by the act of playing. A sense of spatial detachment can also be accented by the use of so-called God's mode point of view, overseeing a world of tiny characters, as in the game *Black and White*⁵⁴, where the player's *locus of manipulation*⁵⁵ is depicted as a hand that might deal either joy or sorrow to the villagers.

I argue that the player's involvement with the gamespace by the means of sensory perception comes to a critical point in games such as *Echochrome* which, by the means of employing the geometrical projections of the game topology in an ambiguous manner, is able to open up the experience of navigating through Reutersvärd's impossible objects.

⁵⁴ Molyneux, Peter. 2001.

⁵⁵ A term coined by Peter Bayliss, which refers to the "in-game position of the player's ability to assert control over the game-world, whether this is a visible character, an implied avatar, or a graphical user interface cursor." I find this term more appropriate than "avatar," "character" or "toon."

As indicated above by Descartes in relation to abstracted means of expression, visual phenomena can be interpreted in varying ways depending on the frame of intelligibility. Differing spatial formulas and degrees of abstraction have been constructed in various cultures at disparate historical moments for representing space intelligibly to a viewer. I have also pointed out in the first chapter that Juul recognizes that “a certain level of abstraction” is an open opportunity for the player to exercise her imagination and therefore, to appropriate the game as her own. By the means of an approach indebted to art, history and architecture, I will outlay some of the primary schematic projections for representing space in games to the player, highlighting similarities to artistic, scientific and architectural representative code that anticipate and prefigure ludic formations of computer gamespace.

While these conventions stem from specific societal and cultural sources at disparate points in time, in the case of representation, the assemblage produces a common visual language which mostly all players nowadays share by the means of a cultural synthesis which is by no means reductive. This synthesis is made possible through the global distribution/ consumption cycles of cultural products and it is that by such processes they become ubiquitous non- places

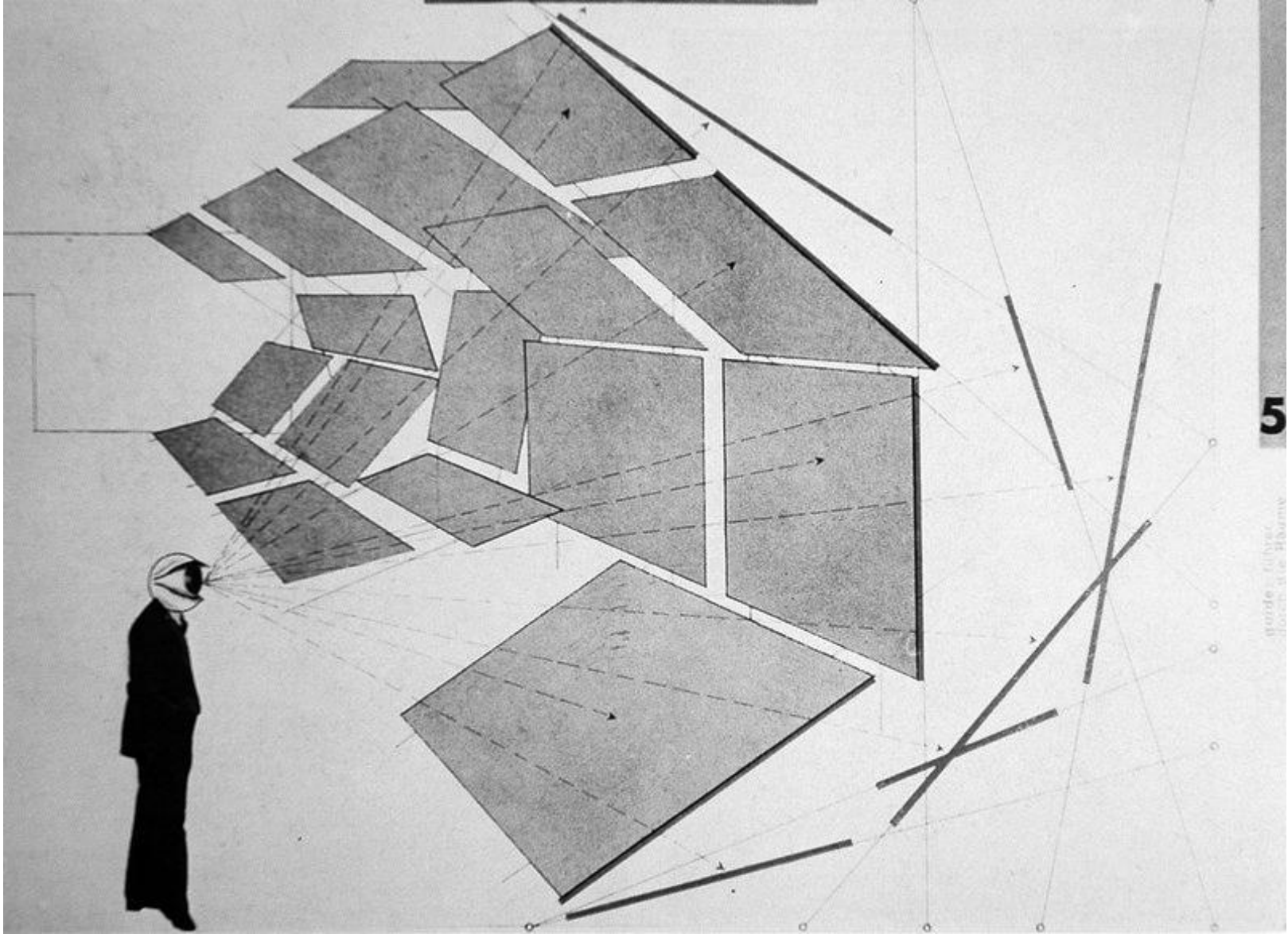


Figure 10. Bayer, Herbert. 1930. Drawing for an Architectural Photo Exhibition in Perspective and Section. © Bauhaus Archive.

2.0 Building Three Dimensional Space in a Computer Game

Unlike the visual comprehension of a static image as described by Descartes, in three dimensional videogames (and other 3D electronic media) the relation with videogames is through the moving image,⁵⁶ with which we interact and influence. It is generally understood that moving images “are the dominating representation of continuous

⁵⁶ Some developers are focusing their efforts on games for the visually impaired by mainly targeting their aural and haptic capabilities, but these games are not representative of the vast majority of videogames.

movement in space (Nitsche 67)⁵⁷,” that in the case of games are rendered real-time by the means of a “game engine”. Their output is projected, most often than not, on a plane embodied in a computer monitor or TV screen. The development of game engines has gone hand-in-hand with the achievement of an increasingly powerful way to compute and represent gamespaces. This is why I deem important to briefly examine them.

A game engine is a software system built to facilitate both game creation and gameplay. Each time the player displaces her locus of manipulation in gamespace, visual information on the screen is updated. The game engine can be understood as all the technology built around a game which is not specific to itself, in other words: it is generic and interchangeable. For example, the Valve© game engine, “source”⁵⁸ is shared by Half-Life2, Half-Life 2 (Episodes one and two), Team Fortress 2 and Portal⁵⁹. The game components (also referred to as assets) will then be the game-specific content, such as particular models, sounds, animations, AI⁶⁰, and physics. These components are what makes particular games unique in terms of visual allure and can also convey narrative.

57 Interestingly enough, digital video images are comprised of three different types of frames: I-frames, P-frames, and B-frames, where I-frames specify a full picture (equivalent to a still frame), P and B frames contain only part of the image information, the information which deals with movement, in order to optimize compression rates. A digital moving picture (video) then, is defined by the prediction of changes happening in time. This is also referred to, as inter-frame parallelism.

58 Marketed as “widely recognized as the most flexible, comprehensive, and powerful game development environment available.” from <http://source.valvesoftware.com/> Retrieved October 15, 2010.

59 From Valve software website. <http://source.valvesoftware.com/> Retrieved October 15, 2010.

60 Artificial Intelligence.



Figure 11. Team Fortress 2. 2007. Valve Corp. Post-Mortem Picture. Luis Hernandez Galvan.

The engines are designed to render gamespaces in a 2, 2.5 or 3 dimensions, by the means of different systems of representation. These conditions are built natively in the engine and I will briefly talk about them in order to understand that the evolution of game engines is directly related to the representation of gamespace and its constituents as afforded by technological development.

While there are games in different dimensions than the ones mentioned above, such as “Adanaxis⁶¹,” represented in four spatial dimensions; or the 1D rendition of the popular “Wolfenstein⁶²,” amongst others, the core dimensional components in the engines used

⁶¹ Andrew Southgate. 2005.

⁶² Wonder Tonic, 2010. <http://wonder-tonic.com/wolf1d/> Retrieved December 15, 2010.



Figure 12. Team Fortress 2. 2007. Valve Corp. Post-Mortem Picture. Luis Hernandez Galvan.

are still either 2 or 3D⁶³.

Thus there are a growing number of game engines which vary in complexity, but they often share a basic form comprised of a rendering engine (renderer), a physics engine, sound, animation, and artificial intelligence, threading and a scene graph. They can also include scripting, networking, streaming, memory management and localization support.⁶⁴ The renderer displays the visual information a player interacts within a 3D videogame.

⁶³ Wolfenstein 1D is built on Flash, mainly a two- dimensional application, while Adanaxis' designer, Andy Southgate states: "The 4D rendering in the game is a pale approximation of what a real image would look like. To do things properly, the power of your graphics card would need to increase by roughly the width or height of the screen in pixels for every dimension added. That's around 1000 times just for 4D! Adanaxis does render more that just a 3D slice of the 4D world though. It squashes a 4D volume onto the screen, so that you can see a large chunk of the world and things don't get lost." (From the "about" section of the game's package.)

⁶⁴ For a detailed description of game engines, see: "Game Engine Anatomy 101" at <http://www.extremetech.com/article2/0,2845,594,00.asp> Retrieved October 15, 2010.



Figure 13. Team Fortress 2. 2007. Valve Corp. Post-Mortem Picture. Luis Hernandez Galvan.

The renderer, then, presents us with an array of polygons, what the computer's hardware⁶⁵ uses to render a primitive, which are the most basic rendering units such a piece of hardware can process. A polygon is a two dimensional shape bound by a closed path composed by a finite number of straight lines, videogame engines can handle 3 and 4 vertex polygons, namely triangles and quadrilaterals (sometimes also shortened to quads) respectively, although as stated before, a video card will only deal with triangles.

A triangle, itself comprised of three vertices, can be described through a set of three different values according to the positions of such vertices in space through the Cartesian rule of defining their x, y and z coordinates. In addition to triangles, patches

⁶⁵ Video game consoles are essentially computers dedicated solely to playing videogames.

are now becoming more commonly used. Patches (another name for higher-order surfaces) facilitate a certain geometrical description (usually geometry that involves some kind of curve) by the means of a mathematical expression rather than just listing out a vast series of polygons and their positions in gamespace.

These rendered arrays of polygons then, are viewed from the point of view of a camera, which is a technologized metaphor for (monoscopic) human vision, rooted in the cinematic realm. Numerous game analyses have paired gamic and cinematic studies (in terms of the use of the camera, for this particular example) relating gamespace to existing cinematic traditions, (Drucker and Zeltzer) or analyzing the camera paradigm and how the techniques of its usage often convey certain moods, which aid the transmission of narrative in gamespace.

The representation of gamespace at a basic level, or what De Certeau refers to as “spatial stories (115),” needs to take into account the generation of space inside the engine and its limits as well as the various projections in their historical context.

Different genres are intrinsically bound to distinct spatial representations. The most prevalent projections in 3D games are either the perspectival or the axonometric. Both systems go a long way back in the history of the arts and sciences, as far as humans have tried to display three- dimensional objects in two- dimensional planes. The use of the different projections is intimately related to each game's genre: while shooters are linked to a camera in perspective, strategy and role- playing games often make use of

the isometric view.

As stated earlier, there is a direct relation between the game world and its presentation, which affects the player's understanding of ludic space and her interaction with and within it.

2.1 Vision

Joel Snyder notes that Descartes assertions from the cited paragraph, are only paradoxical to the ones who believe that a picture's significance heightens in direct proportion to its resemblance of the depicted objects, or responds to other types of privileged or natural correspondences (such as impression or isomorphism). He also stresses that Descartes insistence in “that some pictures, at least, are more fully representative of objects or actions to the extent that they fail to resemble them (499).” Ernst Gombrich equates our responses to realistic depictions as “something akin to visual hallucination (208).”

Videogames can be very well defined using Gombrich's statement. The invention of schemata for laying down clues on the screen, which supplant the bits of information we seek when looking at nature is a practice that has been exacerbated in game production, where the resources are often limited (i.e. the number of calculations processed by the hardware and rendered by the engine in realtime, as measured in frames per second).

In order to synthesize environments that propose an apprehension in terms of natural objects, videogames make use of different instrumentations, namely the use of projections as “keys which open the locks of our senses, (201)” referring to the set of cultural norms by which we can comprehend a representation of space.

Projective tools are not without an influence on the practitioner as a force that shapes the process of production and the product itself. For Stan Allen, projection is not merely a detached, abstract realm which stands in opposition to the physical fabric of art or architecture. It is via the transactions between the states of the abstract and the concrete that the “interplays of thought and reality; imagination and realization; theory and practice (6)” come together.

In the gamic realm, the projection *is* the space, not its representation, thus, diverse projections are used to convey different forms of spatiality which are in turn, characteristic of specific genres, and the implicit discourse such projections carry along with them.

Projections are protocols used to convey three- dimensional objects into two- dimensional planes and these projections can be parallel (as when the lines of sight are equidistant to each other and there is no vanishing point and no visual cue of distance is provided) or perspectival (where the projected lines emerge from one or more vanishing points, and the smaller the objects look allude to them being further away from the viewer). Representation is concerned with picturing reality by the means of abstraction,

it is then, that representation is instrumental in expanding the perceptions of everyday life through inhabiting gamespaces. I will discuss some of these choices of representational modes and their implications in the rule- bound realm of games.

2.2 Shooter perspective

In most 3D games the camera tends to adopt the rules of perspective, which is a codified form of projection. The rules of perspective (or “seeing through” in an etymological sense) were rationalized and written down by Leon Batista Alberti in his treaty *De Re Aedificatoria* or the *Ten Books of Architecture* (after Vitruvius) which is considered to be the first architectural treatise of the Renaissance. According to Alberti, linear constructs are projected in the mind, as opposed to material constructions in the world, (qt. in Allen 2) Alberti thus describes a painterly technique deployed as a means to represent space in the mind. Yet, as I have argued that Nitsche shows, computer games exist in their own expanded space located between virtual and concrete realities.

Perspective has been studied extensively and its geometric principles are fairly simple: a horizon can be represented by a straight line in which one or two vanishing points are positioned (a third vanishing point might be present perpendicular to the horizon) and from such points a series of traced projections are capable of defining objects in space and in relation to other objects, where nearer volumes appear larger than the ones further apart and the size of an volume's dimensions along the line of sight are relatively shorter than dimensions across the line of sight. However it is not only the mechanics of

representing volumes in space which is of interest for this thesis, but also the underlying significance of a mode of representation.

For Allen, the use of perspective works as a function of time which “orders, surveys and re- creates the past from the privileged viewpoint of the present (7).” Spatial reading then, is in function of depth where the spectator is put in the present, traversing time through distance and this act within a temporal field constitutes a support to narrative history.

These views come to the fore when analyzing time based media such as videogames. Games containing a camera in perspective are amongst the more immersive ones, the player sits on the cockpit of the plane or a racing car or wanders amongst the labyrinthine space of a first person shooter. Here the player is clearly in the midst of the action, both in space and time. While traveling the space via the game avatar's body, the past has already been 'left behind' in the space already traversed. The future lies ahead, full of surprises.

The player is moving across time and space from a privileged position of control and it comes as no surprise that the videogames which put the player's locus of manipulation in the first person perspective tend to enhance what Alexander Galloway calls the “predatory vision (50).” Due to the genre’s intrinsic properties, there is a two- way connection between first- person shooters and 3D gamespace.

The shooting game is a genre whose gameplay is grounded on weapons based combat. The epitome of shooting games is arguably the FPS, or first- person shooter, which as its name indicates, provides a first person perspective of the gamespace through the eyes of the main character and which links the player with her avatar most often than not, through a weapon- wielding hand.

The desire to build a game engine which can compute a three- dimensional game, was at the core of John Carmack's (Kushner 77) idea for the games he was designing with John Romero back in the 1990's, around the time when they started their game company, id Software.

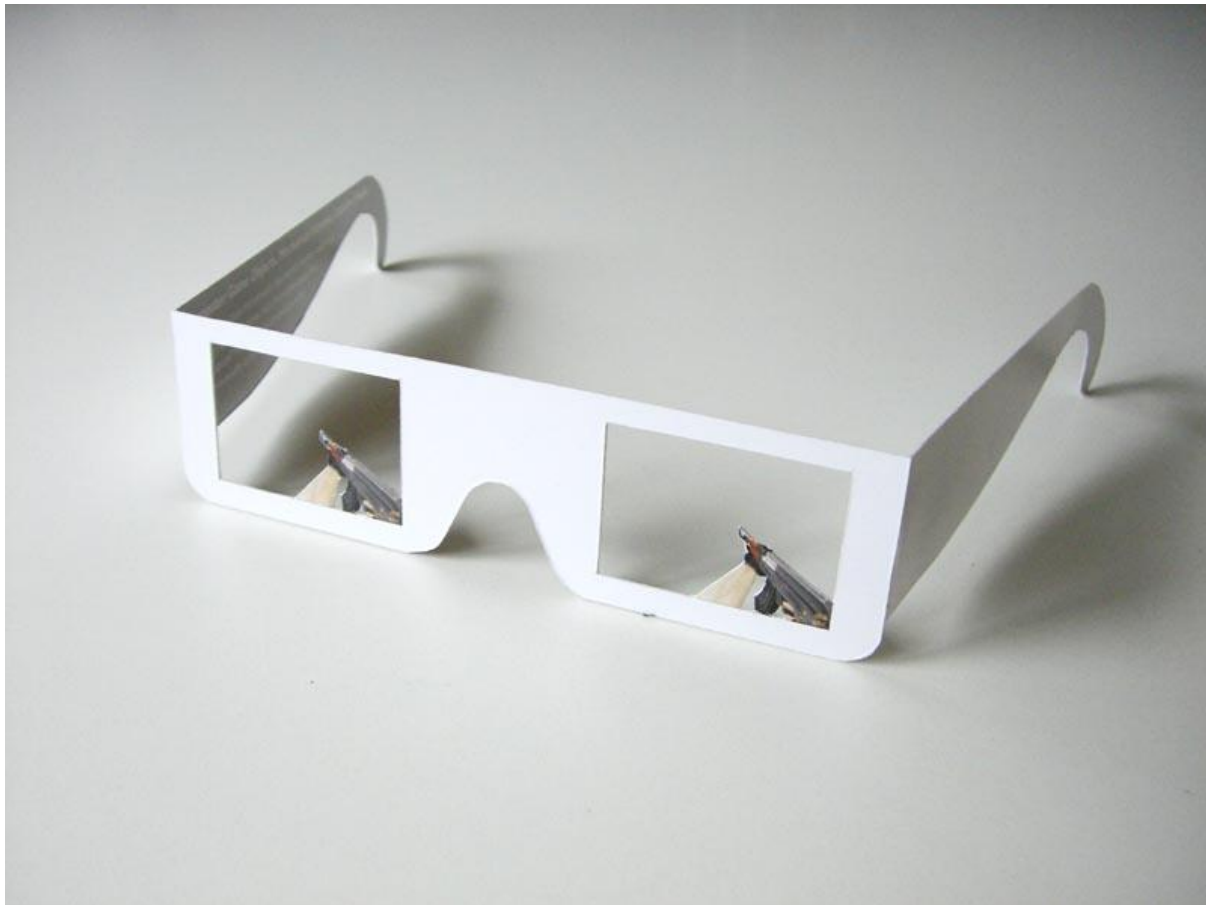


Figure 14. Bartoll, Aram. 2006. First Person Shooter.

They built Catacomb 3D, “which incorporated texture-mapped walls of gray bricks covered in green slime. To play, the gamer ran through the maze, shooting fireballs out of a hand that was drawn in the lower center of the screen, as if one was looking down on one’s own arm, reaching into the computer. By including the hand, id Software was making a subtle but strong point to its audience: You are not just playing the game, you’re inhabiting it (Kushner 87).” While Catacomb 3D was not in strict sense the first, first person shooter, it contained all the elements that contemporary FPS's possess and also gave rise to industry- wide adoption of 3D graphics.

For the first time, as opposed to for instance, a game of shooting space ships against a black empty screen, the gamespace assumes all the functionality of architecture, encompassing, channeling, blocking, opening, as well as importing associations from “real life:” urbanity, shelter, opulence and decay.

Third person shooters differ from the ones in first person, in that the gamer is able to look at her avatar, or game character, from a distance, which gives the player a wider view of the gamespace, a common problem which is criticized of first person shooters and the limited proprioception of the player. In some cases, the same game can be either played in first or third person point of view.

Another shooter derivative is the “on rails shooter”, where the player's navigation through gamespace is not under her absolute control, the player mostly focuses on shooting a series of elements which appear in this rollercoaster- style ride. While I will

go back to detail the particular differences in the shooter genre, when the gamer is placed in a centralized position in the game world, it is implied that a geometric order exists and such order is common to bodies and space. (Allen 9)

Perspectival projections are an abstraction of human vision, akin to “looking through a window into space (Nodelman)” where the material surface upon which the individual figures or objects are drawn or carved is thus negated, being represented as a mere “picture plane,” upon which a spatial continuum is projected and which is understood to contain all the various individual objects (Wölfflin 77). These projections are bound to some intrinsic rules.

2.3 Proprioception

As already discussed, for Allen the use of perspective comes with an implicit acknowledgment of a certain, temporary condition where the past is behind the user's point of view and the future lies ahead.

A game which strongly exemplifies this postulate is “Mirror's Edge.”⁶⁶ This game situates the player in a dystopic city of the near- future: the gleaming and extremely tidy city stands as such because of the zero- tolerance of a totalitarian regime that came to power through the suppression of civil rights and annihilation of dissent.

⁶⁶ Electronic Arts. 2008.

You play the protagonist Faith Connors, whose job is that of “runner”, a courier carrying physical information between revolutionary groups in the city which are not able to rely on electronic channels since such are heavily monitored and eavesdropped upon. To carry on her tasks successfully, Faith is challenged to navigate through the city by running across walls, jumping between rooftops, sliding on facades and using cables as zip- lines. She relies on parkour⁶⁷ and free running techniques.

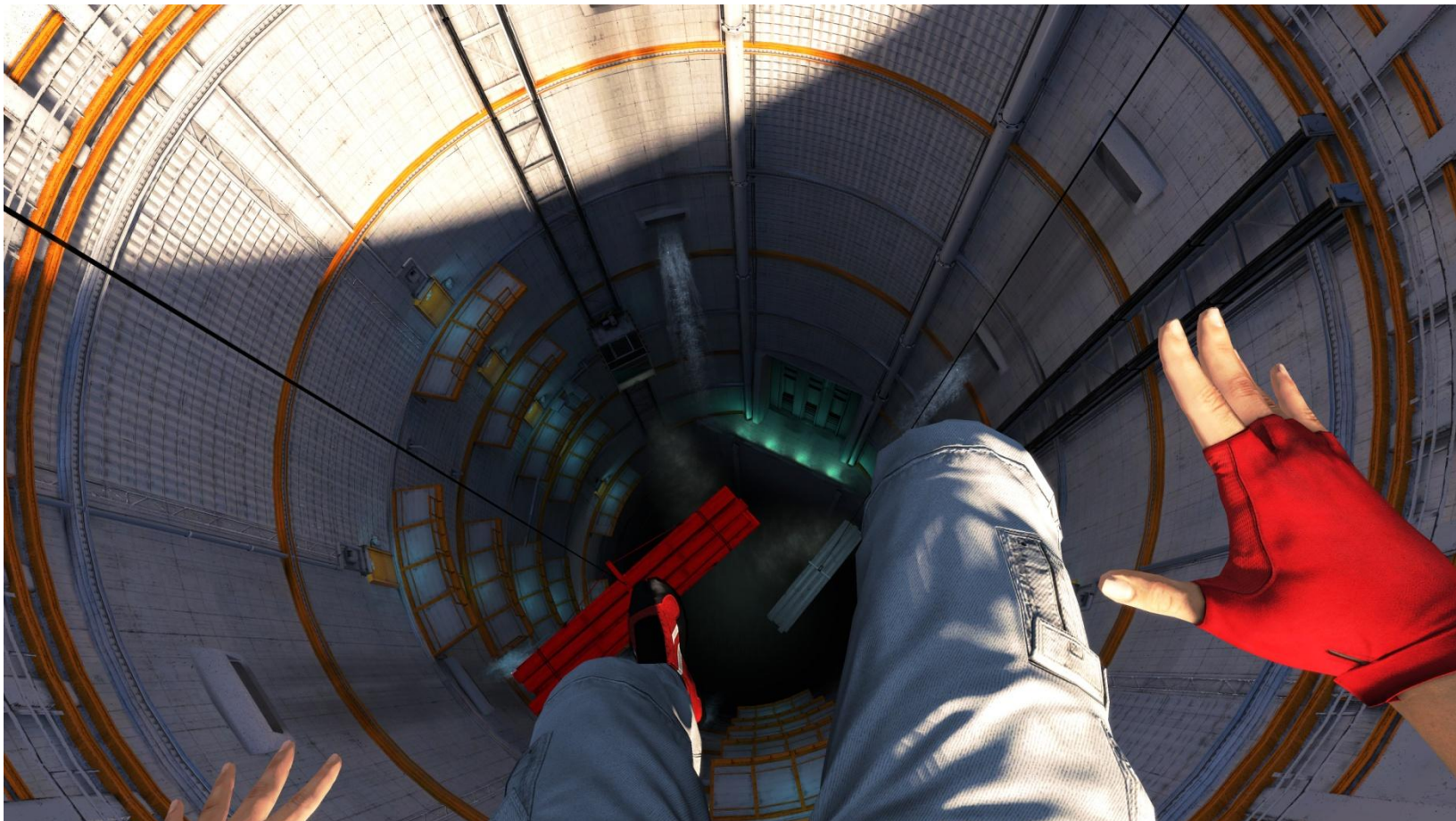


Figure 15. *Mirror's Edge*. 2008. Electronic Arts.

⁶⁷ Parkour is a utilitarian discipline based upon the direct, successful, swift traversing of one's surrounding environment via the practical application of techniques, based around the concept of self-preservation. It is a non-competitive, physical discipline of French origin in which participants run along a route, attempting to negotiate obstacles in the most efficient way possible, using only their bodies. Skills such as jumping, climbing, vaulting, rolling, swinging and wall scaling are employed. Parkour can be practiced anywhere, but areas dense with obstacles are preferable and it is most commonly practiced in urban areas. From <http://en.wikipedia.org/wiki/Parkour> Retrieved December 21, 2010.

The game is played in first person perspective, but unlike many others, allows a wider range of movements such as sliding beneath objects, almost- horizontal wall running, barrell- rolling and shimmying across ledges, on top of the jumping, running, strafing and crouching (the default actions provided to the player in mostly all other games of the like). The lack of a HUD (or heads up display⁶⁸) provides the player with a natural human vision, a naked eye, with which she can see the limbs and chest of the avatar while negotiating the gamespace through parkour movements when the appropriate in-game actions are triggered.

⁶⁸ A HUD is simply a collection of persistent onscreen elements whose purpose is to indicate player status. HUD elements can be used to show, among many other things, how much health the player has, in which direction the player is heading, or where the player ranks in a race. This makes the HUD an invaluable method of conveying information to the player during a game. From Gamasutra. http://www.gamasutra.com/view/feature/2538/off_with_their_huds_rethinking_.php Retrieved February, 14.,2011.



Figure 16. Mirror's Edge. 2008. Electronic Arts.

This game is relevant firstly because the partial visibility of the character's limbs and torso linked to the imagined movement of the human body in space as if performing of parkour stunts is an potent way of empowering the gamer's proprioception, effectively remapping the body schema so the perception of being in gamespace is exacerbated.

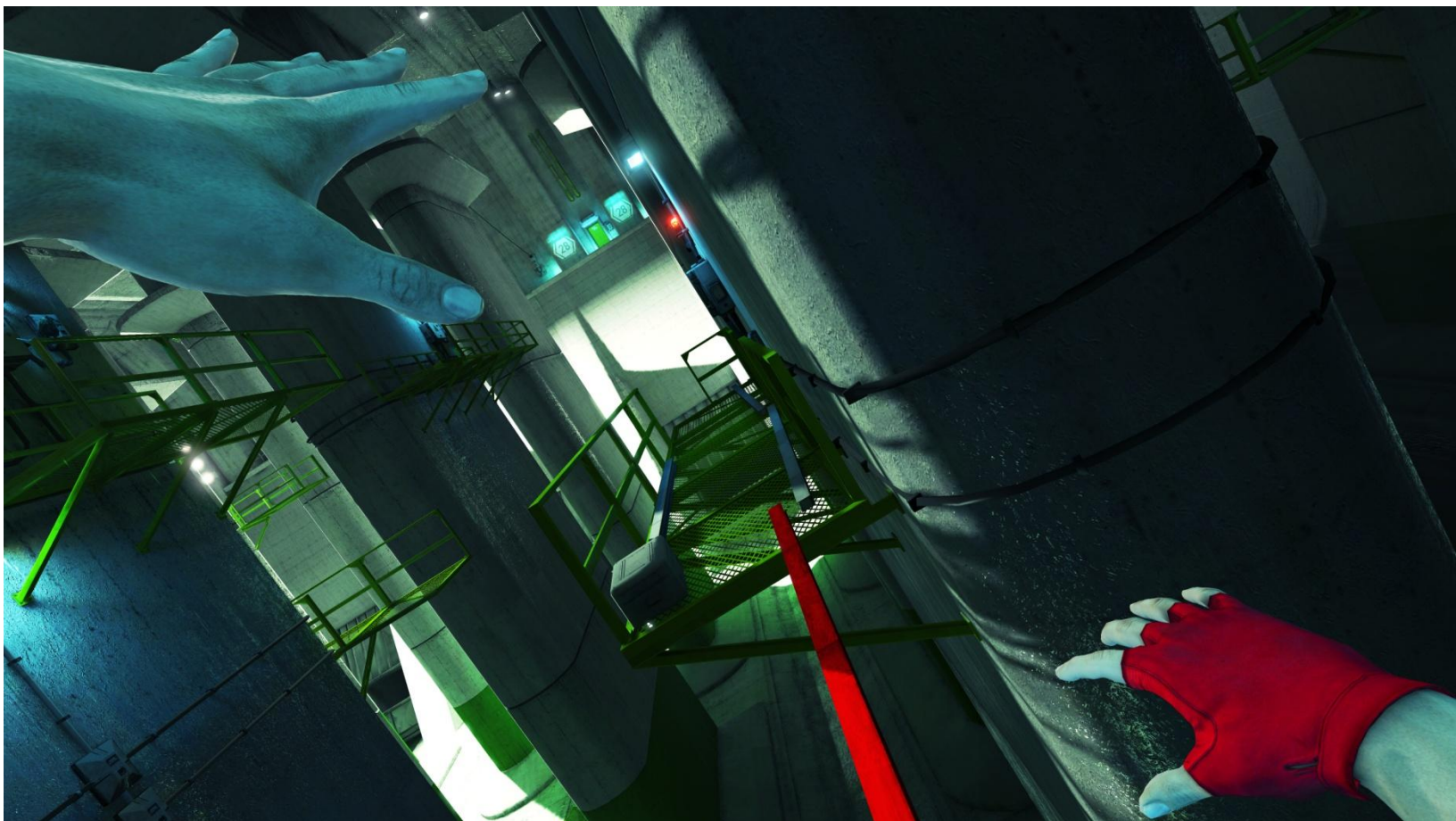


Figure 17. Mirror's Edge. 2008. Electronic Arts.

Proprioception from Latin proprius, meaning "one's own" and perception, is the sense of the relative position of neighboring parts of the body (Mosby's Dictionary 1285).

Proprioception is the sensorial system which is in charge of telling our brain what is the space that our bodies occupy, or its orientation in space and also the internal coherence between the body itself. The possession of proprioception inside gamespace is possible through metaphorical projections, by the means of image schemata.

Metaphorical projection, in the cognitive sense explained by Lakoff and Johnson, is the act of applying experience (or knowledge) from one area to another, therefore there is a

'source domain', from where knowledge is taken from, and a 'target domain' to which it is applied. Structural metaphors are “grounded in systematic correlations within our experience (61).” These metaphorical projections are based on Johnson's idea of “image schemata,” which are cognitive structures that organize our experience and comprehension.

Johnson argues that systems of spatial relations differ in a considerable fashion across the languages of the world, however, it seems that they are consistent with a single set of “primitive” schemas, or schematic mental images. These images include containers, paths links, attraction, contact, balance, orientations. All of these are “recurring structures of our bodily interactions with the world, and they exist across *all* our perceptual modalities (visual, tactile, olfactory, aural, etc) (29).

In computer games the player relies mainly on visual and aural cues, since tactile, olfactory and gustatory indications are simply not present by agency of the medium. Following Lakoff and Johnson, our kinetic experience acts as the source domain which informs our bodies that the globs of pixels in the screen are actually representing my vision while running and parkouring around a city I will never inhabit.

Although some sensitive persons can experience kinetosis (motion sickness) while playing computer games (or watching moving images, for that matter), and even more seasoned gamers can experience vertigo, the prevalence of the somatic sense of space makes the representational techniques used in the game, highly effective in telling our

brains that our bodies occupy that space and not the sofa in front of the TV set.

2.4 The axonometric puzzle

Another type of projection is the axonometric. Etymologically stemming from the Greek axon (axis) + metria (measurement),⁶⁹ axonometric is therefore to measure along axes. An important particularity of these projections is the lack of a vanishing point, by the means of eliminating the vanishing point and treating all the projections in the system parallel to a 3 dimensional coordinate system, the scale of distant features is the same as for the near features, this is why the axonometric projections are said to be in “true magnitude,” since the objects depicted show their absolute size independently of their position in space, instead of being reduced in size when distant, as per the rules of perspective.

In his essay “A Chinese Perspective for Cyberspace”, Jan Krikke argues that axonometric projections have roots in Chinese culture: *dengjiaotoushi* (translated as 'equal-angle see-through') had been used in classic Chinese scrolls as well as in Japanese prints (Krikke) such scrolls might measure up to 10 meters in length by about forty centimeters high. Hand scrolls depict a synthetic view of space and time, which is based on a scenario, rather than a subject. One of such scrolls conveys the function of a sailing chart and was traced by Admiral Cheng- Ho, around 1400 AD throughout his maritime explorations in Asia.

⁶⁹ The Online Etymology Dictionary. <http://www.etymonline.com/index.php?term=axonometric> Retrieved December 27, 2010.

On these scrolls, various characteristics are noteworthy: The entire scroll is one single, continuous image, as opposed to a collection of them, they are also a form of narrative art, as the scroll was unfurled on a tabletop in segments of about 60 centimeters each, a continuous event will be depicted in time and space, providing the reader with a development, rather than a situation, in the case of Cheng- Ho's map, it portrayed a succession of ports traveled to and explored over an extensive period of time.

Technically, the absence of a single vanishing point was solved by positioning a series of them (one per scene) outside of the viewport, this practice then, does not assume a fixed position of the viewer, or point of view. Thiadmer Riemersma reminds us that it is because of this solution that the Chinese scrolls lack an explicit light source and are, therefore, unable to cast shadows. Solving the z- axis as a series of parallel lines through the picture, has the effect of positioning the horizon at an imaginary line infinitely above the painting. The Western- trained eye sometimes finds that these scrolls propose 'unreal' perspectives because of such techniques.

The use of axonometric projections in the West comes later in history than the perspectival. Jan Krikke affirms that axonometry was introduced to Europe in the 17th

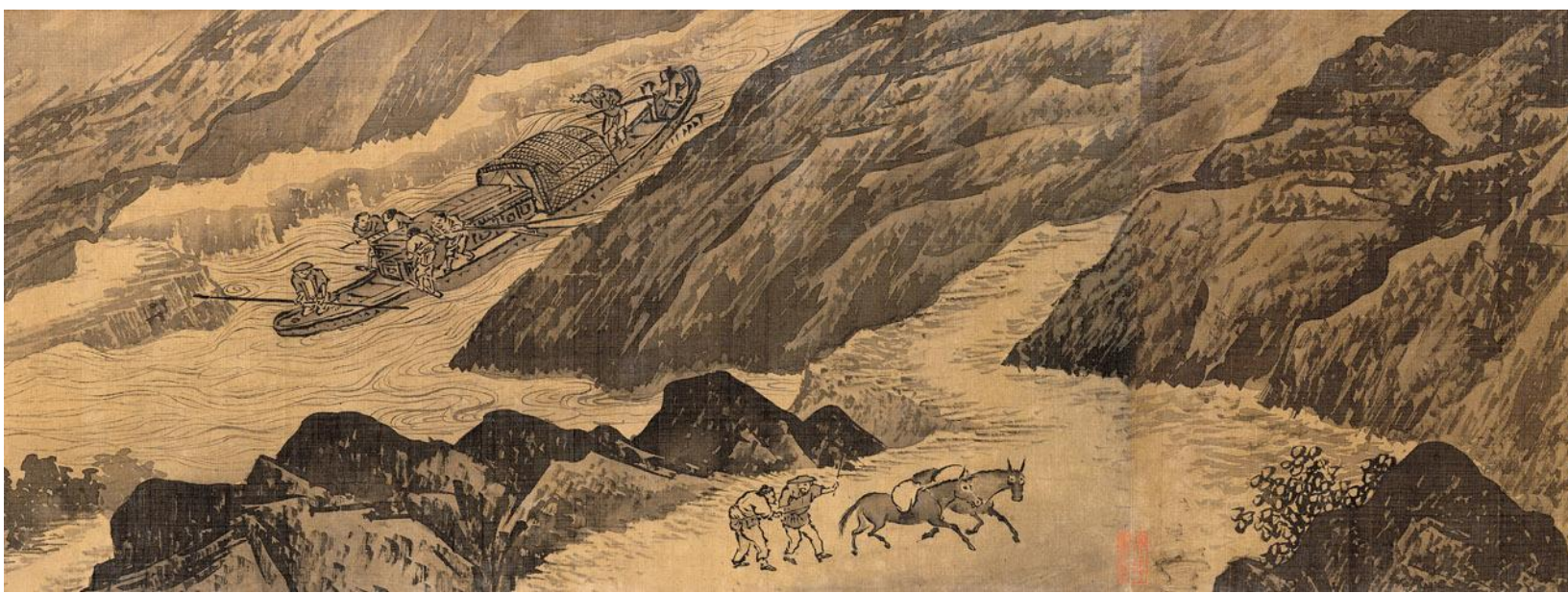






Figure 18. *Ten Thousand Miles of the Yangtze River (Sequence)*. Ming Dynasty. Anonymous (Detail).

century by Jesuits returning from China, although it wasn't widely accepted until it was given a mathematical foundation. The axonometric projection is a type of parallel projection (this is, devoid of one or more vanishing points) in which the represented objects are rotated along one or more of their axes relative to the plane of projection.

In 1822, William Farish, a chemist at Cambridge University, wrote of a system allowing for accurate technical drawing to be freed from optical distortion in his paper "On Isometrical Perspective"⁷⁰. Isometry means "equal measures," because as explained before, the same scale is used for height, width, and depth. This means that lines that are parallel 'in the real world' will remain parallel in an axonometric projection.

⁷⁰ Isometry is one of the types of the three axonometric projections, being the other two, dimetric and trimetric. For the sake of simplicity, I will not delve into the differences between the three types, but will make use of axonometry as a single unit. For a comprehensive overview on axonometric projections see Thiadmer Riemersma's: "Axonometric Projections - A Technical Overview" at <http://www.compuphase.com/axometr.htm> Retrieved January 05, 2011.

The parallel projections of objects in axonometric space are not be subjected to diminution in size, respective to their location, which is one of the properties of drawing in 'true magnitude'. This is advantageous to architects, since measurements can be taken directly from the image. Otherwise in perspectival representations, distortions result in situations where depth and altitude are hard to grasp and therefore the observer is susceptible to being tricked into optical illusions, as in, for example Oscar Reutersvärd's impossible objects, or some of M.C. Escher's engravings.

Axonometric projections have, since the 18th century, been heavily relied on by engineers and architects, which eventually came to exploit the technique's discursive and stylistic manners. In his quest for breaking with the past traditions in art, suprematist artist and architect El Lissitzky dismissed the perspectival representation as something which limited space, making it finite and closed. For Lissitzky, the use of perspective created a “facade view” of the world, by the means of reducing it to a cubic box (142- 145) while Suprematism “ha[d] extended the apex of the finite visual cone of perception into infinity.”

Lissitzky as well as a cohort of early twentieth century artists such as Kasimir Malevich, Piet Mondrian or Vassily Kandinsky (oftenly referred to as 'nonobjective' artists), resorted to the use of axonometric projections in their quest for art to be understood as paired to scientific and mathematical progress.

Axonometric drawing, being commonly taught in engineering schools, was also associated with mechanization and industrialization. Ballistics, optics and mechanical drawing were attractive to Lissitzky for their objectivity and technical precision, but these instrumental practices acquired new significance in the context of the avant- garde. “Instrumentality may work against the symbolic, but a new metaphysics of infinite space works against the instrumental. A symbolic dimension is grafted onto these technical practices (Allen 19).

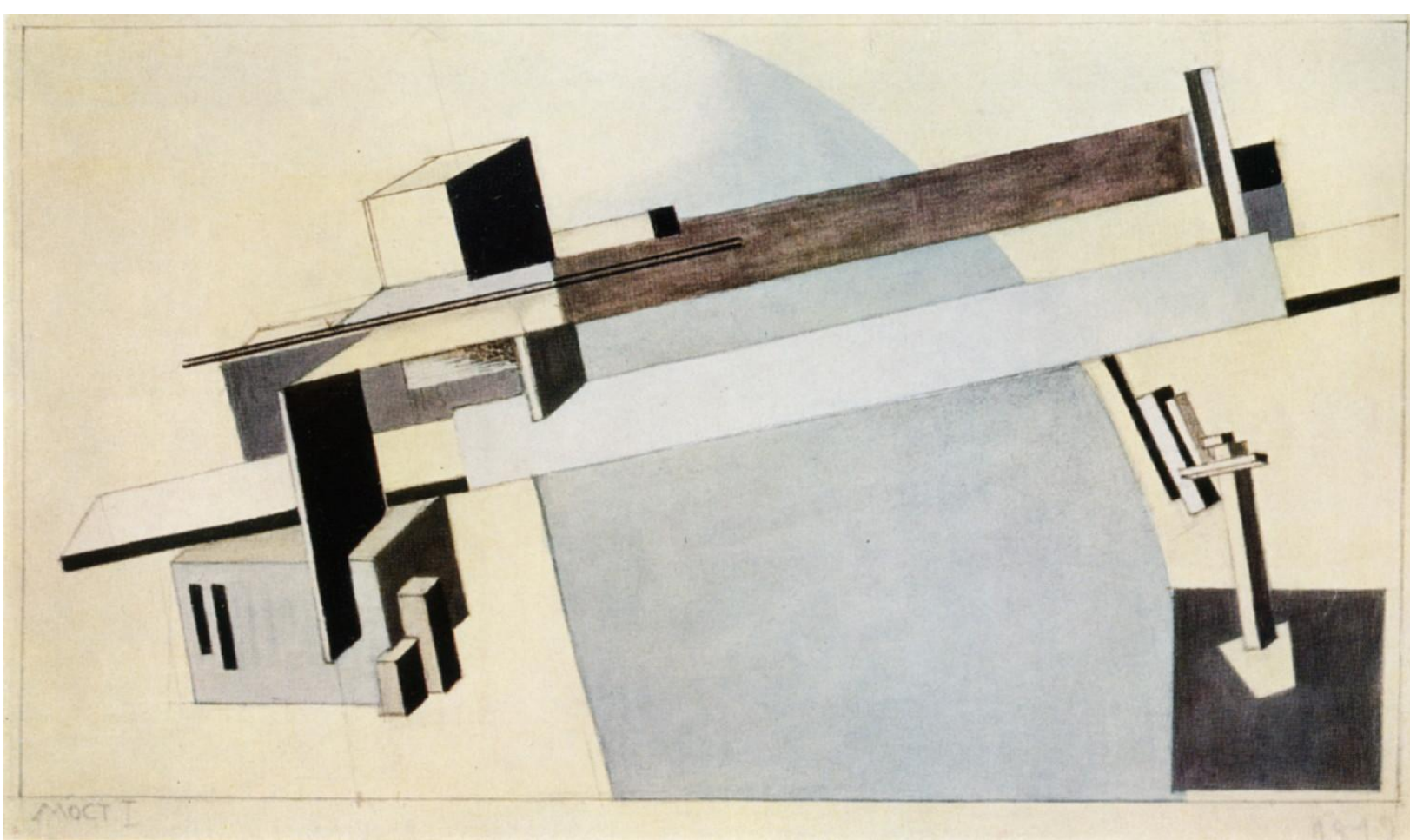


Figure 19. El Lissitzky. c1923. Proun 1A: Bridge 1.

Architectural theorist Stan Allen, notices that in Lissitzky's “irrational” space, viewpoint

and vanishing point are located at infinity, denying the subject the privileges of self-location (17): the viewing subject and the object of representation coexist in the same expanded field. Lissitzky's aim was to annihilate the illusion of three-dimensional space on a plane, while replacing it with an ultimate, infinitely extensible, irrational space.

At this point the nonobjective artists speculated that through the reversibility of the spatial field, delivered by the means of the axonometric drawing, new conceptions of time could be were also susceptible of being expressed. As perspective relies on a single point of view, which seems to freeze time and motion, the atypical axonometric space, suggests a continuous space where elements are in constant motion. Or, on the other hand, as in the Chinese scrolls discussed earlier, they depict not a static situation, but the development of a process. Stan Allen uses the example of the exploded axonometric where the different pieces of the represented object can be reconstructed in the imagination as a single unit by the process of mentally moving the pieces through the projector lines, suggesting the simultaneity of space and time (21).

For instance, when hand-drawing an axonometric view of an object, it comes in handy to use a specially reticulated piece of paper in order to expedite the process of tracing the angles of the different planes in mathematical correspondence to each other, although the draftsman, or artist, might come to a situation where the depiction becomes an impossible object, of the like of Reutersvärd's impossible objects. This problem is exacerbated when modeling objects using 3D software, one must constantly orbit the view around the model in order to check that it has internal coherence, instead

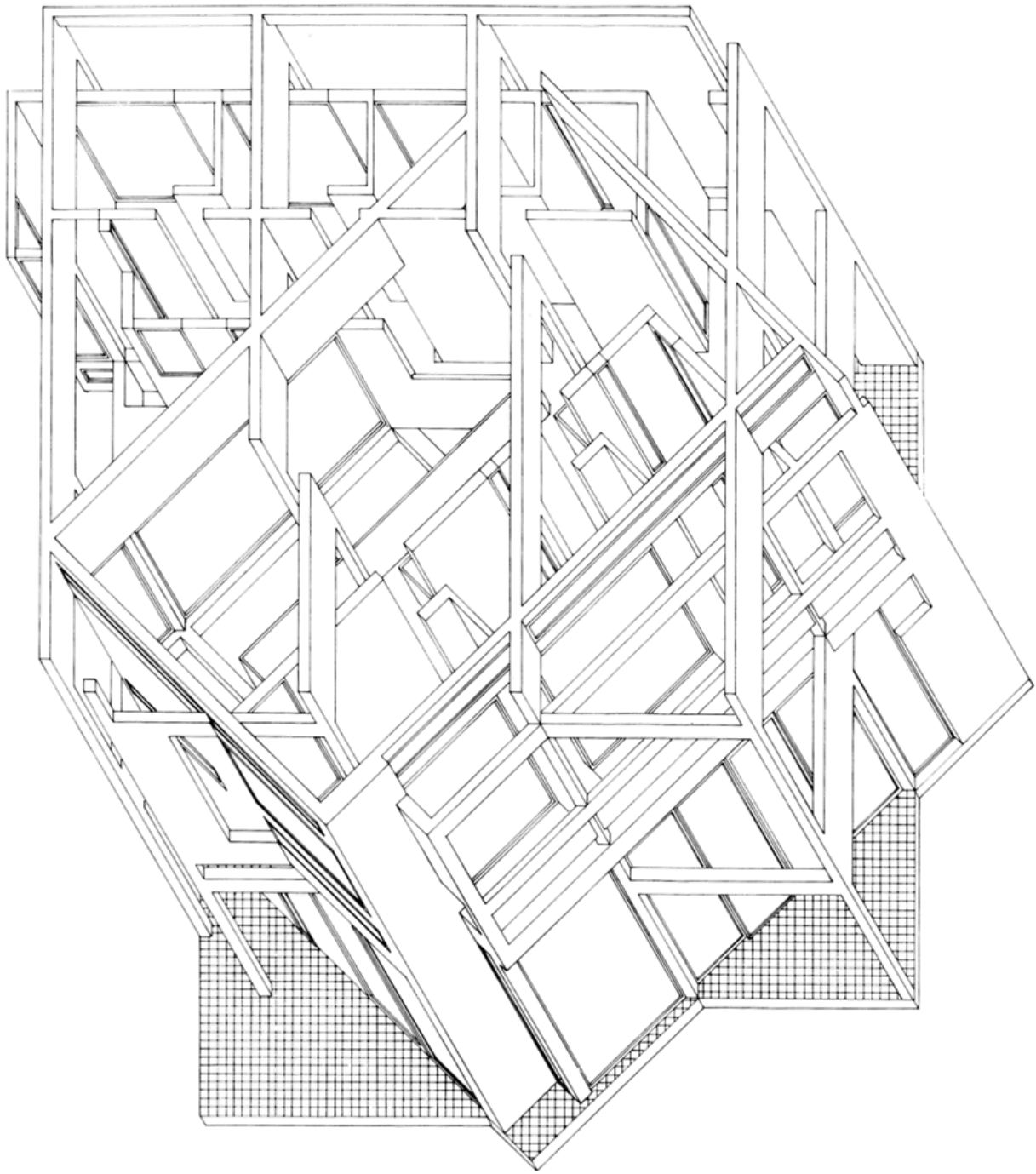


Figure 20. Eisenmann Peter. 1997. House III © Peter Eisenmann.

of being a disparate set of lines, planes and/ or volumes spawned in distant places within the 'infinite space' of the software.

It was in 1982, with the appearance of Sega's "Zaxxon", that videogames began using

axonometric projections “to give a three dimensional look to their graphics (Wolf 154),” many other games since, made use of some kind of axonometric projections (usually dimetric) because in using such a projection, a developer would easily 'fake' a three-dimensional world, using bi- dimensional graphic elements, such as tiles and sprites. Given the unique properties of the projection, the tiles were easily mapped across ample surfaces, giving the game a sensation of vastness and the sprites needn't to be scaled (much less perform computer calculations to simulate an accurate perspective).

These gamespaces, such as Q*bert⁷¹, Sim City⁷² or Age of Empires⁷³, were also often referred to as 2.5-D (or pseudo-3D) because, while they give the illusion of being three dimensional spaces, the game engine in charge of computing and rendering the gamespace is actually two- dimensional. In fact, it is hard to discern the use of a 'real' 3D engine in Sim City⁷⁴, which employs it, except for the enhanced effects and a more contemporary 'look' of the city and the game interface.

In his essay “Z-axis development in videogames” Wolf places the 2.5D developments as a middle point towards the reaching of real- time three dimensional computations⁷⁵.

⁷¹ Gottlieb. 1982

⁷² Wright, Will. Published by Maxis Software. First released in 1989.

⁷³ Microsoft Game Studios. 1997

⁷⁴ Maxis. 2003.

⁷⁵ There are some recent games which make use of either parallel or planar projections, despite being rendered primarily by the means of a 3D engine, such as “Donkey Kong Country Returns”, “Pandemonium”, “Nights into Dreams...”, “Viewtiful Joe”, “Shadow Complex”, “Strider 2”, “Kirby 64: The Crystal Shards”, “New Super Mario Bros.”, “Duke Nukem: Manhattan Project”, “Yoshi's Story”, “Tomba!”, “The Simpsons Game (for the Nintendo DS)”, “Sonic Rivals”, “Sonic Rush” and “New Super Mario Bros. Wii.” This is mostly due to stylistic concerns, since these games are sequels to two-dimensional releases. Recent videogames for consoles or the PC are produced in 3D for their vast majority.

Lissitzky's ideas of an irrational space which was represented by the means of parallel projections, where the sense of self- location is relative and both subject and object exist in an expanded field, anticipated the game- mechanics and the aesthetic feel of the videogame Echochrome⁷⁶.

Echochrome (無限回廊 MugenKairō, literally "endless walkway"), is a videogame which certainly makes use of the axonometric space in an irrational sense. It is a puzzle game where the gamespace is populated with impossible constructions and the player's task is to navigate successfully from point a to point b, by the means of performing a series of rotations (of either the game's topology or the camera that's looking at it).

Echochrome uses a technology called "OLE⁷⁷ Coordinate System," developed by Jun Fujiki. The OLE is an engine that determines the character's environmental interaction based on camera positioning. This engine takes advantage of the "limits" of the parallel projection systems, which as noted, facilitate not only the spawning, but the experience of "impossible objects" as navigable spaces.

In Echochrome, the player's locus of manipulation is a mannequin in perpetual forward motion and the player does not control the avatar, but the 'canvas' which the avatar traverses. The aim of the game is for the avatar to go through, or 'collect' several instances of itself scattered in the gamespace in order to successfully solve the different levels within a time limit. It is noteworthy that there is no set path, but a multiplicity of

⁷⁶ Game Yarouze, Japan Studio. 2008.

⁷⁷ Object Locative Environment.

options.

Gamespace in Echochrome is comprised of linear walkways, vertical columns and staircases. For instance, two independently floating pathways might appear far apart, as seen from the given point of view, which, when rotated will make the pathways connect visually and thus, your mannequin will be able to traverse them. There are some black holes that the mannequin might fall through, either to oblivion, or to a platform situated underneath. There are also other, white circles that propel the mannequin to higher ground. The player can make use of these vertical elements to hide the gaps between pathways and cross through as if no gap existed, and this hiding is also useful in concealing (and thus denying) the existence of black holes. To sum this up, these are Echochrome's "5 Laws of Perspective":

1. Perspective traveling: When two separate pathways appear to be touching, they are touching.
2. Perspective landing: If one pathway appears to be above another, it is above another.
3. Perspective existence: When the gap between two pathways is blocked from view and the pathways appear to be connected, they are connected.
4. Perspective absence: When a hole is blocked from view, it does not exist.
5. Perspective jump: When the mannequin jumps, it will land on whatever appears beneath it.

As mentioned earlier, this game is based on Fujiki's experiments on perception in three-

dimensional environments⁷⁸, which tend to make heavy use of parallel projections in order to investigate a paradoxical space which seems to defy logic or intuition.

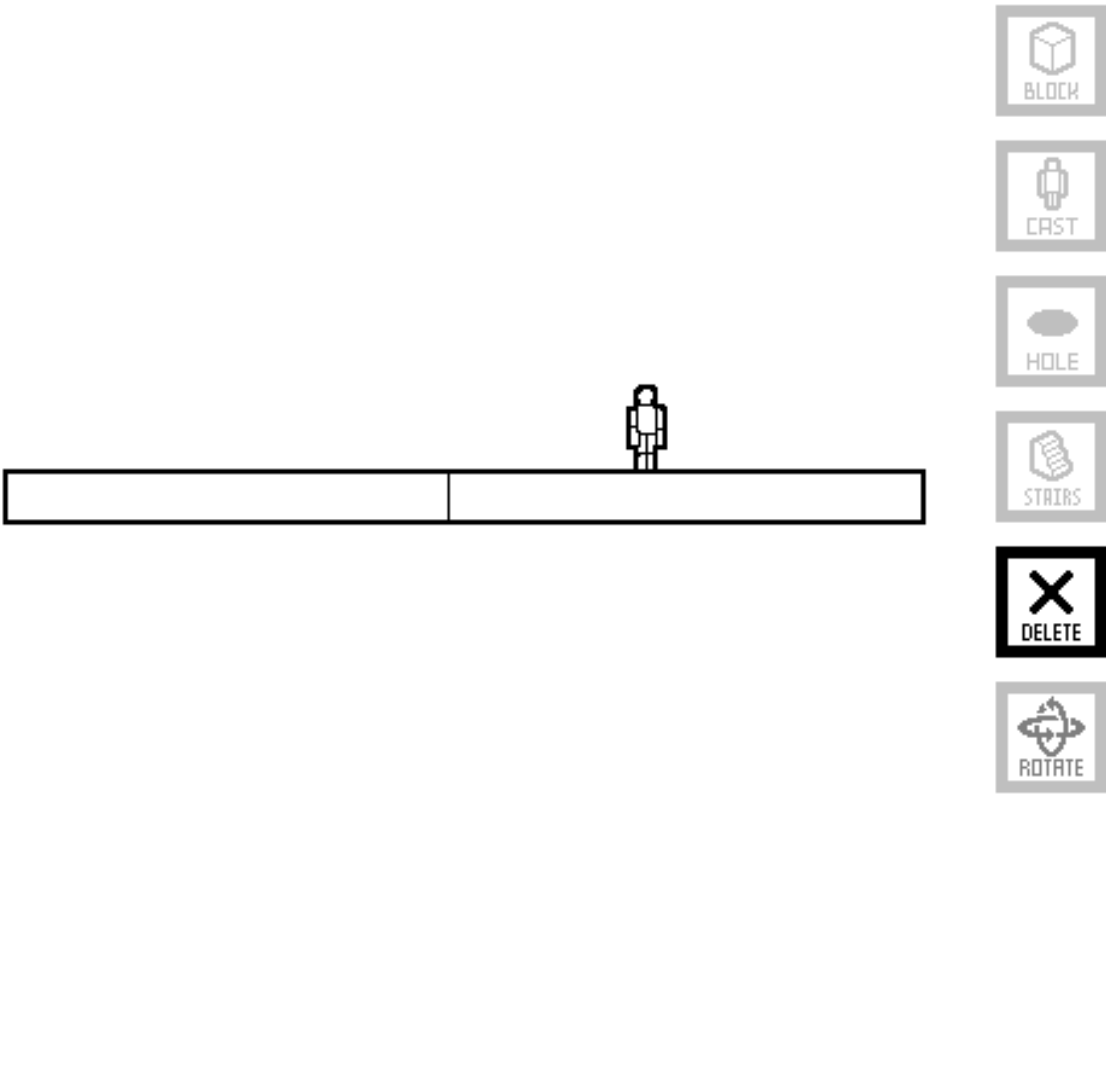
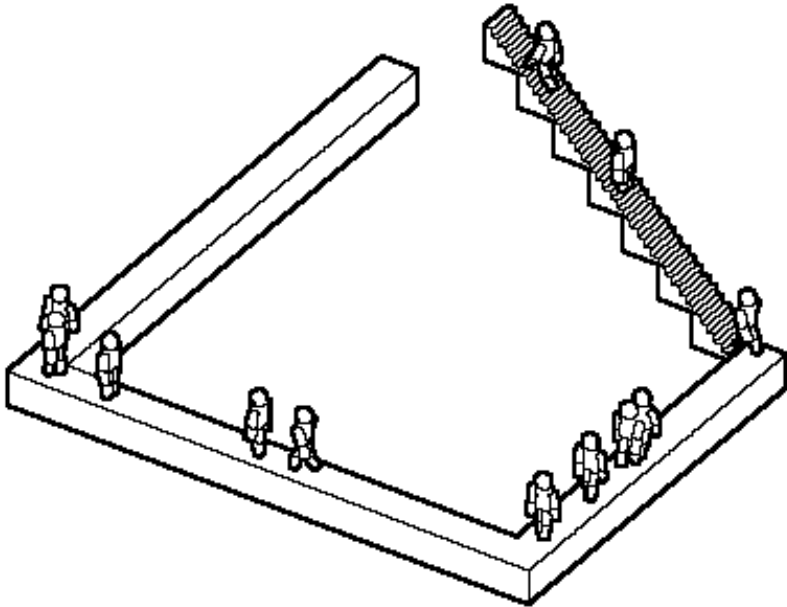
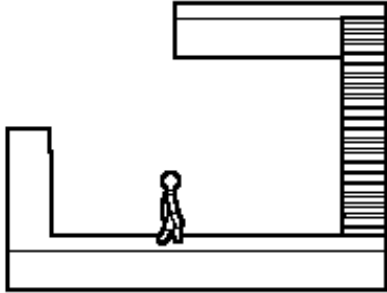
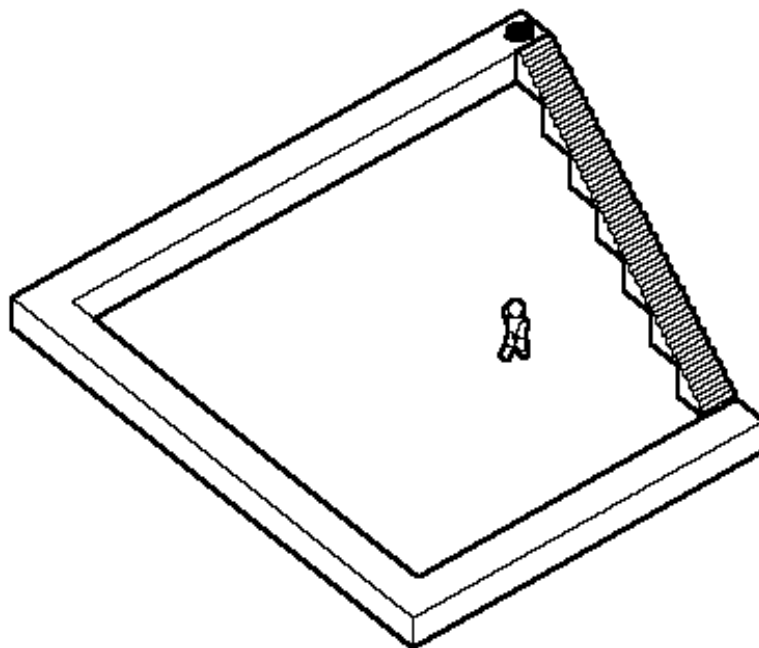
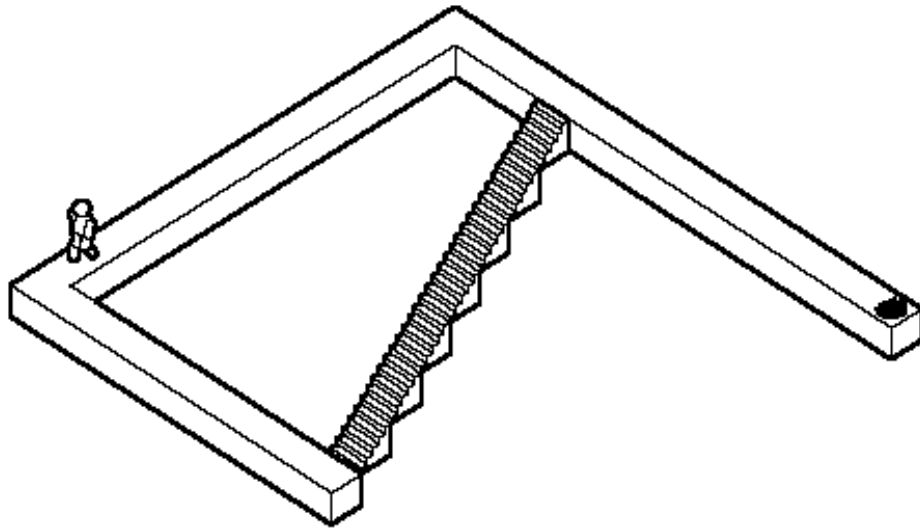


Figure 21. Fujiki, Jun. 2006. OLE Coordinate System. Rotation of the same topology (Except image above.) © Jun Fujiki.

⁷⁸ Available at <http://jun-fujiki.com> either in the applications, applets or games sections. Retrieved January 07, 2011





The sequel to Echochrome is based on yet another of Fujiki's experiments, "Shadow Factory," which presents the interactor with two planes (a "floor" and a "wall") onto which she is able to position objects in space, such as cubes, triangular prisms and spheres that cast shadows onto such wall, in the style of shadowplay. The objects can occupy any place in the virtual cube and when the interactor has finished the positioning of the objects, their shadows become animated.

Echochrome II takes up this premise from Shadow Factory, except that the environment has already been built. The player interacts with the gamespace by modifying the light source through the game controller (Sony's PS3 Move) in order to make sense out of the disparate objects located in the gamespace. Shifting the shape of the shadows helps the avatar (or the avatar's shadow) escape the puzzle.

This preoccupation in Echochrome of challenging the visualization of inconsistencies between a coordinate system and the glitches that arise from its own rationalization reinforces the constructed artificiality of mental perception of space.

Thus in this chapter I have discussed how differing projections of spatial representation are integral to differing modes of gameplay, and more importantly, in relation to this thesis, the effect that different means of addressing spatial representations has on the player's perceptual apprehension as she transits through gamic non-places.

Successors to experiments in spatial perception undertaken by previous generations of artists and mapmakers, game designers like Fujiki experiment with strategies of spatial projection in the gamic realm.

CHAPTER 3. TEMPORAL MANIPULATIONS

3.0 Moving in Space and Time

Throughout this thesis I have argued that gamespaces are to be understood as phenomena capable of actively enrich our perceptions and expand the experience of time and space in the sensorial plane within everyday life. Gamespaces reflect the nature of non-places which are rife with an oversaturation of experiences due to the acceleration of history and the contraction of the planet (Augé 97).

Then I have favored a player-centered approach to the understanding of time and space in videogames. This approach takes into consideration not only what is happening inside the gamespace but also stresses what is happening in the space the player is situated in.

In chapter one I discussed how notions of space and place can be interpreted in relation to game worlds. These worlds do not only exist in space alone but also in time, since both space and time are interlinked and as Nitsche stated, in videogames, the experiences of both time and space are closely interdependent (145). In Chapter 2, I showed a brief historical development of projections and representation and argued that in the case of games, the projection *is* the space and not its representation.

In this chapter I will examine how videogames provide the player with specific temporal

frameworks. Within these temporal frameworks, I will highlight particular gamespaces capable of challenging the perception of time as linear and non- malleable.

The emphasis on this temporal experience of the gamespace will be on movement, since it is through navigation that the player operates within the temporospatial dimension in the context of gamic non- places. Moreover, the environment must be navigated by the player in order to participate in the game (Meintema 4).

Augé states that place and non- place are rather like opposed polarities: the first is never completely erased, the second never totally completed (79). This is because time is inexhaustible, and the recent past becomes history as soon as it is lived (26). These ideas resonate with how videogames are lived as they are consumed. Their overwhelming availability and extension are embedded in their disposable nature.

I will examine two approaches to time in gamespace, namely the formalist and the experiential, which summarize the discussion we had on space and experience from a new perspective. The formalist approach understands time evolving as an interconnection between the game state and the play time. This approach has been criticized as being simply the mechanical mapping of ergodic⁷⁹ participation and game state change (Nitsche 62) under the rationale that it provides little reference to time as it is experienced (144).

⁷⁹ A term coined by Espen Aarseth which suggests a pairing between videogames and texts, where nontrivial effort is required in order to apprehend the narrative elements in them, as opposed to other media which is more passively experienced.

On the experiential side, the aim is to reach a comprehension of temporal situations in games via cognitive and emotional involvement and proposes that a more flexible timeframe will result in a more enjoyable game experience.

I will also look at diegetic and non- diegetic elements in videogames which are capable of interfering with, or proposing new temporal conditions. The term diegesis, adopted by Alexander Galloway, comes from literary and film studies and, in the gamic realm, refers to the events which happen within the “total world of narrative action (7)” of the videogame, therefore, non- diegetic elements are those elements of the gaming apparatus that are external to such world of narrative action.

The gamespaces that I will examine in order to discuss these concepts are those of *Blinx: The Time Sweeper*⁸⁰, *Prince of Persia: The Sands of Time*⁸¹ and *Braid*⁸². I will critically look at the time manipulations each game applies as part of its mechanics and, following the experiential approach, determine their relevance in terms of being successfully able to provide the player with a distinct temporospatial experience.

3.1 Motion

The apprehension of space comes by way of movement. Lev Manovich argues that the key feature of computer space is related to movement when he asserts that “new media

⁸⁰ Artoon. 2002.

⁸¹ Ubisoft. 2003.

⁸² Number None Inc. 2008.

spaces are spaces of navigation (244).” It is by changing our position in space and time that we understand the spatial configuration of a particular space without the act of motion, the cognitive process of spatial apprehension will not be different than looking at a still image. The process of understanding an environment through motion is not unique to new media, and has been used in architecture throughout its history.

The act of motion has been historically linked to spatial and social conditions, De Certeau wonders if spatial practices correspond, in the area where discipline is manipulated, to apparatuses that produce a disciplinary space (96). Before moving on to examples of spatiotemporal navigation in videogames, I will present a few examples from architectural history of how navigation has shaped experience through the built environment. These are relevant since I argue that gamespaces have developed by the means of using architectural traits and strategies. For example, the temple of Amon at Karnak functions as an architectural walk through a life cycle, exemplified as a day- to-night course, which symbolized the Pharaoh's life. The processional path through the great hypostyle hall “was a preparatory passage from this world to the next (Kidder 14)”. The hall, defined by 21 meter-high, papyrus- shaped columns stands in contrast to the penumbra of the clerestory and the darkness inside the sanctuary. The columns' capitals are shaped like papyrus buds which are either open or closed: “the capitals of the axial papyrus columns, higher than the lateral ranges, are open. The axial columns with open capitals are illuminated by sunlight through stone railings, while the lateral closed capitals are plunged in shadow, (Aufrère)” a fluxuating allegory of life and death which echoes the temple's layout and is experienced through the act of motion.



Figure 22. Speer, Albert Model for Welthauptstadt Germania (Berlin.)

Mesoamerican architecture is said to have been built explicitly in order to make the world an embodiment of Mesoamerican culture's beliefs and cosmology (Ashmore and Sabloff). The Mesoamerican city, built as a microcosm, manifested the link between the underworld and the human world through the use of a North- South axis on its planning. Teotihuacan is a very clear example of such postulate: at the end of the walk through the Avenue of the Dead (Calzada de los Muertos) lies the Pyramid of the Moon, symbolizing the passage from the watery underworld to the heavens (Sujiyama). Motion in space acquires a metaphysical meaning and the spaces traversed punctuate the rhythmical pattern Mesoamerican societies observed in natural cycles.

Movement through the built environment, not only takes us places, but guides our views and our intuitions about space, such as in the ascent to the Acropolis in Athens, where the structure is made to rotate by the means of the uphill walk, fully revealing its shape once the top has been reached. The ascent to the Acropolis, or Saqqara's perspectives from the river Nile are other examples amongst a vast repertoire of how places reveal themselves to the viewer by the act of motion through a series of rhythmical patterns in time.

An architectural passage can launch a series of rhythmical views, such as in the typology of the helical vaulted staircase, popular in the Renaissance. The staircase was built around an empty space, while openings at each landing allow for a view of the surroundings from an increasingly advantageous vantage point through vertical movement (Barbieri 301). Scenic views apprehended centrifugally and at rhythmical intervals, tended then to compensate for the physical exertion of the climb.

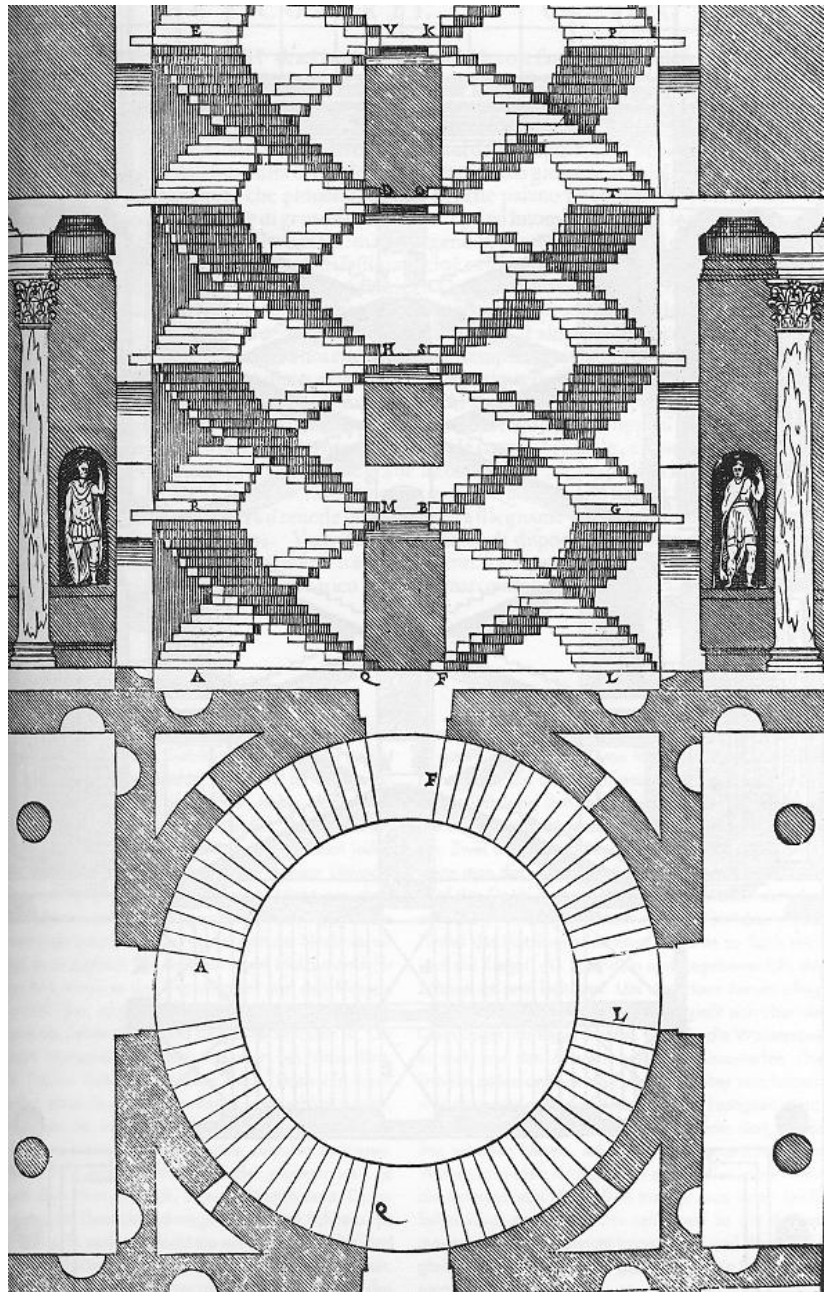


Figure 23. Palladio, Andrea. 1570. Chambord Staircase.

In other instances, movement in space can be used to express vastness or magnificence, which is the idea behind axial arrangements of the like of Hausmann's

Paris, the Washington Mall or Albert Spree's designs for Welthauptstadt Germania⁸³, where the use of the axis⁸⁴ enforces a sense of direction and velocity and gives prominence to the poles where the predominant buildings are located.

These are few examples of how built space is designed in order to engross the moving subject in an immersive experience and make her become an active participant, engaged “intellectually, physically and relationally (Walz 32)” throughout a timed sequence of rhythmical patterns.

3.2 Aging Gamespaces

Time takes its toll on spaces, its passing is noticeable, not only in architectural places but also in videogames. Old game worlds are seldom returned to by the average user once she has exhausted their replay value.

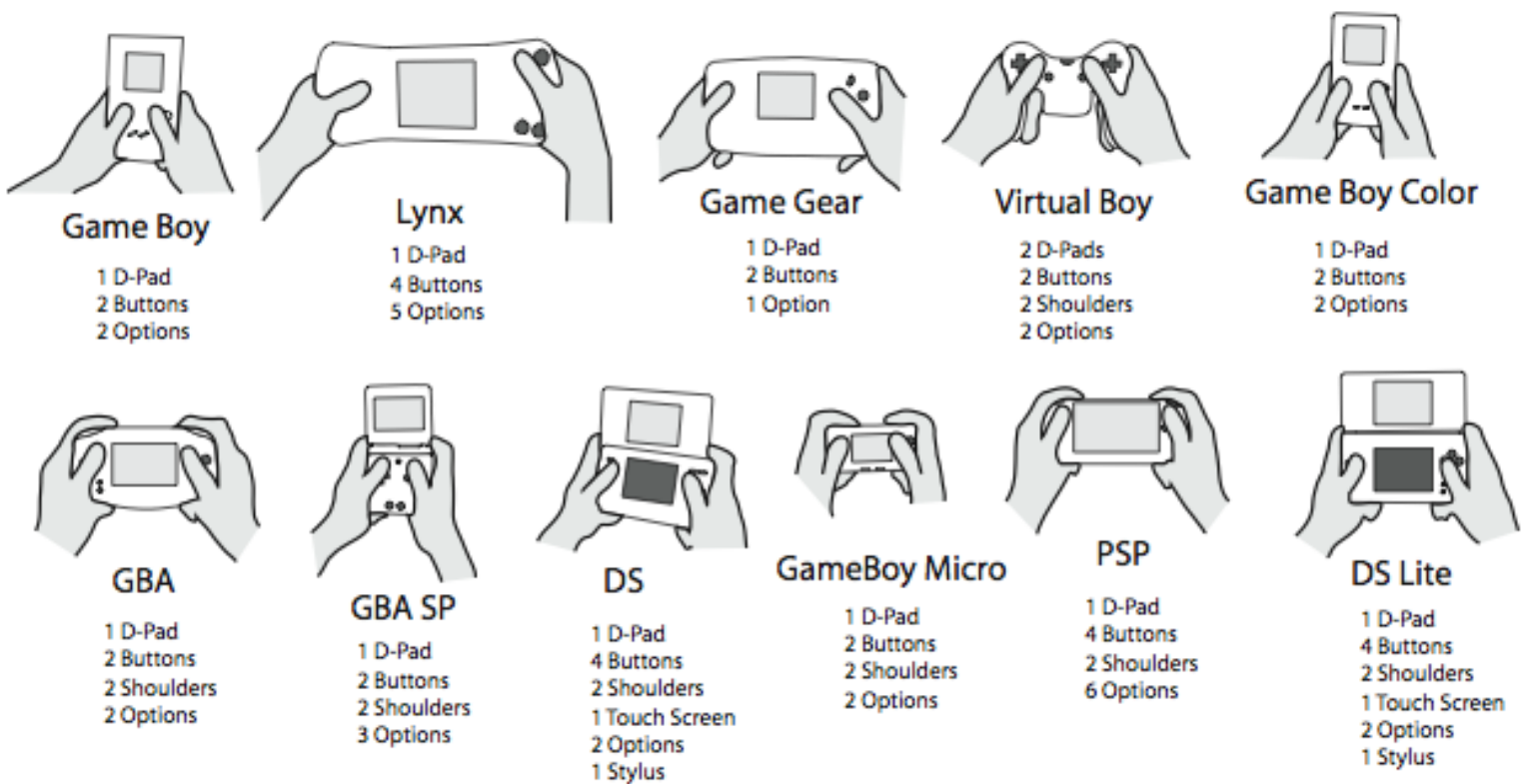
Replay value is very relative: in highly consumerist societies, where overabundant supplies of games exist, their replay value is often suggested by the developer in the form of new challenges which can be accounted for in a leaderboard or other kind of ranking system. In the conference “Game as critic as art,” Gonzalo Frasca told the story of a small, isolated village in his native Uruguay, where the children had an old NES⁸⁵ and few available cartridges, so once they completed the games and in their impossibility to get ahold of any more, they would instinctively add replay value by the

⁸³ The projected renewal of Berlin during the Nazi period.

⁸⁴ “...irresistibly the straight line, the geometrical symbol of triumphant human purpose.” (Huxley, Aldous. *Brave New World*. 1931)

⁸⁵ Nintendo Entertainment System.

means of self- imposing new challenges. Or as the user Xenol expresses in an online forum: “To be honest, leaving the developer to do all the work to add replay value is kind of silly. What, nobody ever tried a self-imposed challenge? Like beating Mega Man X with no armor upgrades or usage of boss weapons (you can use a password to skip Chill Penguin, since it's the only mandatory upgrade)⁸⁶.”



Various factors influence this rapid conversion of game worlds into game relics. For one, a massive supply of videogames is available as videogames are produced in very large quantities. During 2009 and in the United States only, 273.5 million units were sold at a

⁸⁶ From <http://forums.screwattack.com/viewtopic.php?f=8&t=12769> Retrieved June 06 2011.

rate of 9 games per second,⁸⁷ the “official” releases scheduled for 2010 in the U.S, accounted for more than 300 titles, according to the compilation made by Wikipedia editors⁸⁸ and which does not take into consideration games released by independent developers.

Another important factor in the rapid aging of videogames is technological obsolescence and planned service discontinuation. The seventh- generation of videogame consoles which spun from 2004 to 2010, saw 33 different devices being put in the market within that timespan, while the major console vendors, namely Microsoft (Xbox), Sony (Playstation) and Nintendo, (Nintendo Cube, Wii) release a new console every five years approximately.

While there used to be some degree of backwards compatibility within the Xbox platform (some older titles could be played in new consoles), this was by no means the rule, but the exception. The Playstation 3 is not capable of playing Playstation 2 games as is case with the Nintendo Wii and the Nintendo Cube. That was until Microsoft announced on February 5th 2010, the cessation of Xbox Live support for the original Xbox games,⁸⁹ which affected a community of online players of games such as Halo2 and others. From that date on, the utterly popular world of Halo2 passed from being a socially constructed space to a ruin which a player might visit in solitude via an outdated piece of hardware.

⁸⁷ From The Entertainment Software Associations website.
<http://www.theesa.com/gamesindailylife/economy.asp> Retrieved July 11, 2011.

⁸⁸ See: http://en.wikipedia.org/wiki/2010_in_video_gaming Retrieved July 11, 2011.

⁸⁹ See the post on <http://kotaku.com/5464818/microsoft-no-more-original-xbox-games-over-xbox-live> Accessed July 11, 2011.

There are some game worlds that have endured the passing of time, such as Counter-Strike, a mod of Half-Life produced in 2003, which is still being played and remains extremely popular to date, with professional player leagues and tournaments such as the Electronic Sports World Cup (ESWC), the World e-Sports Games (WEG), and the World Cyber Games (WCG), which are televised and commented upon, as any other sports activity. However, once again this is the exception, not the rule.

So the habits of massive consumption, in addition to hardware obsolescence and the allure of the novel, render gamespaces quickly outdated. The game engine which supports a higher polycount⁹⁰ and texture resolution, offers a new experience to be lived. The player traverses these non- places in a perpetual motion, never completing her journey, “like palimpsests on which the scrambled game of identity and relations is ceaselessly rewritten (Augé 79).”

I argue that this accelerated journey through gamic non- places is not necessarily a setback in experiential terms, but on the contrary, a renewing experience of constant learning where velocity, provides us with vertiginous experiences.

⁹⁰ The number of polygons a game engine can render per scene adds to a more “realistic look and feel” of the game.

3.3 Temporal Mappings

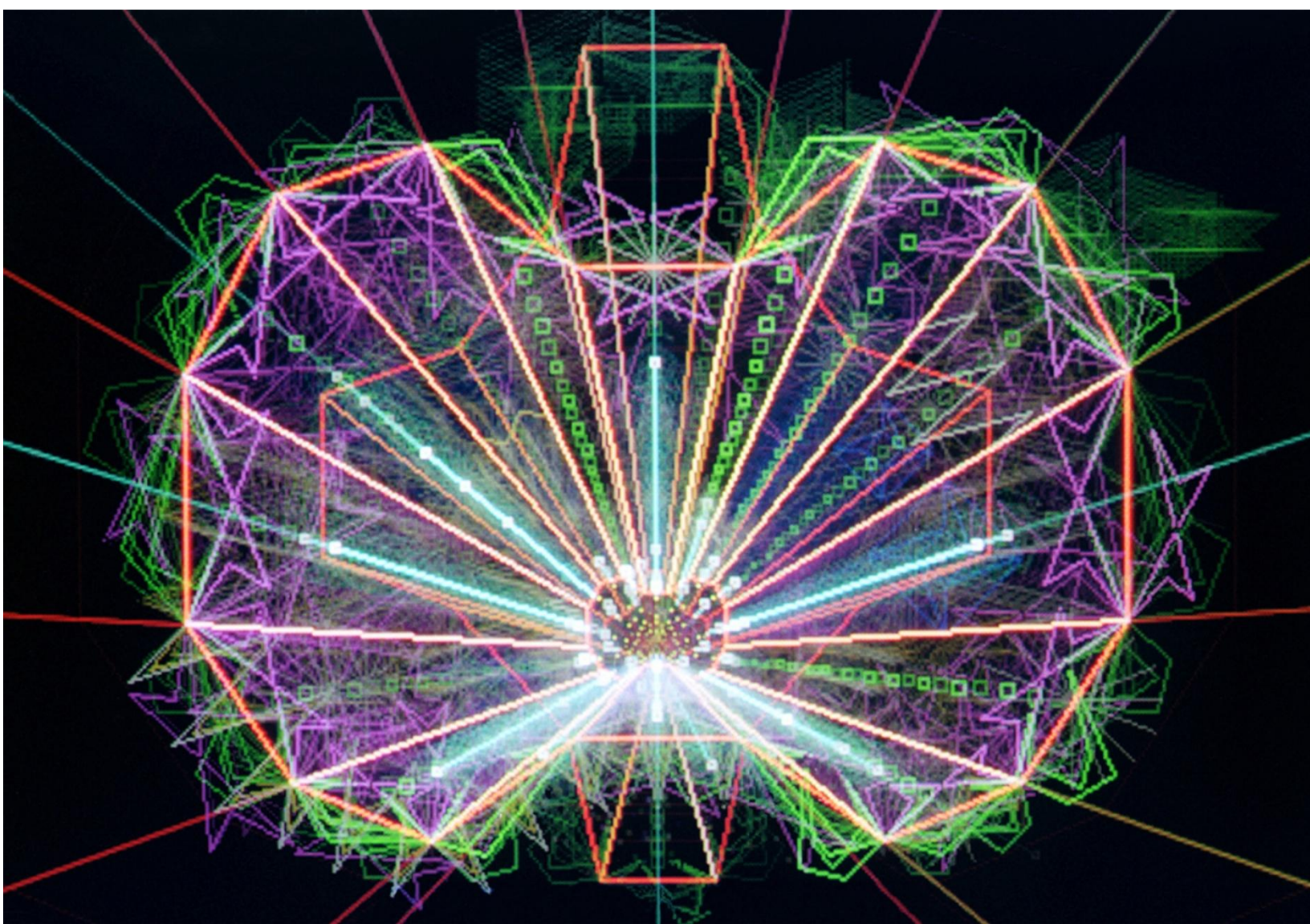


Figure 24. Fiore, Rose Marie. 2001. *Tempest1*. Time- Lapse Picture. (Image courtesy of Priska C. Juschka Fine Art.) © Rose Marie Fiore.

The study of time inside gamespaces is problematized by the very nature of the media where time is not necessarily perceived by the means of a constant linearity. Michael Nitsche recognizes two pre- existing approaches to the study of time in videogames, namely the “formalist” and the “experiential,” and in his paper “Mapping Time in

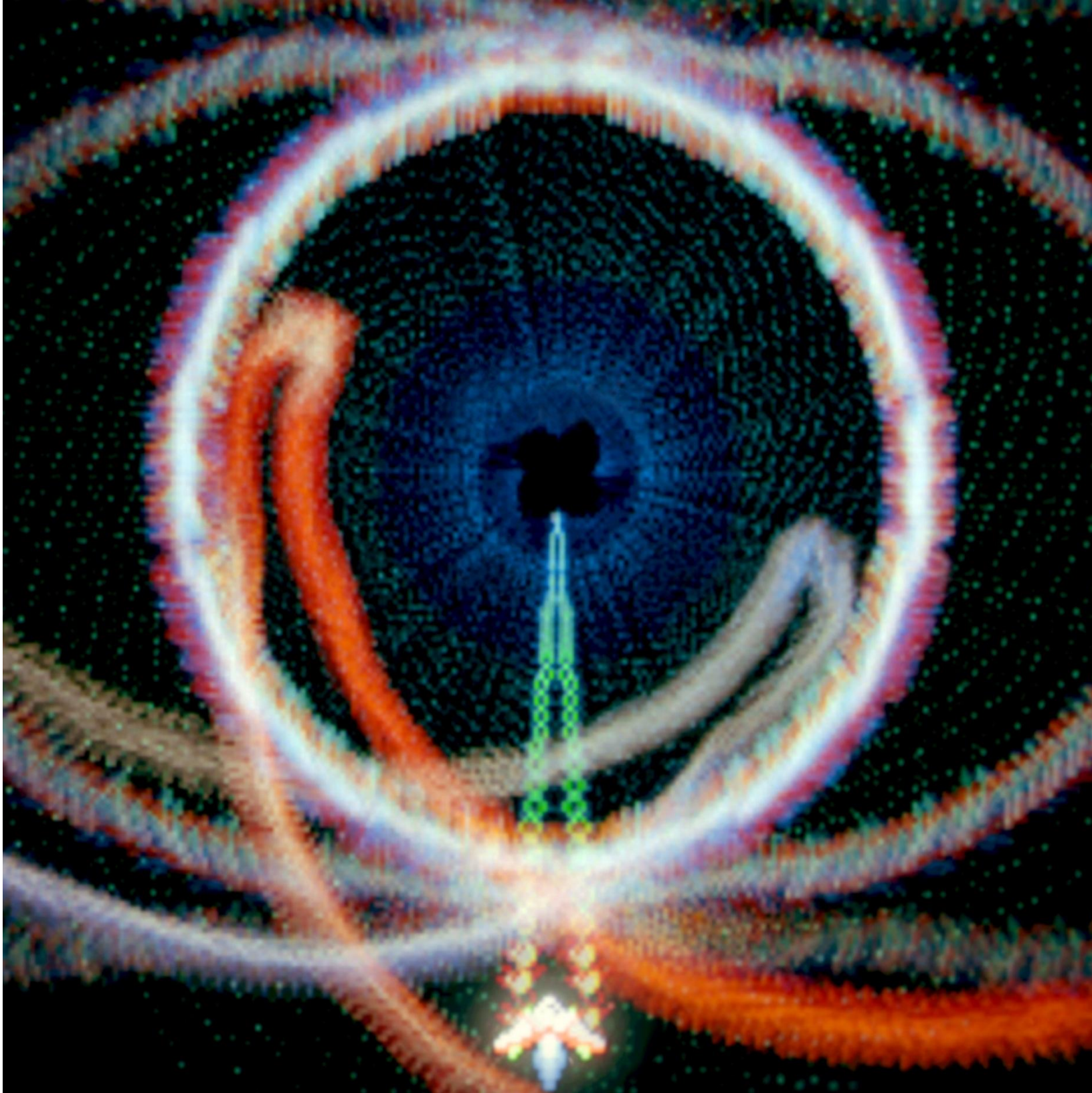


Figure 25. . Fiore, Rose Marie. 2001. Gyruss2 Bonus. Time- Lapse Picture. (Image courtesy of Priska C. Juschka Fine Art). © Rose Marie Fiore.

Videogames,” he argues for a merge of both into a third approach which is a hybrid model.

The formalist approach understands time evolving as an interconnection between the game state and the play time. The proponent of this approach is Jasper Juul in his essay “Time to Play– An Examination of Game Temporality”. In Juul's study, 'play time' (i.e. the time the player takes to play) stands in contrast with 'event time' (i.e. time taken in the game world) and is interconnected through a mapping which projects a combination of both where to play a game and how to interact with the game state (18).

Therefore, the possible modalities of time mapping are as follows: direct mapping, where play time and event time correlate (such as speeding your in- game car in Gran Turismo⁹¹); loading time, which might present event time as continuous, with no player inference (by the means of a loading screen, the gamic narrative can be developed while sections of the game are being loaded); cutscenes⁹² where event time is continuous but playtime is not; level changes, during which both play and event times are at a hiatus; and back- referencing events, which act as hindsight that to enrich the game narrative⁹³.

Juul also argues that game speed, when used as a variable, strongly impacts the relation between mapping of play time and event time. He uses the example of Sim City,

⁹¹ Sony Entertainment. 1997.

⁹² A cutscene is a sequence in a video game over which the player has no or only limited control, breaking up the gameplay and used to advance the plot, present character development, and provide background information, atmosphere, dialogue, and clues. Cutscenes can either be animated or use live action footage. They are sometimes also referred to by other terms such as cinematics or in-game movies. Cutscenes that are streamed from a video file are sometimes also referred to as full motion video or FMV. From Wikipedia <http://en.wikipedia.org/wiki/Cutscene> Accessed June 06 2010.

⁹³ There are also extra diegetic elements, such as game packaging or the Team Fortress “Meet the.....” series which add depth to the narrative through the use of different, non gamic media, although these are not within the scope of this document.

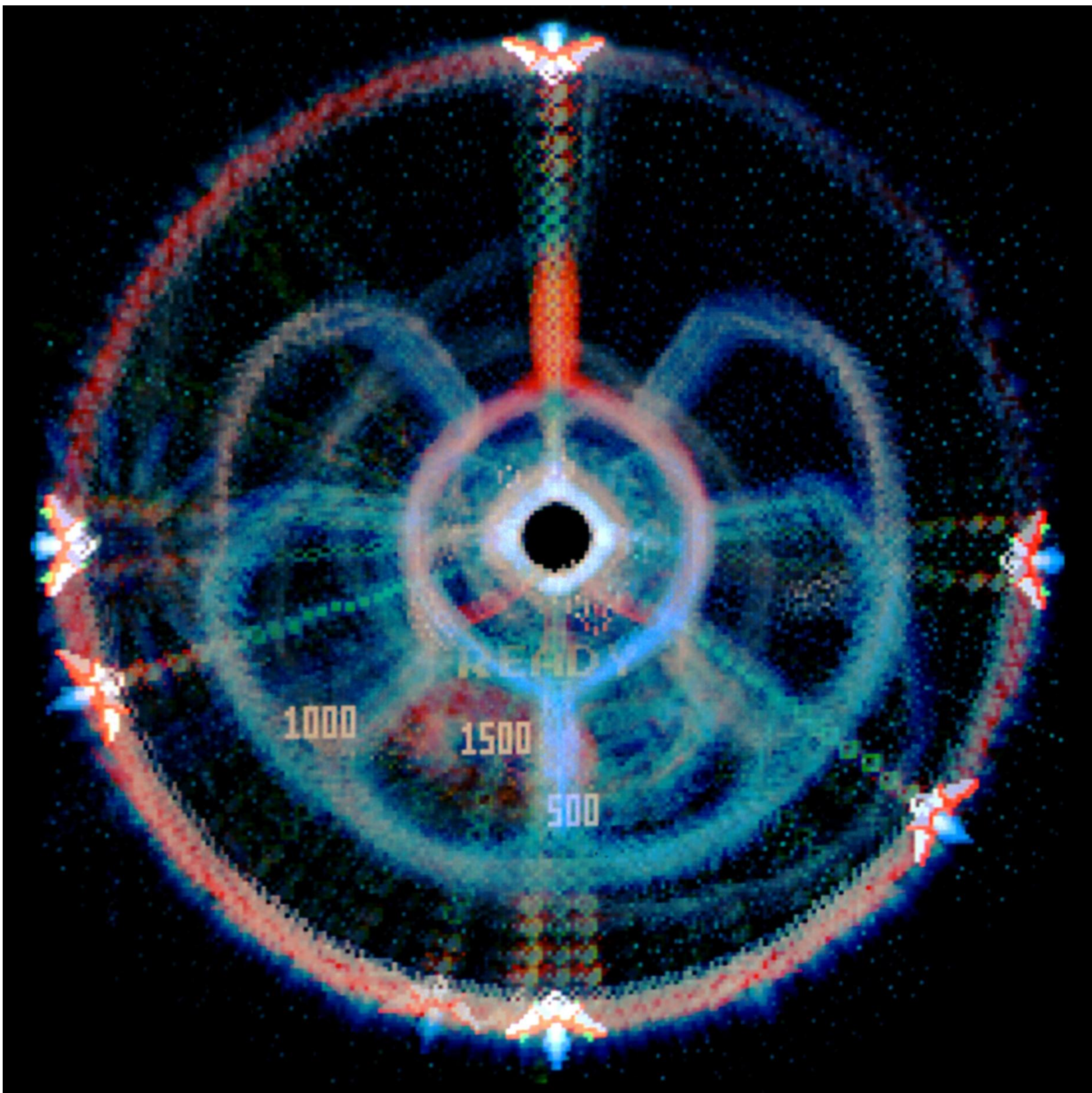


Figure 26. Fiore, Rose Marie. 2001. Gyruss1. Time- Lapse Picture. (Image courtesy of Priska C. Juschka Fine Art.) © Rose Marie Fiore.

where the construction time of the buildings (and their destruction, say, by tsunamis) doesn't show a correlation to the time such processes takes in real life to achieve. He opposes this time- duration- speed pattern to Quake III Arena, which in his view, offers a direct 1:1 mapping of temporality in which gamic events are correlative in time to the referent.

The experiential approach in contrast, tries to describe a player's comprehension of temporal situations in games. Rather than mapping a formula, it describes cognitive and emotional involvement (145). For example, the player learns the spatiotemporal conditions of the game world by the means of making a connection between the learning process and the game's own temporal development.

Nitsche also cites an example from Mylov in which he affirms that dynamic space is a unit of temporal and geometric dimensions. Movement makes time emerge from the experience of space (28). For Nitsche, the key is not temporal realism (as in Juul's 1:1 proposition), but temporal consistency, which means that an accurate temporal mapping of play- time onto event- time is not really necessary (or attainable) as long as the actions within gamespace stay consistent throughout the game.

He argues that in order to successfully map play- time onto the time in the game world, one has to take into account the spatial conditions of the latter and it is in this way “that the timeframe is released from the mechanical mapping of ergodic participation and game state change (149)” in favor of exploring new time configurations. In other words,

interaction in time should follow its own internal logic instead of being merely correlated to actions in fleshspace.

3.4 Manipulating Time

Temporal manipulations, such as speeding time or reversing it, are a unique characteristic of time-based media (such as video art or relational architectures⁹⁴) and they have been exploited in videogames to varying degrees. These manipulations can be diegetic or non-diegetic.

A common, yet powerful non-diegetic operation which interferes with the flow of the game is pressing the pause button. The capability of *pausing* is built in all videogames and this particular mechanism has strong implications towards understanding temporality in games. This action is external to what the player is experiencing on screen.

Galloway affirms that pressing pause is as significant as shooting a weapon (8). By the means of this mechanism the player is not only capable of alternating between

⁹⁴ This is a term employed by Rafael Lozano-Hemmer, in order to avoid the word “interactive.” In an interview with Alex Adriaansens and Joke Brouwer, he explains: “I named the series of interventions “relational” in large part because I wanted to avoid using the term interactive. This word has become too vague, like postmodern, virtual, deconstruction or other terms that means too many things and are exhausted... Also it sounds too much like a top-down 1 bit trigger button -you push and something happens- which is too predatorial and simple. Of course “relational” is not my term; I read about it in Maturana and Varela’s neurological studies, and also the word has been used since the 1960s to describe cross-referencing databases. The great Brazilian artists Lygia Clark and Hélio Oiticica also used the term in the 1960s to refer to their user-activated objects and installations. “Relational” has a more horizontal quality; it’s more collective. Events happen in fields of activity that may have resonances in several places in the network.” In *TransUrbanism*. Brouwer, Joke and Mulder, Arjen (Eds.) V2 Publishing/ NAI Publishing. Rotterdam. 2002.

gamespace and fleshspace but also takes time to reflect on the former. For example, during a pause the player evaluates the course of an action and evaluates how optimal it is, or prepares a new strategy. Often the use of the pause button comes when the player is presented with an extraordinary situation such as facing a mean boss⁹⁵ or a particularly challenging environment.

In pausing the game, the player is able to look for cheats⁹⁶ or walkthroughs,⁹⁷ or to check a strategy guide (also examples of non- diegetic operators) in order to preview events that are about to happen and how to prepare for negotiating them in a successful manner. Although some “hard- core” gamers reject the use of either cheats or walkthroughs, their immense popularity (there is at least one cheat- sheet and/ or walkthrough available online for any given game) attests to their heavy use.

⁹⁵ A boss is an enemy-based challenge (and a computer-controlled opponent in such challenge) which is found in video games. A fight with a boss character is commonly referred to as a boss battle or boss fight. Boss battles are generally seen at the climax of a particular section of the game, usually at the end of a stage or level, or guarding a specific objective, and the boss enemy is generally far stronger than the opponents the player has faced up to that point. From Wikipedia.

[http://en.wikipedia.org/wiki/Boss_\(video_gaming\)](http://en.wikipedia.org/wiki/Boss_(video_gaming)) Accessed June 21, 2011.

⁹⁶ Cheating in video games involves a video game player using non-standard methods for creating an advantage beyond normal gameplay, usually to make the game easier, or may also create unusual effects which do not necessarily make the game easier to play, such as giving characters different appearances, such as large heads. Cheats sometimes may take the form of "secrets" placed by game developers themselves. Cheats may be activated from within the game itself (a cheat code implemented by the original game developers); or created by third-party software (a game trainer) or hardware (a cheat cartridge). From Wikipedia. http://en.wikipedia.org/wiki/Cheating_in_video_games Accessed June 21, 2011.

⁹⁷ In video games, a walkthrough is a document or video showing a player how to win a game. Walkthroughs date from the earliest text adventures, graphic adventures, and puzzle-adventure games. They are common for role playing games and strategy games. A FAQ provides similar information, but does claim to be comprehensive. A walkthrough variation is "progressive hints." This provides a series of hints, increasingly explicit, to guide the player without completely spoiling the puzzle solving. The player has control which progressively explicit hints are revealed. Walkthroughs are free on the Internet, as opposed to the more involved strategy guides, which are professionally printed with graphics. One form of walkthrough is the "Let's Play", where the player (called an "LPer" in this case) gives running commentary on the game. This form of walkthrough has become increasingly popular on such sites as YouTube. From Wikipedia. <http://en.wikipedia.org/wiki/Walkthrough> Accessed June 21, 2011.

Latency, or lag, is another non- diegetic element which is able to disrupt the temporality of game time. Although all videogames incur in some lag since there exists a certain amount of time in between the reception of the player's input, its processing and finally its quantifiable output, I am referring here to a high latency.

For example, when playing an online game, such as Team Fortress, the player might find that her screen froze for a couple of seconds in the midst of a congested melee fight due to high ping. These couple seconds will be vital and at certain times and when the game finally refreshes, she will probably find that her character is dead, some other times, she will be playing one or two seconds behind the actual time of gameplay.

There are many more instances of diegetic operations which deal with time in gamespaces than there are non- diegetic, since various games present the player with in- game mechanisms to manipulate time, mostly through either acceleration or deceleration. In Max Payne⁹⁸ the gameplay relies heavily in the use of “bullet time⁹⁹” gunfights while in Age of Empires¹⁰⁰ there is the option to input the command “aegis” through which the player is able to affect the mapping of temporality by the means of speeding up the in- game operations, such as erecting buildings, advancing troops,

⁹⁸ Remedy Entertainment. 2001

⁹⁹ Bullet time is a special and visual effect that refers to a digitally-enhanced simulation of variable-speed (i.e. slow motion, time-lapse, etc.) photography used in films, broadcast advertisements, and video games. It is characterized both by its extreme transformation of time (slow enough to show normally imperceptible and unfilmable events, such as flying bullets) and space (by way of the ability of the camera angle—the audience's point-of-view—to move around the scene at a normal speed while events are slowed). This is almost impossible with conventional slow-motion, as the physical camera would have to move impossibly fast; the concept implies that only a "virtual camera", often illustrated within the confines of a computer-generated environment such as a virtual world or virtual reality, would be capable of "filming" bullet-time types of moments. The term bullet time is a registered trademark of Warner Bros., distributor of the movie: The Matrix. From Wikipedia. http://en.wikipedia.org/wiki/Bullet_time Accessed June 29 2011.

¹⁰⁰ Ensemble Studios. 1997

waging war, etc.

Nevertheless, the mere acceleration and deceleration of the in- game time flow in games such as Max Payne can be further elaborated upon in order to explore how the flow of time can be given a more prominent role in videogames. Advertised as “The world's first 4D action game,” Blinx: The Time Sweeper¹⁰¹ is a platform game which features the idea of time manipulation as part of its core game mechanics. The main character, Blinx, is outfitted with a “magical vacuum cleaner”, which has the capability of exerting control over the flow of time. It can do so by slowing, speeding up, recording, reversing or stopping time flow on its entirety. When crystals of certain colors are collected, the player is then able to use the time controls, whose logic works as follows:

“Rew: This causes time to run backwards for everything in the world except Blinx himself. Bridges and other elements previously destroyed can be restored with this Time Control no matter how long ago they were destroyed. Useful when there is a stream with a one-way current or you need to go up a waterfall.

Ff: This causes time to run rapidly forwards for everything in the world including Blinx. During Ff, Blinx is invulnerable to damage from time monsters or environmental hazards: any contact will cause FF to be cancelled, and Blinx will be unharmed.

Pause: This causes time to stop for everything in the world except Blinx. Scenery elements are frozen during PAUSE, and can be jumped on to reach hidden areas. Also, he cannot use switches and jump pads.

Rec: The first phase of Rec is 10 seconds of 'recording' time, where Blinx is invulnerable

¹⁰¹ Artoon. 2002.



Figure 27. *Blinx: The Time Seeper.2002. Microsoft Game Studios. In- Game Time Controls*

to all damage, and can move as normal. When 10 seconds has elapsed (or Blinx has been lost to an unrecoverable environmental

hazard), the world and Blinx will be rewound backwards for 10 seconds, and the same period of time will be played. During this 'playback', the actions taken by Blinx during the 'recording' will be shown as a green ghost, allowing for enhanced combat tactics to be used, or puzzles that would require two players to be solved (such as a seesaw).

Slow: This causes time to run slowly for everything in the world except Blinx. Scenery elements are slowed during SLOW, and can be jumped on to reach hidden areas.

Retry: It causes everything in the world, including Blinx, to rewind to a point where Blinx should be safe.¹⁰²

Very similar mechanics can be found in Prince of Persia: The Sands of Time¹⁰³ where the player is capable of rewinding time for up to ten seconds of gameplay along with all actions. When time is rewound, the game- state goes back to the saving point, in which health lost is regained and the architectural conditions of the game, which suffered any changes such as a collapsed bridge, are reverted to their previous state. Similarly to the game Blinx, the player is able to slow down time and freeze the environment.

¹⁰² From Wikipedia. http://en.wikipedia.org/wiki/Blinx:_the_Time_Sweeper Retrieved June 21, 2011.

¹⁰³ Ubisoft. 2003.

3.5 Temporal Interaction

When Nitsche asserts that exploring new time configurations is made possible by the continuity of the space, (151) he is making a bold statement but it might take some time to be realized, in terms of implementation of both design strategies and computer processing power. In the first chapter I spoke of Adanaxis, a game in four spatial dimensions and cited Andy Southgate, the author, who expressed that he hadn't yet figured out how to implement real 4D and 4D explosions without making the game require a thousand times more processing power.

Similarly, Braid¹⁰⁴ is a complex game in which complex temporal manipulations are paramount to gameplay. Unlike Blinx or Prince of Persia where controlling the time flow is of relatively limited use, in Braid the player is confronted with six different worlds, each with its own time logic from which the game challenges stem from. This game world is represented in two dimensions partly because of mechanic constraints, the author admits that some levels will be impossible to achieve when using a perspective view (which is the natural way of presenting 3D games, as I explained earlier).

“Braid uses a unique repertoire of time manipulations, which constitute the core component of the game. The goal is to take Tim, the protagonist, through a series of puzzles of which pieces are to be collected by the means of navigating the gamespace and accessing hard to reach areas. Tim is looking for a princess who is trying to escape from a horrible monster. The game is divided in six worlds and each one of the six

¹⁰⁴ Number None Inc. 2008.

displays a unique time-based game mechanic (the game starts in world 2).¹⁰⁵

2: Time and Forgiveness plays as an ordinary platform game, except that the player may rewind time to undo their actions. The section includes several challenges that would be unplayable or unfair in an ordinary platform game, but become feasible when the rewind mechanic is available.

3: Time and Mystery introduces objects surrounded by a green glow that are unaffected by time manipulation; for example, switches will remain flipped even if time is rewound to before the action occurred. Rewinding can thus be used to change the synchronization between objects that can and cannot be rewound, the basis of many puzzles in this section. This theme is also used in later worlds to denote objects unaffected by the player's time manipulation.

4: Time and Place links the passage of time to the player character's location on the horizontal plane. As the player moves toward the right, time flows forward, while moving toward the left reverses the flow; standing still or moving vertically will pause time. The player's location must be carefully managed in relation to enemies and objects.

5: Time and Decision involves a "shadow" of the player character appearing after the player rewinds time and performing the actions that the real player character rewound. Things colored in violet can interact both with the main character and its shadow at the same time. Puzzles in this section revolve around using this mechanic to carry out multiple actions at once.

6: Hesitance provides the player with a magic ring which, when dropped, warps the flow

¹⁰⁵ From Wikipedia. [http://en.wikipedia.org/wiki/Braid_\(video_game\)](http://en.wikipedia.org/wiki/Braid_(video_game)) Retrieved July 11, 2011

of time around itself; the closer moving objects (including Tim) are to it, the slower time passes for them. The regular rewind control remains available.

The final world is labeled simply as “1.” In this world, time flows in reverse. Rewinding time returns its flow to a normal state.¹⁰⁶ For example, when an enemy is killed, the time reversal makes the enemy un- die instantly.

The plot in Braid has a diegetic component which not only supports the gamic actions but is interwoven in them, I will discuss the game's ending as an example because, while this thesis is not concerned with narrative, in the case of this game it is an important element which reflects on the premise of time manipulation.

The final world is world 1, (which is indeed the first one) where the actions (and even the music) occur against the natural flow of time, this is, in reverse. Let's recall that Tim's mission is to save the princess from a monster. The last gaming sequence has Tim in an underground tunnel while in the surface beneath him, a knight is descending on a rope while carrying the princess in his arms, the knight exclaims “I got you!” followed by the princess loosening herself from his grip, jumping to a nearby platform and shouting for help to which the knight exclaims “Come down here!” This is followed by a pursuit where Tim has to run through the underground in order to escape a fire wall while going through obstacles that the princess, which is on the ground above, opens for him. Finally Tim surfaces and climbs a wall to the princess' bedroom, where she is at, sleeping. Tim cannot reach her.

¹⁰⁶ Interview with the author, Jonathan Blow. <http://multiplayerblog.mtv.com/2007/08/08/a-higher-standard-game-designer-jonathan-blow-challenges-super-marios-gold-coins-unethical-mmo-design-and-everything-else-you-may-hold-dear-about-video-games/> Retrieved July 11, 2011

If these events take place while time is running backwards, the player comes to the realization that it is in fact Tim who the princess is running away from, in the first place. The narrative action in the last gaming sequence portrays the princess actually setting up the traps and running away from Tim who was preying on her at her bedroom. Tim is indeed the monster.

In Braid all actions can be reversed to the beginning of the level, unlike Prince of Persia or Blinx, where the mechanic of reversing time only covers a small fraction of gameplay in order to place more importance on the player's skill and resource management¹⁰⁷ than on her reflecting on past actions. In this sense Braid can be made to work in the way of a sandbox- style game¹⁰⁸, except that the player is free to roam both in space and time. As a game review puts it: "You're suddenly free to try, practice, and learn from mistakes without any annoying overhead. It's like practicing basketball shots without ever having to chase after the ball¹⁰⁹."

¹⁰⁷ In Prince of Persia the player has to have enough "sand" as part of the inventory to be able to go back in time, in Blinx she has to collect "jewels".

¹⁰⁸ An open world is a type of video game level design concept where a player can freely roam a virtual world and change any factor at will. There are many games like this. The term is sometimes used interchangeably with "sandbox" and "free-roaming"; however, the terms open world and free-roaming describe the game environment itself and allude more to the absence of artificial barriers, in contrast to the invisible walls and loading screens that are common in linear level designs. The term sandbox refers more to the mechanics of a game and how, as in a physical sandbox, the user is entertained by his ability to play creatively, boundless of artificial structural constraints, and with there being "no right way" of playing the game. Despite their name, many open world games still enforce restrictions at some points in the game environment, either due to absolute game design limitations or temporary in-game limitations (such as locked areas) imposed by a game's linearity. From Wikipedia.
http://en.wikipedia.org/wiki/Open_world Retrieved July 21, 2011.

¹⁰⁹ Arthouse Games. Review by jcr14. http://www.northcountrynotes.org/jason-rohrer/arthouseGames/seedBlogs.php?action=display_post&post_id=jcr13_1170707395_0&show_author=1&show_date=1 Retrieved July 21, 2011.

3.6 Enhancing Everyday Temporospatiality

I have argued that by traversing game worlds, the player is capable of radically enriching her perceptions of space and time in everyday life, as in the works I discussed by Jun Fujiki in the previous chapter. The game *Braid* is another such strong example, not only of the experimental nature of the medium and its unique capabilities, but of how videogames are capable of inducing the player to experience the extraordinary, in the space of everyday life. Thus in this chapter I began with examples of constructed spatiotemporal navigation in architecture. The architects (or the masons before them) were able to manipulate human experience and navigation of a site over time, interrupting a passage with views and pauses for reflection. To a certain extent, the constructed worlds of videogames are similar. The player pauses to reflect, generally not on a profound cosmological order as in the architectural examples, but to consider how tackle a challenge tactically or strategically from another angle, and to catch her breath from the adrenaline rush of play. The designers of a gamespace influence the player's pace of movement and passage through the game via the shape of digital architecture and the rhythm in that challenges and obstacles are placed.

However, digital gamespaces also offer new navigational experiences in the spatiotemporal dimension. For instance, the cycle of obsolescence of videogames is very rapid due to market pressures on the medium when compared to architecture. Gamespaces are quickly abandoned by players even when they might not have exhausted all gameplay possibilities, when the next, newer game platform arises.





Figure 28. Blow, Jonathan. Braid. Final game sequence. © Jonathan Blow.

Furthermore, the virtual qualities of gamespace allow for greater temporospatial manipulation than even the constructed experiences of time and movement in man-made physical spaces. In this chapter, I drew from two models of understanding of time in videogames, namely the formalist and the experiential and examined how videogames are able to provide the player with specific temporal frameworks to challenge the perception of time as linear and non-malleable. Although most games have not yet exploited such possibilities beyond the ability to pause and save the player's movement through the gamespace, games such as Braid incorporate reversible spatiotemporal navigation into their core play mechanics.

CONCLUSION

Gamespaces are not virtual worlds that transport us into some unreal and non-authentic life, nor are they incomplete experiences devised for mere entertainment. Gamespaces exist as part of everyday life, which they complement by facilitating a unique and enriching understanding of the present. The medium of videogames embodies the spatial qualities present in our contemporary world that have developed over the long history of architecture and art, as well as the unique qualities of the present time which I describe in this thesis as an experience of non-places which are experienced in perpetual flux. The player's passage through multiple gamespaces on an everyday basis enriches the sensory experiences and understanding of contemporary life.

My approach in this thesis has been a critical one, drawing on diverse fields such as architecture, art history and ludology, I have looked at how the spatial and temporal aspects of videogames are framed in existing game theories and articulated an approach more attuned to contemporary experience. I argued that the more common adoption of a phenomenological approach to space is not suitable to be applied to videogames, given that they are not only transitory in nature, but also social constructs. Gamespaces are heavily influenced by diverse, political and economical factors that have to be taken into consideration in order to provide a working model of human relations in space.

Furthermore, the formal elements of gamespace are bound to a long history in the arts and sciences and they evolve that history further. The unique capabilities of the videogame medium provide the player with novel and enriching experiences such as twisting an impossible topology or disrupting the flow of time. These qualities of contemporary society and present times are explained in the theory of non-places which is central to my argument. This theory shows that games are not some deviation but integral part and logical development in present day society. We need to assess gamespaces critically by understanding its traditional as well as the novel opportunities and the unique experiences they offer us.

The research I have presented in this thesis aims not only to provide a framework for reflecting upon the player's substantial everyday exposure to gamespace, but also to help game makers understand how spatiotemporal qualities of videogames are embedded in the tradition and discussions of art and architecture while reframing the experience from a contemporary optic, which might help such makers to adopt a nuanced approach to developing the spatiotemporal qualities of videogames.

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