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Architecture in Video Games

An experimental tracing of architectural figures in video games

On remediative, digital representations of architecture, and the transposition of architecture to understand computer game possibility spaces

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Abstract

In this bachelor thesis, I aim to further computer game literacy, by opening our understanding of computer games up to an architectural vocabulary. I've explained and studied what I take to be the remediation of architectural properties in computer games, to indicate a direct connection between the two media. For this, several case studies, which presumed a transparent immediacy in their display of architectural figures, proved the most concrete demonstrations. I then transposed those same architectural properties, as concepts to use for describing computer game possibility spaces. This builds on several theorists who've proposed a spatial understanding of computer games, but who have neglected to develop that with concrete tropes, figures and forms to describe. It required case studies that foregrounded abstract possibility spaces, with an alienating hypermediation and minimalistic use of remediative elements. The first chapter of this thesis explains my theoretical frame and methodology. The second and third chapters demonstrate analyses of the remediation of architecture, and the transposition of architectural properties to describe possibility spaces, for formal composition and architectural narrative instances.

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1.- Theoretical frame and methodology

1.1.- Introduction and thesis outline

This bachelor thesis builds on my earlier work for the Radboud Honours Programme, in which I illustrated the use, in video games, of certain parameters for the medium of film.¹ I'd described how film properties such as frame rate and editing appeared remediated in games, but also how such properties were adapted in some cases. One of my main conclusions was that film properties generally failed to do justice to the spatial and non-linear properties of games, especially.

For this thesis, accordingly, I wanted to examine how architecture, an essentially spatial medium, might appear of influence in video games. From a preliminary analysis of the game studies field, primarily those works that conceive of games as a spatial medium, it also seemed valuable to explore how architectural figures could be used to describe computer games in their specificity. This chapter describes and explains the theoretical frame and methodology with which I hope to illustrate the influence of architecture in computer games, and the value of an architectural vocabulary to the field of game studies.

First, I describe my goal of furthering computer game literacy, by adding to the available vocabulary for describing the spatiality of games. Secondly, I explain why I chose to illustrate the remediation of architectural figures first, before demonstrating their use for understanding the possibility spaces of games. Thirdly, I explain my transposition of architectural figures for describing spatial, medium-specific properties of games. Fourthly, I select and describe those properties of architecture for which I'll demonstrate their remediation in games, and the value of their transposition to the study of possibility spaces. Fifthly, I select and describe video game case studies, as the best type of game case study for this project. Following all this, there's a summarizing conclusion in closing.

1.2.- Furthering computer game literacy

I would open up that somewhat introverted and overly specialized game studies field, which Ian Bogost typifies in his retrospective for the field's fifteenth anniversary, to the vocabulary of architecture studies and the nascent fields of geography and the philosophy of space.² This should also expand the reach of these latter fields, and demonstrate the broad relevance of media theory concepts like remediation and intermediality. Most importantly, this will add to current game studies discourse, as a preliminary analysis has shown that very few works in that field deal with the relevance of architecture to the study of games. Aside from a select few works, like architect Mark Wigley's description of how a game's spaces are always insulated from its surroundings in some form, the field of game studies is generally more concerned with developing a unique and specialized vocabulary for games.³

In addition to the above, such a project would further the spatial turn in cultural theory, as described in extensive detail by Jo Guldi and as illustrated by Julia Faisst in

¹ Ottens, M. (2015) *Film in Computer Games*; Nijmegen: Radboud University: 2-3, 95-97.

² Bogost, I. (2015, Feb. 02) 'Philistinism', 'Fundamentalism', in: Ian Bogost, *Writing, Game Studies, Year Fifteen - Notes on Thoughts on Formalism*, <http://bogost.com/writing/blog/game-studies-year-fifteen/> (2015, Jun. 11).

³ Wigley, M. (2007) 'Gamespace', in: *Space Time Play: Computer Games, Architecture and Urbanism - The Next Level*; Von Borries, F., Böttger, M., Walz, S.P. (eds.); Krumminga, J., Pepper, I., Roascio, F. (trs.); Boston: Birkhäuser Verlag: 484-486.

another work.⁴ This turn in cultural studies pertains to a shift from temporal descriptions of cultural, historical, architectural, literary, and other fields of interest, onto a spatial one, whereby the history of a given style or artifact isn't interpreted in a linear fashion, but is taken as a space for varying simultaneous and equal interpretations. By transposing an architectural vocabulary to the study of computer games, I would demonstrate a new methodology for such spatial considerations of their meaning.

The goal with all this is to further media literacy, as it pertains to our understanding of the computer game medium. I would develop an understanding of computer games, based on our knowledge of more familiar media. An important goal of this project, then, is to demonstrate the value of such a speculative and experimental approach. In all, for many different fields within cultural studies, this thesis should provide a clear and concise addition to its capacity for furthering media literacy.

1.3.- The remediation of architecture in computer games

To build a case for the transposition of architectural figures, for describing certain spatial properties specific to the medium of computer games, I first demonstrate the remediation of architectural figures in certain computer games. These initial case studies for each architectural parameter should show the direct connection that's often present, between architectural principles and the spatial properties of computer games. As I should be able to show, architecture is often used as a metaphorical representation of a game's affordances for the player's agency, or as a metaphor for its processes at play. Digital representations of walls might direct and constrain a player's actions in sections of certain games, for example, in tandem with a constrained possibility space in those sections. Likewise, representations of open spaces often occur when a player is given relative freedom to express their agency. Architectural imagery is often used to render a game's intangible possibility spaces obvious to a player.

Such architectural figures in computer games presume a transparent immediacy, as media theorists Jay David Bolter and Richard Grusin would describe it.⁵ As such, I should demonstrate this remediative use of architecture in computer games with games that pretend to present players with an internally consistent architectural space, that immediately and totally represents their affordances. These are the games where the form of an old and familiar medium is rendered as the content of an unfamiliar one, in media scholar Marshall McLuhan's terms.⁶ These are the games that exhibit the remediation of architecture the clearest, as Bolter and Grusin describe it, whereby architectural imagery is used with the pretense of transparent immediacy, to render an unfamiliar medium like computer games intelligible and inviting to an audience.⁷

⁴ Guldi, J. (2011) 'What is the Spatial Turn?', in: University of Virginia Library, Scholar's Lab, <http://spatial.scholarslab.org/spatial-turn/what-is-the-spatial-turn/> (2015, Jun. 11)., Faisst, J. (2014) 'The Spatial Turn in Literary and Cultural Studies: Space, Place and the Urban Imagination of Los Angeles', in: *Key Concepts and New Topics in English and American Studies - Schlüsselkonzepte und neue Themen in der Anglistik und Amerikanistik*; Kovach, E., Nünning, A. (eds.); Trier: WVT Wissenschaftlicher Verlag Trier: 59-60, 63-68.

⁵ Bolter, J.D., Grusin, R. (2000) *Remediation - Understanding New Media*; London: The MIT Press: 22-26, 30-31.

⁶ McLuhan, M. (1964) *Understanding Media: The extensions of man*; London: Routledge: 18-19.

⁷ Bolter, J.D., Grusin, R. (2000) *Remediation - Understanding New Media*; London: The MIT Press: 3-7, 45-50.

I'd posit that the remediation of architecture is generally geared towards a narrative function. The use of familiar forms seems to naturally facilitate the representation of a consistent and apparently immediate image of fictional worlds, that can then be filled with characters that direct attention towards the game's representations of events, which is how narratologist Marie-Laure Ryan defines narratives.⁸ This focus on the remediation of familiar media forms, as the content of narratively intended artifacts in new media, is a natural result of wanting to communicate transparently in new media, according to how media theorists such as McLuhan, Bolter and Grusin explain it.⁹

This remediation of architectural forms, to primarily narrative effect, indicates narrative as a conceptual artifact, a narrative of events happening to actors against a cohesive background, which is a concrete form that can be transferred between media, without losing its meaning, and which can be conceived of outside of its formulation in a specific medium. Marie-Laure Ryan had conceived of the latter as the primary interest of the field of transmedial narratology.¹⁰ In the same manner, the mediation of spatial forms could be conceptualized and transposed, from its origin in the medium of architecture, to another medium altogether. Ryan agreed to as much in a recent masterclass of hers, which I'd attended and co-hosted with a fellow student.¹¹ This is also what I hope to show, for each of the architectural properties that I plan to describe, with the methodology of transposing architectural figures to the study of computer games, as outlined in the following paragraph.

With the first set of case studies for the second and third chapters of this thesis, I'd planned to demonstrate the remediation of architectural figures in computer games, to indicate a direct connection between the two media. This is in preparation for the transposition of architectural figures, to describe the specific properties of computer games in architectural terms. The case studies I'll use for this should exhibit a predominantly narrative, transparent and immediate use of these architectural figures. I expect them to focus attention to their remediation of a familiar medium, in a primacy over their medium-specific properties. This remediation of architectural figures to narrative purpose also implies the possibility of a like mannered transposition, that highlights architectural spatiality and form, though represented with the parameters of a different medium. The latter is a methodology that I'll explain in the following paragraph, and will demonstrate with additional case studies in the second and third chapters.

1.4.- Understanding the architecture of computer game possibility spaces

Having theorized why architecture is frequently used in the representation of video game processes, and why it's relevant to analyze the remediation of architecture in games, I should go on to examine if these same architectural figures can tell us something of the medium-specificity of games. For each architectural parameter described in the following two

⁸ Ryan, M. (2005) 'On the Theoretical Foundations of Transmedial Narratology', in: *Narratology beyond Literary Criticism. Mediality, Disciplinarity*; Meister, J.C. (ed.); Berlin: Walter de Gruyter: 2-5.

⁹ Bolter, J.D., Grusin, R. (2000) *Remediation - Understanding New Media*; London: The MIT Press: 3-7, 53-56, 273., McLuhan, M. (1964) *Understanding Media: The extensions of man*; London: Routledge: 18-19.

¹⁰ Ryan, M. (2005) 'On the Theoretical Foundations of Transmedial Narratology', in: *Narratology beyond Literary Criticism. Mediality, Disciplinarity*; Meister, J.C. (ed.); Berlin: Walter de Gruyter: 3-9, 18-21.

¹¹ Lecture 'Masterclass on Transmedia Storytelling', Ryan, M. (2015, Apr. 22) Nijmegen: Lecture as part of the 'Resurfacing Software' symposium at the Radboud University.

chapters, the methodology described in this paragraph should result in several case studies that deal with the architectural aspects of computer game possibility spaces. I intuit the value of this approach from all those theorists who've focused on the spatiality of games, when explaining the unique rhetorical, narrative or persuasive potential of computer games.

For instance, when considering how computer games might represent and reflect on specific cultural values, game studies specialist Ian Bogost refers to the possibility spaces that emerge from a game's rules and limitations.¹² In reference to the work of Katie Salen and Eric Zimmerman, possibility spaces are taken, by Bogost, to be conceptual spaces that comprise all gestures that are available to a player, within a limited system of procedurally computed processes and possible events.¹³ Digital media theorist Janet Murray proposes a similar model of games, as a system of rules, that invites exploration by players, the changeable state of which is computed according to strict algorithmic procedures.¹⁴

While he problematically dismisses the narrative functioning of such systems, the influential game studies scholar Gonzalo Frasca also defines the expressive unicity of games by their spatial form, as a system of rules that can lead to emergent narratives when it is acted upon.¹⁵ Game studies and literature scholar Espen Aarseth describes games as narrative texts, that require a player's performative practices to explore and uncover its narratives and narrative potentialities.¹⁶ Looking back, towards the first scholars of games as a cultural medium, even the historian Johan Huizinga had already observed that the behavior of play occurs when players imagine themselves as exploring a conceptual play space, that represents, to them, the game's system of constraints and affordances.¹⁷

All of these theorists effectively propose various spatial notions of games. Some of them have developed these notions as well. Roger Cailliois and Espen Aarseth, for example, respectively define subcategories that differentiate rule-bound play spaces from free play spaces, or subcategories which separate the more expressive elements in a game from its algorithmic elements.¹⁸ *Space Time Play* is an entire volume of essays which build on this premise of computer games being spatial.¹⁹ Ian Bogost prolifically illustrated his concept of possibility spaces, with case studies that he categorized, according to the social field that

¹² Bogost, I. (2008) 'The Rhetoric of Video Games.', in: *The Ecology of Games: Connecting Youth, Games, and Learning*; Salen, K. (ed.); Part of 'The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning'; Cambridge: The MIT Press: 120-123, 125-128., Bogost, I. (2007) *Persuasive Games: The Expressive Power of Videogames*; Cambridge: The MIT Press: 2-10, 42-44.

¹³ Salen, K. & Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*; Cambridge: Massachusetts Institute of Technology: 2-7, 73-81.

¹⁴ Murray, J.H. (1997) *Hamlet on the Holodeck - The Future of Narrative in Cyberspace*; New York: The Free Press: 69-83.

¹⁵ Gonzalo, F. (2003) 'Simulation versus Narrative', in: *The Video Game Theory Reader*; Wolf, M.J.P., Perron, B. (eds.); New York: Routledge: 225-233.

¹⁶ Aarseth, E.J. (1997) *Cybertext - Perspectives on Ergodic Literature*; Baltimore: The John Hopkins University Press: 1-3, 17-23.

¹⁷ Huizinga, J. (2008) *Homo Ludens: Proeve eener bepaling van het spel-element der cultuur*; Amsterdam: Amsterdam University Press: 28-55.

¹⁸ Cailliois, R. (2001) *Man, Play and Games*; Barash, M. (tr.); Illinois: University of Illinois Press: 3-6, 11-36., Aarseth, E.J. (1997) *Cybertext - Perspectives on Ergodic Literature*; Baltimore: The John Hopkins University Press: 62-64.

¹⁹ Von Borries, F., Böttger, M., Walz, S.P. (eds.) (2007) *Space Time Play: Computer Games, Architecture and Urbanism - The Next Level*; Krumminga, J., Pepper, I., Roascio, F. (trs.); Boston: Birkhäuser Verlag: 484-486.

they most pertain to.²⁰ Most of these theorists, however, seem to have neglected to systematically develop specific forms, tropes or figures that these possibility spaces might be composed of, and which might be used to compare different games on the basis of their spatial forms.

In a broader context, the spatiality of computer games might be understood and described along the lines of Donald Norman, and his various types of affordances for agency, as expressed by artifacts designed for human use.²¹ From a more philosophical point of view, these possibility spaces might exhibit what Brian Massumi calls virtuality, or potentiality, and computer games could be described by the measure of affective intensity that is elicited by their actualized or omitted lines of potential action.²² My transposing architectural figures to describe these possibility spaces is an attempt to add to all of the aforementioned game studies projects, with a more comprehensive and understandable vocabulary, that I can take as is, from architecture, geography, and the philosophy of space.

For chapters two and three of this thesis, where I aim to demonstrate the value of transposing an architectural understanding of spatiality to describe computer games, I've tried to select those games for case studies, that foreground their spatiality without resorting to a pretense of transparent immediacy, or to a blatant remediation of architecture. The case studies I've selected either use minimalistic audio-visual elements as metaphors for their affordances, or their remediative elements are otherwise negligible as representations of their processes at play. In either case, their transparent immediacy, as Bolter and Grusin refer to it, should mean that the remediation of architecture, music, film or some other medium is imperceptible or negligible to the audience of these games.²³ If these games then explicitly refer to the formal properties of their specific medium, their possibility spaces being especially relevant here, these properties should stand out especially well against the otherwise transparent mediation that they exhibit.

What I'm looking for here is hypermediation, in Bolter and Grusin's terms.²⁴ The case studies that I've selected downplay their remediative use of other media, with a transparent immediacy, even as they emphasize the architecture of their possibility spaces with an alienating use of hypermediation, often foregrounded in a metanarrative or a frame story. Instead of the mainly narrative functioning of architectural properties that should show in their remediative use, this transposition of architectural properties to possibility spaces is expected to apply to the more poetically intended examples of computer games. Poetic here is taken in its original meaning, as formulated by Aristotle, as a reference to the make and maker of a work, which is what should come to the fore, in those games that exhibit a hypermediation of their medium-specificity.²⁵

²⁰ Bogost, I. (2007) *Persuasive Games: The Expressive Power of Videogames*; Cambridge: The MIT Press: 12-18, 59-64.

²¹ Norman, D.A. (2013) *The Design of Everyday Things: Revised and Expanded Edition*; New York: Basic Books: 10-30.

²² Massumi, B. (1995) 'The Autonomy of Affect', in: *Cultural Critique - The Politics of Systems and Environments, Part II*; No. 31, Fall 1995; s.n. (eds.); Minneapolis: University of Minnesota Press: 83, 85-89, 93-95.

²³ Bolter, J.D., Grusin, R. (2000) *Remediation - Understanding New Media*; London: The MIT Press: 22-26, 30-31, 45-50.

²⁴ Bolter, J.D., Grusin, R. (2000) *Remediation - Understanding New Media*; London: The MIT Press: 31-34, 38, 41-44.

²⁵ Aristotle (1902) *The Poetics of Aristotle*; S.H. Butcher (ed.); S.H. Butcher (tr.); New York: Macmillan and Co. Ltd.: 35-37.

In addition to showing how architectural properties are often used as narrative metaphor for computer game possibility spaces, I should be able to demonstrate how these properties can also be transposed to describe possibility spaces directly. This is an experimental and speculative leap ahead, building on all those theorists that have developed a notion of games in spatial terms, but who have neglected to develop a set of figures and tropes, to concretely describe and compare game spaces. The case studies I use for this part of the analysis are expected to foreground their possibility spaces with an alienating hypermediation, that's set against a transparent and immediate, negligible use of remediative elements.

1.5.- Parameters for architecture that can be represented or transposed

In the preceding, I've assumed that it should be possible to point to representations of any architectural parameter, in recognizable form, as part of a computer game. For these same parameters, it should be possible to transpose them, for describing video game possibility spaces. Accordingly, I shouldn't need to select separate parameters for either line of inquiry, and the following two chapters of this thesis can each describe both practices, and demonstrate their application to two architectural parameters.

I'd prefer to be comprehensive and thorough in my listing of architectural parameters. However, given the limited scope of this project, I'll have to keep to introductory works and a broad, largely speculative understanding of architecture; as a medium of organized space that can be approached, equally, from the fields of architecture studies, philosophy and geography. Selecting concepts from the fields of philosophy, geography and architecture, I would have preferred to propose a speculative listing of architectural parameters, based off of a phenomenological experience of architecture, as it appears gradually within my field of sensation, in Merleau-Ponty's terms.²⁶ This would assume that spatiality in general can elicit architectural experiences, and that geographical and philosophical concepts also contribute to an architectural understanding of artifacts. As we can only experience space over time, by tracing different sides of an object or different paths alongside it, this sense of space, as initiating and foregrounding a human practice, the practice of tracing withdrawn objects, might be construed as an initial architectural experience, in line with the writings of phenomenological philosopher Maurice Merleau-Ponty and ontological philosopher Graham Harman.²⁷

From there, I would have proposed a parameter that would account for the architectural bounding of space, allowing for various degrees of bounded space, from absolute to permeated and conceptual boundaries. An architectural composition of bounded volumes would be the next, more tangible experience of architecture that I would propose. A list of signifying properties would then gradually allow for intersubjective interpretations of the perceived meaning of an architectural artifact.

Instead of creating a comprehensive and thoroughly explained list of architectural parameters, however, I have to select a mere two parameters from this speculative model of architecture, that I feel best demonstrate the methodology that I want to test in this thesis.

²⁶ Merleau-Ponty, M. (1962) *Phenomenology of Perception*; Smith, C. (tr.); London: Routledge: 3-14, 60-74.

²⁷ Merleau-Ponty, M. (1962) *Phenomenology of Perception*; Smith, C. (tr.); London: Routledge: 117-129, 161-170., Harman, G. (2011) *The Quadruple Object*; Winchester: Zero Books: 73-78, 95-100, 103-104.

Based on introductory works of architecture studies, I describe the remediation and transposition of a parameter for architectural composition first, in the following chapter. The parameter for architectural composition should exemplify the use of architectural forms in computer games, where the other parameter that I deal with best illustrates the signifying and narrative potential of architecture in computer games. The selection of these two types of parameters is derived from the work of historian of architecture Jacqueline Gargus, who posits an interpretive and typological analysis of architecture as the logical and proven counterpart to a formal, or morphological one.²⁸

Accordingly, after having demonstrated how knowledge of architectural form could be of use when describing computer games, the third chapter of this thesis will demonstrate the use of an architectural vocabulary for understanding a game's story. This second parameter is taken from recent geographical work in non-representational theory, that tries to describe how spaces, including architectural spaces, can come to express meaning in a fundamental, pre-cognitive manner. Specifically, I look at the perceived authors or originators of a given space, in a parallel to the conventional narratological practice of describing a narrative instance. I describe this parameter in the third chapter of this thesis, and will demonstrate both my practice of showing representations of this property of architecture, and my practice of transposing this architectural figure to describe the spatial form of certain computer games.

Having described my methodology for identifying the representation of architectural figures in computer games, and for transposing architectural figures to study other aspects of computer games, I've now selected those two parameters that I'll use to test these methodologies. I'll look for the representation of architectural composition and of architectural narrative instances, and transpose each parameter in their respective chapters, to use them for describing the possibility spaces in select video game case studies. In the following paragraph, I consider what type of case studies to best select for this.

1.6.- Video game case studies that exhibit architectural figures

For my attempt at demonstrating the remediation of architecture in games, and the relevance of transposing architectural figures to interpret the possibility spaces of games, I've only selected case studies from the video game subset of the computer game form. This is to limit the scope of the project as much as possible, while retaining the most relevant of potential case studies. For lack of time to really delve into the game studies and architecture studies discourses, I also deem the video game form the most capable of tangibly expressing architectural figures and providing an architectural experience to its players. Moreover, by specifically targeting the video game subset for my case studies, I can save time, by reasonably disregarding the homogenous, mostly static and narratively irrelevant physical container that conventional video games use.

The physical form and environment, containing the games I'll be discussing, what new media specialist Ingrid Richardson would call their technospaces, unanimously comprises a large computer screen, connected to a speaker set and a computer, which is connected to a handheld control interface, held and manipulated by a player facing the

²⁸ Gargus, J. (1994) *Ideas of Order: A Formal Approach to Architecture*; Dubuque: Kendall/Hunt Publishing Company: 57-65.

screen.²⁹ This computer screen displays the game's play processes visually. As per convention with this form, a player should disregard their physical surroundings in all of the case studies that I'll posit, since only what's displayed on screen, what's tangible through the control interface, and what's audible from the speaker set, is rendered diegetic and relevant. By homing in on these audio-visual and tangible computer renders, I can discuss more of the complex architectural figures that these games present. The leap to talking about digitized possibility spaces should then be less of a leap as well, if the largely motionless player in front of the screen is left out of the picture.

In a slight divergence, I should more properly define the computer game and video game forms, before ending this chapter. Video games are a subset of computer games. In turn, I take computer games to be a subset of the medium of games. Games are a form for voluntary playful activities, with a certain degree of regulation through rule and goal statements, according to the pioneering and influential works of historian Johan Huizinga and sociologist Roger Caillois.³⁰ This medium includes sports, board games and gambling practices. They can be dated as far back as prehistory, in the human archaeological record, going by the apparent recreational and ritual use of astragalus bones.³¹ The extremely prolific examples of games and play behavior, in animal and plant nature, as well as in human cultures, demonstrates Katie Salen and Eric Zimmerman's foundational observation in game studies, that games can be observed wherever a limited possibility space, or a system of rules, allows some play for the actors within it.³²

Prior to this project, for a game design internship, I'd already collated a definition of the game artifacts of our human culture.³³ The compounded definition by dr. Katie Salen and dr. Eric Zimmerman was chief among those that I had compared, but I also accounted for definitions by dr. Jesper Juul, and those by the influential computer game designer Chris Crawford, and by dr. Johan Huizinga and dr. Roger Caillois, among several others.³⁴ I take a game to be a conceptual system that comprises rules, goals and quantifiable expressions of current states of that system. A game allows and motivates several apparently autonomous, participating agents, to engage in an artificial conflict. This conflict is a confrontation of game play processes that is directed, to a limited but certain degree, by stated or implied rules and

²⁹ Richardson, I. (2007) 'Pocket Technospaces: the Bodily Incorporation of Mobile Media', in: *Continuum: Journal of Media & Cultural Studies*; Volume 21, Number 2; London: Routledge: 205-214.

³⁰ Huizinga, J. (2008) *Homo Ludens: Proeve eener bepaling van het spel-element der cultuur*, Amsterdam: Amsterdam University Press: 28-55., Caillois, R. (2001) *Man, Play and Games*; Barash, M. (tr.); Illinois: University of Illinois Press: 3-6, 11-36.

³¹ Koerper, H.C., Whitney-Desautels, N.S. (1999) 'Astragalus Bones: Artifacts Or Ecofacts?', in: *Pacific Coast Archaeological Society Quarterly*; Volume 35, Numbers 2 & 3, Spring & Summer Editions; Costa Mesa: Pacific Coast Archaeological Society: 69-70, 73-75.

³² Salen, K. & Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*; Cambridge: Massachusetts Institute of Technology: 2-7, 73-81., Dinets, V. (2015) 'Play behavior in crocodilians', in: *Animal Behavior and Cognition*; Volume 2, Issue 1, Februari 2015; Kuczaj, S. & Highfill, L. (eds.); s.l.: Sciknow Publications Ltd.: 49-55., Trewavas, A. (2014) *Plant Behaviour and Intelligence*; Oxford: Oxford University Press: 176-178.

³³ Ottens, M. (2011) Analysis Report: On the Uses of Serious Games for the ABOE Training Project; Veghel: Vanderlande Industries: 3-4, 11-18.

³⁴ Salen, K., Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*; Cambridge: Massachusetts Institute of Technology: 73-81., Juul, J. (2003) 'The Game, the Player, the World: Looking for a Heart of Gameness', in: *Level Up: Digital Games Research Conference Proceedings*; Copier, M., Raessens, J. (eds.); Utrecht: Utrecht University: 30-45., Crawford, C. (1984) *The Art of Computer Game Design*; Berkeley: Osborn/McGraw-Hill: 1-18.

goals. In brief, a game is an enactive system that directs, expresses and cultivates a play between its participants. I will stick with this definition here as well.

In the subset of computer games, a computer is used to store, express and manipulate most elements of the game, to a certain degree. It participates by using an interface to convert between the digital and analog objects or processes that are involved in these games. In this project, a game is taken to be actualized, as such, only when it is in play; when all players are allowed to act and when the game play processes that govern rules, goals and feedback are running. This requires an intersubjective and phenomenological approach for the following case studies, which I won't specify here.

Continuing the stipulative definitions, and to further limit the scope of this project, I take video games to be those highly popular kinds of computer games that mainly provide feedback on game processes, and player actions, via a video device, as philosopher of art Grant Tavinor concisely describes them.³⁵ Such a video device is most often a rectangular, raster display computer screen. A television screen or computer monitor, for example. According to author and scholar Steven Kent's history of computer games, among others, the experimental and innovative PDP-1 computer program *Spacewar* was the first computer game.³⁶ It was initially hacked by MIT student Steve Russell, and expanded on by his fellow students. That game already made use of a CRT monitor to visually represent the game's computer processes and digital data. Ralph Baer's work for Magnavox' Odyssey computer and Nolan Bushnell's creations at the Atari Corporation would popularize this form, even as a long line of electronic games had already hinted at its potential popularity.³⁷ The video game form has remained so predominant throughout the history of computer games, that radically other forms rarely appear, causing many scholars, like Grant Tavinor, to even equate the two types.

As I mentioned at the start of this chapter, I consider video game technospaces to conventionally be mostly irrelevant to the digital content of these games. Video games physically comprise a largely immobile player, seated at some distance from a large computer screen, to which the game rendering computer and control interface are connected. I'll disregard the architectural properties of this physical space in my case studies, and skip over to the more dynamic and complex renderings of architecture, that emerges in the digital content of my case studies. All of the above has informed my selection of case studies, for each of the parameters of architecture that I study in chapters two and three, and for each of the two methodologies that I'll test in those chapters.

1.7.- Summarizing conclusion and outline of the following

In closing, a summary, before moving onto the case studies, that will demonstrate not only the remediated use of architectural figures in video games, but also the potential transposition of those figures to render these games' possibility spaces more intelligible. I developed this methodology, following my project for the Radboud Honours Programme, in

³⁵ Tavinor, G. (2009) *The Art of Videogames (New Directions in Aesthetics)*; Oxford: Blackwell Publishing Ltd.: 26-29.

³⁶ Kent, S.L. (2010) *The Ultimate History of Video Games: From Pong to Pokémon and Beyond... The Story Behind the Craze That Touched Our Lives and Changed the World*; New York: Three Rivers Press: 42-47.

³⁷ Kent, S.L. (2010) *The Ultimate History of Video Games: From Pong to Pokémon and Beyond... The Story Behind the Craze That Touched Our Lives and Changed the World*; New York: Three Rivers Press: 52-54, 59-63, 83-92.

order to open up the somewhat exclusionary game studies discourse, to influences from other academic fields, and in order to further computer game literacy with an architectural vocabulary. My demonstration of the remediation of architectural figures in computer games should show a connection between the two media, to justify the subsequent transposition of architectural figures, for describing specific properties of computer games.

The case studies that I've selected for the prior should exhibit a predominantly narrative, transparent and immediate use of architectural figures, so as to focus attention to their remediation of familiar media. My case studies for the latter should foreground their possibility spaces with a use of hypermediation, combined with a transparent and immediate use of remediation. My transposition of architectural properties to computer game possibility spaces builds on all those theorists that have developed a notion of games in spatial terms, but who've neglected to develop a set of concrete figures to describe those game spaces with.

I'll test these methodologies by looking for the remediation of architectural composition, and of architectural narrative instances, and by transposing each parameter in their respective chapters as well, to use them for describing possibility spaces in select video games. I've selected the video game form for my case studies, as I consider video game technospaces to conventionally be mostly irrelevant to the digital content of these games. This should limit the scope of this project to an acceptable degree. I'll disregard the architectural properties of the physical environment surrounding the case studies, and skip over to the more dynamic and complex renderings of architecture in the digital content of these case studies.

In the following chapter of this thesis, I'll outline the parameter of architectural composition, then study its remediation in the computer game *Halo*. I end the chapter on a transposition of such architectural composition, to describe the possibility spaces of the game *Heavy Rain*. In the third chapter of this thesis, I outline the architectural property of spatial narrative instances, by using narratological and geographical concepts. After that, I apply this notion to the study of its remediation in the *Assassin's Creed* series of computer games, and will transpose it to describe the possibility spaces of *Starseed Pilgrim*, *Fit in*, *The Stanley Parable*, and *Mountain*. Finally, a concluding chapter will summarize the preceding report, and set out relevant lines of further investigation.

2.- Remediating and transposing composition

2.1.- A formalist analysis of architectural composition

Having extensively described the theoretical frame for my methodology, this chapter will first describe the remediation of the formal property of architectural composition in the computer game *Halo*, and then transpose that property to describe the composition of *Heavy Rain*'s possibility space. This is before I move on to demonstrating my methodology on a more semiotic and narratologically relevant property of architecture, in the third chapter. In this introduction, I'll set out my understanding of the architectural property of composition, and its apparent value for understanding architecture.

Philosopher and architect Branko Mitrović described predominantly formal properties, such as architectural composition, as important for an aesthetic analysis of architecture, because it allows for an understanding of architectural artifacts that is independent from the concepts, ideas and meanings that we would otherwise associate with them.³⁸ Such an analysis of architecture was popularized by the architectural historian Geoffrey Scott, with his critique against those architectural analyses that would define a building by its cultural function, or by its sociopolitical history, instead of by its formal arrangements of materials and shapes in certain dimensions.³⁹ More recently, geographer Nigel Thrift, among others, has proposed a similar move towards the study of non-representational aesthetics, to account for the same pre-cognitive and pre-semiotic, or affective experiences that these other theorists were getting at, based purely on the initial appearance of their formal properties to our sensory apparatus.⁴⁰ Thrift intends to draw attention to the subtle phenomena and reactions that occur at these initial moments of encountering an art object. In keeping with these notions of formalist analysis, I'll mostly refrain from semiotic interpretations in the following case studies, and will keep to concrete descriptions of form. Chapter three of this thesis should adequately demonstrate my methodology, as pertains a more narrative analysis of games.

With this premise, I've collated, and will apply, those formal properties of architectural composition, that I could find in introductory works for the study of architecture. The art historians and architecture scholars James S. Ackerman, Peter Collins, Alan Gowans, and Roger Scruton describe architectural composition as an organization of the basic formal elements of space and mass.⁴¹ To architectural theorist Nikos Salingaros, the formal properties of such arrangements can only be understood by tracing how material properties might have informed the geometrical arrangements of architectural elements.⁴² Architectural scholar Pierre von Meiss regards the tension between order and chaos as the primary expression that such informed arrangements of space and mass might elicit, with relationships to spatiality, to human bodies, and material qualities, emerging as a part of that

³⁸ Mitrović, B. (2011) *Philosophy for Architects*; San Francisco: Chronicle Books: 87-91.

³⁹ Geoffrey, S. (1914) *The Architecture of Humanism - A Study in the History of Taste*; New York: Houghton Mifflin Company: 11-14, 212-213, 222-225, 227-230, 233-239.

⁴⁰ Thrift, N. (2008) *Non-Representational Theory - Space | politics | affect*; New York: Routledge: 5-18, 22, 97-106, 121-124, 147-149, 252-254.

⁴¹ Ackerman, J.S., Collins, P., Gowans, A., Scruton, R. (2014, Dec. 10) 'Form', in: Encyclopaedia Britannica, Architecture, <http://www.britannica.com/EBchecked/topic/32876/architecture/31845/Expression-of-technique#toc31846> (2015, Jun. 11).

⁴² Salingaros, N.A. (2006) *A Theory of Architecture*; Solingen: Umbau-Verlag: 220-221, 229-233.

same tension.⁴³ Architectural historian Jacqueline Gargus describes such various conceptions of primary architectural composition and organization as 'parti', indicating the countless conceptual systems that might equally be seen to underlie compositions, and she goes on to focus on the formal elements that comprise such conventional and recognized arrangements.⁴⁴

From these introductory works on architecture, and the references that they make to additional literature on formal architectural composition, it's clear that the arrangement of space and mass is widely considered to be the simplest form of composition in architecture.

⁴⁵ From arrangements of volume and bounding masses, a sense of interiority or exteriority might arise. Masses might insulate volumes from surrounding volumes. Concrete shapes might also appear subtracted from such masses, to form intersecting cavities. Similarly, shapes can appear to supplement the bulk of an already existing mass. Space nor mass can be regarded in isolation, as their combination is what makes an architectural artifact intelligible to us. The juxtaposition or intersection of seemingly disparate spaces and masses accounts for more complex architectural compositions, using these most basic elements.⁴⁶

The relative scale of architectural elements, along with their texture and coloring, their light emitting or reflective qualities, the articulation or continuity between elements, the order or disorder of their arrangement, and their relationship to an apparent environment and to inhabiting agents; these seem to make up the details of an architectural composition.⁴⁷ In the following case studies, these detailed compositional elements are referred to, respectively, as scale, texture, luminosity, articulation, regularity, and eccentricity. From there, one might go on to consider how a certain composition seems proportioned or arranged according to a conceptual order or algorithm. A relatively arithmetic, geometric or harmonic arrangement would stand out against a more organic, chaotic or procedural arrangement, for example.⁴⁸ The latter aspect of architectural composition starts to delve into a typological, or interpretive analysis of this formal property. In line with this, one might also start to consider the symbols of function of a composition, its expressions of technique, the supplemental ornamentation and any historical transformation of a specific morphology or typology.⁴⁹

⁴³ Von Meiss, P. (1990) *Elements of Architecture: From form to place*; Abingdon: Spon Press: 21-54.

⁴⁴ Gargus, J. (1994) *Ideas of Order: A Formal Approach to Architecture*; Dubuque: Kendall/Hunt Publishing Company: 39-40, 55.

⁴⁵ Ackerman, J.S., Collins, P., Gowans, A., Scruton, R. (2014, Dec. 10) 'Space and Mass', in: Encyclopaedia Britannica, Architecture, Form, <http://www.britannica.com/EBchecked/topic/32876/architecture/31845/Expression-of-technique#toc31846> (2015, Jun. 11)., Crisman, P. (2007, Mar. 14) 'Introduction', in: Whole Building Design Guide, Form, <http://www.wbdg.org/resources/form.php> (2015, Jun. 11).

⁴⁶ Von Meiss, P. (1990) *Elements of Architecture: From form to place*; Abingdon: Spon Press: 99-120.

⁴⁷ Ackerman, J.S., Collins, P., Gowans, A., Scruton, R. (2014, Dec. 10) 'Composition', 'Light', 'Scale', 'Environment', in: Encyclopaedia Britannica, Architecture, Form, <http://www.britannica.com/EBchecked/topic/32876/architecture/31845/Expression-of-technique#toc31846> (2015, Jun. 11)., Von Meiss, P. (1990) *Elements of Architecture: From form to place*; Abingdon: Spon Press: 57-72, 80-90.

⁴⁸ Gargus, J. (1994) *Ideas of Order: A Formal Approach to Architecture*; Dubuque: Kendall/Hunt Publishing Company: 41-55., Crisman, P. (2007, Mar. 14) 'D. Proportion', in: Whole Building Design Guide, Form, <http://www.wbdg.org/resources/form.php> (2015, Jun. 11).

⁴⁹ Ackerman, J.S., Collins, P., Gowans, A., Scruton, R. (2014, Dec. 10) 'Content', 'Ornament', in: Encyclopaedia Britannica, Architecture, <http://www.britannica.com/EBchecked/topic/32876/architecture/31845/Expression-of-technique#toc31846>

For the following case studies, I'll keep to describing expressions of space and mass, however, along with expressions of the juxtaposition or intersection of spaces and masses, expressions of the detailed formal properties of these compositions, and of the apparent order or disorder that seems to inform their arrangement. I'll first describe how these aspects of architectural composition appear remediated in the computer game *Halo*, primarily to narrative effect. Then, I'll describe the hypermediated use of possibility spaces in *Heavy Rain*, by transposing these concepts of architectural composition. In chapter three, this whole process is repeated for the architectural property of narrative instances, before the thesis is concluded in its final chapter.

⁶ (2015, Jun. 11)., Gargus, J. (1994) *Ideas of Order: A Formal Approach to Architecture*; Dubuque: Kendall/Hunt Publishing Company: 56-83.

2.2.- Architectural compositions of bounded volumes in *Halo*

Halo is a computer game about surveying and exploring environments, and about monitoring and controlling battlefields.⁵⁰ In encounters with the game's opponents, a player is urged to move around their stated enemy, and to approach or evade them in a considered manner. As in the third mission of the game, the player is often initially placed at a safe distance from enemy base camps.⁵¹ The spaces in which these encounters take place are crucial, then. The game's complicated, varied and always partially obscured architectural compositions challenge a player to explore, survey and internalize these environments, in advance of any attack on their enemy. The opposite is even discouraged, as players are intermittently thrown, involuntarily, into overwhelming ambushes on unfamiliar terrain. This happens at the start of the fourth mission, where the player character is dropped into the middle of an enemy encampment, upon their first visit to a tropical beach environment.⁵² It seems relevant to study this game's remediation of the architectural property of composition, as this remediation appears essential to the game's workings, and is likely to prove considered and exemplary.

2.2.1 Space and mass in *Halo*

As is conventional for these types of video games, centered on exploration and the control of spaces, volumes of space are rendered in *Halo*, by using the long dominant methods of the visual regime of cartesian perspectivalism, as historian Martin Jay would describe it.⁵³ As per the conventions of this scopic regime of cartesian perspectivalism, three dimensional spaces are implied on a flat screen, by the relative distance and position of displayed objects, in relation to the plane of that screen. In *Halo*, this plane generally represents the point of view of the main player character. Distant objects are depicted smaller than close objects in *Halo*, objects are cut off by other objects if these are posited as being in front of them, and objects appear more foreshortened as they're viewed from a flatter angle. All of this is exemplary of how art historian Erwin Panofsky describes the workings of perspectival illusions.⁵⁴

These masses that imply space are rendered with enough fidelity to lived experience as to appear solid and tangible. As is visible in the figure on the following page, *Halo* presents a sufficiently convincing visual depiction of grassy hills and rough soil, steep rock faces and distant skies, even as haze and color degradation give mass to the atmosphere. Grass sounds relatively soft and muffled when walked on, wind seems to audibly ruffle trees, and a distant waterfall makes irregular yet constant splashing sounds. Even the reflection and distance of sounds, and doppler effects as well, are simulated as masses produce noise in these spaces.

In addition to all of these audio-visual elements, the manipulable elements of *Halo* further these illusions of spatial masses distributed in volumes of space. A player can rotate and move the camera frame, with gestures that also move their main player character in the game. This allows them to move along all horizontal planes in the environment, at limited

⁵⁰ Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁵¹ 'Truth and Reconciliation, Truth and Reconciliation', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁵² 'The Silent Cartographer, The Silent Cartographer', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁵³ Martin, J. (1988) 'Scopic Regimes of Modernity', in: *Vision and Visuality*; Foster, H. (ed.); s.l.: Bay Press.: 4-7.

⁵⁴ Panofsky, E. (1991) *Perspective as Symbolic Form*; New York: Zone Books: 34-36.

speeds and up to a certain incline. This creates the illusion of a solid ground. The player character can also be moved into the distance or backwards, until he is stopped by walls, inclines, steep drops or other obstacles. These movements further the perspectival illusions, as the three dimensional shape of these spaces and masses can be traced by moving around them. They also create the illusion that the player character is moving around in a tangible space, amongst solid or permeable masses that obstruct their movements to varying degrees. Volumes of air seem to allow for free movement, for example, constrained by a simulation of gravity, while water slows such movements down.

Architectural space in *Halo* is remediated by convincing audio-visual illusions, of objects appearing at varying distances from the game's camera frame. Space also appears as a result of the player tracing relative distances between these displayed objects, by rotating and moving the camera frame, as well as their player character. Masses are depicted with convincing, high fidelity representations of passive and reactive material properties, as a player regards and manipulates their character's surroundings.

These two basic elements of *Halo*'s remediated architectural compositions cannot be regarded in separation, as should be evident from the preceding analysis. Space appears represented by the relative distances of objects, and mass in *Halo* is defined by audio-visual effects and affordances, that appear as a result of their relative distances from players. *Halo* evokes architectural compositions in all their specificity, even at this most basic level.



Figure 01 - An image of the perspectival illusions that render distance and space intelligible in the second mission of Halo, while the simulated material properties of air, earth, water and the like create illusions of tangible mass. The player character can be made to move around these objects, and to manipulate them.

2.2.2 Juxtapositions and intersections of architectural spaces in *Halo*

As described in the introduction to this case study, *Halo* never presents players with a single, continuous space to explore, but instead provides a steady rhythm of interconnected spaces, to keep the player engaged and to challenge them with varying battlefields to master. To

architecture scholar Pierre von Meiss, there are two ways in which compounded spaces can connect in an architectural artifact.⁵⁵ Spaces can either intersect in an architectural composition, when two shapes appear to share a portion of their spatial form, or spaces can appear juxtaposed, when two clearly separate masses are open to each other without overlapping. The influential architect Francis Ching defines four types of connections between spaces, and it's this more comprehensive list that's especially relevant for describing *Halo's* compositions of multiple spaces. To Ching, spaces can appear nested inside each other, they can interlock and overlap, they can appear adjacent to each other, and they can be linked by a shared space that's in between them.⁵⁶

Many spaces in *Halo* are revealed to be nested inside larger spaces, as a player is exploring them. These recurring compressed spaces, that reveal a larger space around them, serve to intermittently create a sense of surprise and awe, as the player explores the game's environments. The second mission in *Halo*, for example, starts the player character off inside a small, almost insulated space, which only opens up to one side, thereby revealing the large outdoor environment that had already been surrounding this tiny room.⁵⁷ As a player explores the boundaries of this seemingly outdoors environment, they might come across an even larger superstructure, that looms beneath and around this exterior. Further along in the level, elements of these structures protrude from beneath the surface, and are revealed where the ground has fallen away.⁵⁸ Furthermore, on the distant horizon, the surface of this designed natural landscape is shown to curve upwards, and to lie nestled inside of a colossal ring-like construct.

These natural environments and the alien structures that they're inside of are always interlocked. Foliage and soil erosion blur the boundary between the vast, cavernous, geometrical spaces that a player might be exploring at one point, and the organic environment that might be revealed at the top of the next incline.⁵⁹ The invading structures of the human army, and their extraterrestrial enemies in this place, always appear juxtaposed and strictly separated from their surroundings. The small pod that the player character had landed in at the start of the second level, for example, lies on top of the surrounding surface, with it's only exit slightly raised above the ground.⁶⁰ In the third mission of the game, the home base of the human's enemies is similarly seen to float above the surface as well.⁶¹

More formal details are used to separate and combine these disparate spaces in the missions of *Halo*, which will be described in the next paragraph. For now, I'll summarize by stating that the combination of various spaces in *Halo* is used to create a sense of surprise for each new environment that's encountered, with spaces often being revealed as nestled inside larger spaces. Aside from this, architectural composition is used to differentiate the native environments, which always appear interlocked and overlapping, from the constructions of the invaders in this game's narrative. These human constructions, and those of their enemies, are always relatively insulated from their surroundings.

⁵⁵ Von Meiss, P. (1990) *Elements of Architecture: From form to place*; Abingdon: Spon Press: 107-111.

⁵⁶ Ching, F.D.K. (2007) *Architecture - Form, Space, and Order*; Third edition; Hoboken: John Wiley & Sons, Inc.: 185-193.

⁵⁷ 'Halo, Flawless Cowboy', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁵⁸ 'Halo, Flawless Cowboy', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁵⁹ 'Halo, Reunion Tour', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁶⁰ 'Halo, Flawless Cowboy', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁶¹ 'Truth and Reconciliation, Truth and Reconciliation', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

2.2.3 Formal details in the architectural composition of *Halo*

Already in the first mission of *Halo*, a player is familiarized with the compositional style of the human characters in the game.⁶² This point of departure, for the architectural compositions in the game, is reassuringly recognizable. The environments all seem built to adhere to the scale of a human body, with tight corridors and walkways, and ceilings that rise comfortably above human height. The maze of hallways is of a consistent scale in this mission, with each significant space that branches off them differentiated by a spacious scale that befits the function of the room. A dining hall is wide and long, for example, to accommodate the many tables, that are set along the path to a far wall with food dispensers. The starship control room, in this mission, seems designed to provide its seated specialists immediate access to the computer screens that line the walls. Textures are familiarly metallic or painted over, and the bright and reflective lighting provides these with a sense of solidity. All of the elements in these spaces are clearly articulated and separated, by their disparate angular shapes, or by the bright coats of paint that stand out against the grey metal of bare walls and floors. Despite the variety and clear articulation, there's a regularity and repetitive rhythm to each space in this mission, whereby bulkheads, benches and computer cases are always regularly distributed in large number. The irregularities in these spaces, a displaced weapons cabinet or a notice board on the wall, for example, lend these environments a sense of spontaneity that renders them comparatively human.

In this first mission, the player can get a glimpse at the specific spaces that appear conceived by their extraterrestrial opponents, as they can enter the boarding crafts that these enemies are using, to drive the humans out of their comfortably familiar home base. The differences and similarities between these two types of environments become clearer in the third mission of the game, as a player can enter and explore their enemy's home base.⁶³ Enemy buildings seem designed to appear similar to human constructions, insofar as they are geometrically and symmetrically arranged, and they are of a compressed scale. Intermittently, a larger room is entered from the dense web of corridors in these spaces. In human environments, the layout of these rooms, the arrangement of objects and walkways, was focused on their center. In these enemy environments, a player is more generally forced to circle around the sides of these rooms. The smooth and organic textures, dim lighting and pearlescent reflections, and the lack of articulation, are what makes these spaces even more odd and uncomfortable, when compared to the starting environments of the game.

Both of these invading species, and their constructions, are more clearly differentiated from the natural environments that they end up in, and from the superstructures that lie beneath these environments. The second mission in *Halo* provides the best example of this.⁶⁴ Rolling hills and irregular canyon walls are consistently lit here, by distant natural light sources. Foliage, decay and erosion, combined with an organic color pallet, diffuse reflections and irregular textures, make for a convincingly natural environment, wherein elements are barely articulated, and wherein everything seems woven together. These environments are chaotically scaled, with small and large spaces juxtaposed in no

⁶² 'The Pillar of Autumn, AI Constructs and Cyborgs First!', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁶³ 'Truth and Reconciliation, Into the Belly of the Beast', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

⁶⁴ 'Halo, Reunion Tour', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

logical order. They also don't adhere to a human scale, as distances can be vast and hard to survey or traverse, even when the player character is made to use vehicles for aid.

While, as previously stated, these natural environments blend in with the superstructures around them in a gradual manner, these superstructures are comparatively alien and implacable. There is almost no articulation of separate elements or spaces, as things are universally lit with diffuse artificial lights, and smoothly textured with pearlescent reflective surfaces and geometrical patterns, all colored in grey. These environments, as exemplified in the fifth mission of the game, are exceedingly regular and almost universally vast.⁶⁵ It is against these backdrops that the game most clearly becomes an escapist fantasy. Whereas the human and enemy bases in the game, as with the natural environments, appear somewhat familiar and functionally clear, these alien constructions are so outlandish as to render the entire game all the more clearly fictional. These architectural compositions, that frame and underlie the other environments that a player visits in *Halo*, are mysteriously detailed and apparently functional, yet no clear purpose can be discerned for them, other than their immediate aesthetic effect and spectacle.

These compositional details in *Halo* apparently serve to differentiate the four different architectural styles, that regularly appear in the game, as well as giving each style a subtle affective meaning, purely by architectural means. As the game starts off in relatively familiar human environments, those are rendered comfortable and encouraging to a player. The enemy environments are functionally similar yet aesthetically odd, making them seem as something other which can still meaningfully be conquered. Natural environments in this game provide a neutral, though challenging and impressive backdrop, for most of the game's conflicts. Finally, the uncanny and spectacular alien superstructures appear to be there for a sense of discovery and mystery.

⁶⁵ 'Assault on the Control Room, Rolling Thunder', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

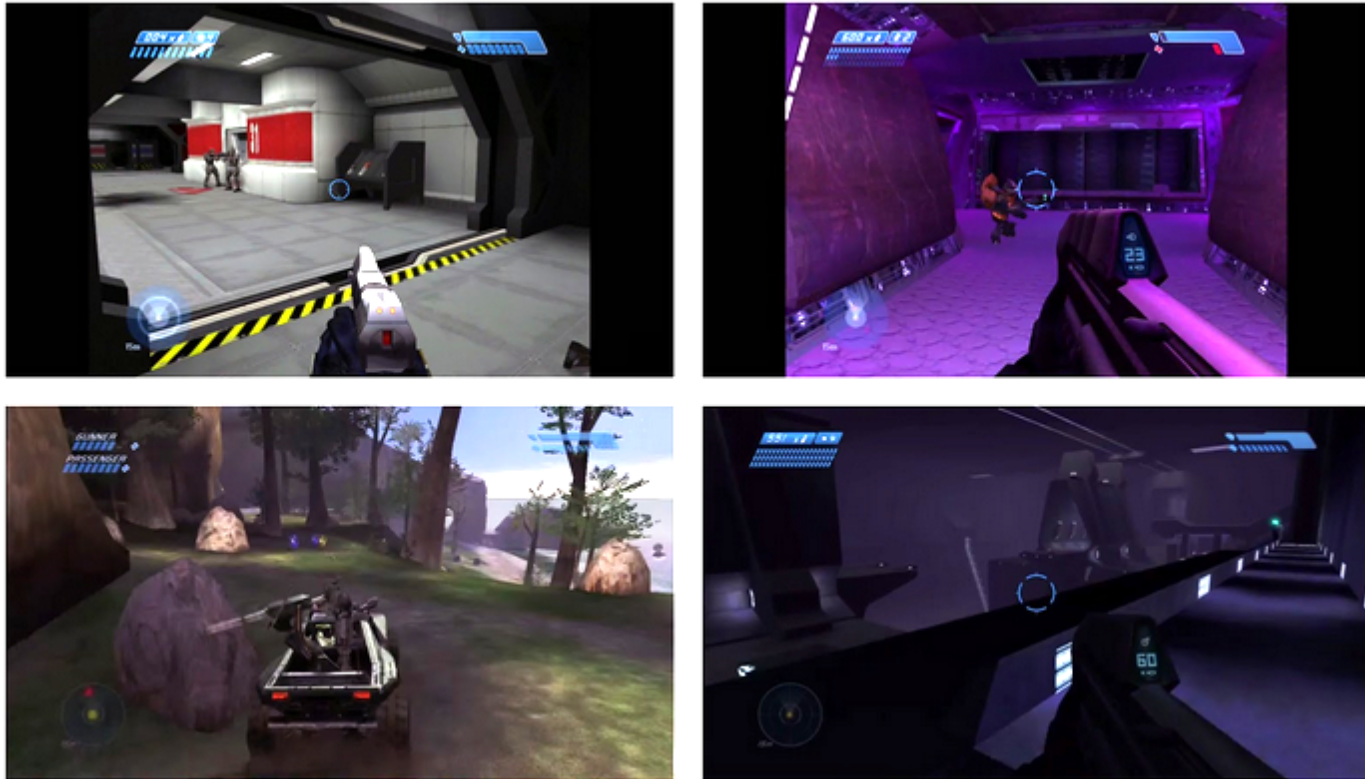


Figure 02 - These images show the four styles of architectural compositions that appear in Halo. The top left image shows the compact and familiar human style of architecture, while the top right shows the similar though oddly textured and oddly shaped architecture of their opponents in this game. The bottom left image shows the vast and organic, natural environments in which many of the events of the game take place, while the bottom right image shows the uncannily cavernous and indefinite geometrical forms of the native, alien architecture that frames this game's main setting.

2.2.4 The proportion and order of architectural compositions in *Halo*

The differentiation of architectural styles in *Halo* seems to go on, beyond the compositional details, as it is furthered in the disparate architectural orders that are implied by each type of environment in the game, as well as by the apparent relations between these environment types. Both the human architecture, and that of their enemies, seems governed by notions of symmetry, and of procedural and geometrical arrangements, but also by an anthropomorphic design. These environments appear tailored to human scales, as evident from the regular and brief travel distances required to navigate them, and from the low height and minimized inclines. Spaces are always connected at straight angles here, and the relative dimensions of their height, depth and length are always maintained, regardless of the size of a room or corridor. Finally, human and enemy environments appear highly rhythmical, with segments of a space repeated at regular intervals, and spaces built up out of seemingly standardized components.

Natural environments in *Halo* are explicitly asymmetrical, chaotic and organic. At the start of the second mission, for example, a waterfall seems to have carved out a canyon in the landscape, cutting diagonally across an otherwise symmetrical space.⁶⁶ The placement of forestation and foliage in this section seems random, although the different plant types

⁶⁶ 'Halo, Flawless Cowboy', in: Howard, J., Jones, J., Seropian, A. (2001) *Halo*; Chicago: Bungie.

could be categorized here. The plants also don't grow on the sections of bare rock to the edge of this space. There's an organic logic to this environment, that appears chaotic at surface level. The asymmetry and organic organization of these natural environments makes them seem like neutral, dispassionate backgrounds that are not to be mapped and exploited, but merely to be traversed from point to point.

The alien superstructures in that second mission exemplify the apparent proportion and order that these composition types generally imply. Their sharp angles and flat surfaces suggest a functionalist, geometrical order, although the environments are often too large or fragmented to notice if they're also symmetrically arranged. The lack of articulation in them makes it seem like these spaces have developed organically, as there's no noticeable regularity, or recurrence of elements and components, in these vast surroundings.

Halo effectively renders an architectural environment for its processes of play to take place in, which expresses arrangements of mass and volume that are varied and exciting. These arrangements exemplify four types of environments, the details of which differentiate them, even as they define the relations between these types. Furthermore, these four types of architectural compositions each appear arranged, according to their own, inherently consistent, logic. Again, human and enemy constructions are comparable in nature. These encounter each other against a somewhat neutral, organic backdrop. That natural background, in turn, appears nested inside of an implacable, though apparently functionally designed, superstructure.

2.2.5 Conclusion

Halo makes conventional use of perspectival illusionism and high fidelity audio-visual rendering, to create a sense of space and mass for its remediated architectural environments. With these convincing means, a complex and meaningful composition is displayed. The invading species' constructions comprise mostly juxtaposed and nested spaces, which don't overlap or gradually transition with any of their surroundings. Entrances into the uncannily abandoned native architecture, however, are fittingly rendered with smooth transitions from the seemingly natural environments inside of them. These contrasting and conflicting spaces are each rendered in differing styles, as differentiated by a meaningful use of the details of scale, texture, luminosity, articulation, regularity and eccentricity. Each type of space in *Halo* also seems composed according to a different logic. Organic and chaotic natural environments are contrasted against the geometrical and minimalist environments that lie beneath them, for example. Human environments, and those of their opponents, are organized in a highly regular and compact manner. In all, *Halo* seems to make use of its remediated architectural compositions, to meaningfully differentiate the various styles of spaces that it displays, and to imply the relationship between these spaces through purely architectural and formal means.

2.3.- Compositions of bounded possibility spaces in *Heavy Rain*

Could this property of architectural composition be of help in describing computer games, beyond the description of remediative elements? I believe the computer game *Heavy Rain* invites players to explore a purposefully composed possibility space, wherein player agency and affordances are structured to clear narrative and poetic purposes, and wherein each space for action gains much of its significance through its composition alongside other such spaces.⁶⁷ The game's unpredictable, yet engaging, juxtaposition and intersection of several forms of agency and affordance might helpfully be described in architectural terms.

2.3.1 Affordances and constraints in *Heavy Rain*

The primary elements of architectural form, said to be space and mass by many scholars, might in *Heavy Rain* pertain to a space for action and a mass to act upon or within. Architectural space is where one can freely move and act, where architecture opens up for human access, according to architecture scholar Phoebe Crisman.⁶⁸ Architectural mass, then, limits and constrains this free practice of ability, as it directs and frames our actions as being a part of an architectural artifact, or it compresses, frames and opens up an otherwise undefined space to specific lines of action. Translating these two fundamental and essential aspects of architectural composition to a possibility space, in an inseparable figure/ground relationship, I'd posit the ability to act and the inability to act as the two primary elements of possibility space compositions. Engineering and design scholar Donald Norman is a proponent of the term affordance, for describing what actions an object allows its user.⁶⁹ I would use this term to describe the lines of action and the agency allowed by *Heavy Rain*, in a given space. Norman neglected to denote a counterpart of affordances. I would propose to use the term constraint for any actionable and obstructing masses that appear alongside affordances.

Heavy Rain affords several modes of interaction. In the most ubiquitous mode of interaction, if a player character is stood in a certain place in the game's environments, or at the start of an action sequence, they are automatically rendered unable to perform any actions, other than those specific gestures that are prescribed in a predetermined order, by the game's superimposed interface. A player might also be confronted with a predetermined breadth of possible actions in this mode. These often preclude each other, but are each equally valid. This mode of interaction ensures that a player immediately discovers their agency in a given possibility space, and that they have all the information needed to successfully complete an action sequence.

For instance, at the very start of *Heavy Rain*, after a brief automated film sequence, the player is instructed to perform a small gesture to have their player character wake up.⁷⁰ Until this gesture is performed, the game remains in an inactive state, displaying the same situation without end. When the character has been made to sit on the edge of his bed, another interface element is superimposed, prompting the player to have this player

⁶⁷ Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

⁶⁸ Crisman, P. (2007, Mar. 14) 'A. Shape', in: Whole Building Design Guide, Form, Description, <http://www.wbdg.org/resources/form.php> (2015, Jun. 11).

⁶⁹ Norman, D.A. (2013) *The Design of Everyday Things: Revised and Expanded Edition*; New York: Basic Books: 10-30.

⁷⁰ 'The Prologue', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

character stand up. These prescribed actions are incredibly limiting, but their immediate clarity is comforting and engaging as well, in this initial sequence.

Deeper in the game, however, other outside conditions are frequently imposed on these prescribed and tightly constrained action sequences. In the fourth chapter of the game, for example, the player has to perform specific actions within set time limitations, and without much foresight as to what gesture to perform next, otherwise a fistfight might be lost, and certain branches of the game's narrative might be locked off as a result of that.⁷¹ These later action sequences only subtly imply their alternative solutions, if they even have them, which makes the constrained ability to influence them all the more noticeable.

At other times, a player can freely walk or run their player character about, within limits denoted by architectural metaphors. Player characters can walk up stairs, in this second mode of interaction in *Heavy Rain*, but they can never part with the displayed surface of an architectural space. In this mode of interaction, a player can subtly control the camera frame as well, or they can cut to another shot of the same space. Also, the player can trigger internal monologues for their player character, on a select range of currently relevant topics. The affordances and constraints of these action sequences are never immediately clear, and a player will have to explore to trace the limits of what they're allowed to do.

At the start of the third chapter, for example, the player character is stood at some distance from the car that their child just got in, with no immediate cue for what action to perform.⁷² As a player moves the character closer to the car, a prompt will appear for them to get in, and a sequence of actions is triggered that will have the player character drive home. The next sequence in this chapter starts similarly, with the player character having arrived home, with no indication of what to do. A player can have the player character explore his house, or they can listen to his internal monologues, for hints on how to approach this situation. At certain locations in the house, the player character can be made to perform some prescribed action sequences, such as making dinner for them and their child, talking to the child, or sitting down to watch television. Only after a while, a time constraint on this free exploration of the possibility space is revealed, as the availability of certain action sequences dissipates and the urgency of other action sequences increases. The player character's child will go to bed in this case, regardless of whether the player character is there to care for him.

Apparently, *Heavy Rain* operates in two modes. Intermittently, the game presents clear and extremely limited action sequences, that immediately draw a player in and instruct them on what their agency entails. At other times, the game opens up obscure possibility spaces, that have to be explored and traced for their purpose and specific constraints to become clear. In both cases, the overriding constraint to these spaces is in the completion of certain action sequences, and in the attainment of a certain game state. When those, often obscured, conditions are met, a possibility space is automatically closed off to a player, with the next one automatically imposed on them. These two modes of affordance/constraint compositions are amplified by a third mode in *Heavy Rain*, which is one of abject constraint. This comprises the automated film sequences that bookend each action sequence. These task a player only with passively observing, as events unfold automatically.

⁷¹ 'Sleazy Place', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

⁷² 'Father and Son', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.



Figure 03 - The image to the left shows a typical example of one of the tightly constrained yet overtly expressed possibility spaces in Heavy Rain, which strictly prescribe a sequence of gestures of the player to perform. The image to the right shows one of the more open ended possibility spaces, which require a player to discover their agency, but also give them more freedom to do so.

2.3.2 Juxtapositions and intersections of possibility spaces in *Heavy Rain*

Heavy Rain exhibits quite a few instances where an understanding of architectural composition, beyond the mere notions of affordance and constraint, can be helpful in understanding its possibility spaces. Smaller, contained action sequences might be seen to complement a larger possibility space, for example. At other times, two contrasting action sequences of equal complexity and breadth are juxtaposed, but insulated from affecting each other, to heighten the contrast.

The fourth chapter of the game shows how possibility spaces might be seen to be juxtaposed, as well as they might be intersecting, with wildly differing effects.⁷³ This chapter starts off with a prescribed action sequence with no time constraints, which eases the player into a sense of agency, after an automated film sequence just introduced them to the narrative premise for their actions. This constrained and prescriptive action sequence has the player open a car door to let the player character out, followed by a prompt to have this character enter an apartment building. Once the character is inside, the mode of engagement is switched instantaneously, without cue. Inside the building, the constrained action of entering the building is followed up by the open-ended and uninstructed exploration of the building's architectural spaces. This can be seen as an adjacent juxtaposition of possibility spaces, where one space of agency and affordance borders directly on another one, without the two intersecting.

Inside the building during this same chapter, if the player character is positioned in front of the lobby counter, they might be made to interact with the building's superintendent. The superintendent refuses to answer the player character's questions in this first engagement, in a juxtaposed action sequence that, while accessible from within the open-ended space that affords the player's exploration of this building, doesn't directly influence that more exploratory space. When this constrained engagement with the superintendent is completed, the player is automatically back in the overriding exploratory mode. If they engage with the superintendent again, the game shows how two possibility spaces might be linked indirectly, via their common connection to a space that borders on both of them. The second time a player interacts with the lobby counter, they enter a

⁷³ 'Sleazy Place', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

different prescribed action sequence, which recounts the effects of the first attempt at talking to the superintendent, by allowing the player to have their character bribe the superintendent this second time. These two prescribed conversations with the superintendent depend, for their connection, on the intermediary space that allows a player to engage with both of these action sequences.

In addition to these direct and indirect juxtapositions of possibility spaces, in the fourth chapter of the game, there is the affordance for inner monologues on the main player character. At any time, the player can view a list of available inner monologues with a single button press, and have their character talk to themselves on one of topics that are relevant for their current situation, as they appear listed in a superimposed interface. Even if the player character in this sequence starts monologuing, the player can continue to explore the apartment building in full capacity. This is a nested possibility space, that is open to the player at any time while they have their character explore the building he's just entered. These monologues are mostly flavor text, commenting on the weather outside, for example, or on the character's hopes for speaking to the person that they came to see here. However, the monologues might still influence a player's knowledge and judgment of current and potential situations that they can engage with. Because of this, it seems a valid example of a possibility space that's continuously accessible, as nested inside of another possibility space.

Finally, the end of this fourth chapter of *Heavy Rain* serves as an example of interlocking possibility spaces. Whether the player character is made to defend the person that they'd come to visit in this chapter, from her abusive client, is apparently decisive for the continued state of an overriding narrative structure, that governs some of the game's affordances for its entire duration. The character that they'd come to visit will be a recurring one in later chapters of the game, only if the player character is made to help out in this situation, and this player character will also behave differently in those later chapters. The player doesn't have a continuous influence over this larger structure of the game, so these two possibility spaces aren't nested, but they are interlinked at specific points. This final action sequence of the chapter affords the player influence over both the events of this chapter, and over the affordances of certain later chapters.

To summarize, it isn't just the amount of affordances and constraints that determine the form of *Heavy Rain*'s possibility spaces, but also the various ways in which possibility spaces are connected to noticeably different ones. Any given possibility space in this game seems to gain significance from being adjacent, indirectly linked, nested or interlocked with other spaces. In the following paragraph, I'll attempt to determine what renders these various possibility spaces so different from each other, with further use of this architectural vocabulary for formal composition.

2.3.3 Formal details in the possibility space composition of *Heavy Rain*

Having established how the architectural formal concepts of space and mass, juxtaposition and intersection can be transposed for describing the possibility space compositions of *Heavy Rain*, could one also describe these compositions with the detail afforded by architectural concepts such as scale, texture, luminosity, articulation, regularity, and eccentricity? I will attempt to do so in this paragraph, by transposing these concepts in order.

The third chapter of *Heavy Rain*, specifically, seems a comprehensive example of various types of possibility space compositions, for which this kind of analysis would be relevant.⁷⁴

Regarding scale, this chapter opens on a long automated film sequence that presents the game's opening credits; one of the longest automated sequences in the game, which also presents no clear setup for the affordances and constraints that immediately follow it. Instead it indicates a long interlude before the game's imposing storm of activities starts proper. This relatively long period of passivity is followed by a small exploratory sequence, which briefly confuses the player by giving no instructions on their goals, and leaves them to discover that their character can only be made to walk over to their car. The brief, constricted action sequence, that can be triggered by the side of the car, reintroduces this other type of action sequence, again with little instruction. After the lengthy film sequence intermezzo that preceded them, and these brief and slightly confusing action sequences as the only means to re-familiarize oneself with the game, the chapter continues to intimidate, with the relatively large and open ended, unclarified possibility space that follows.

Scale can be perceived as the relative scale of architectural elements amongst one another. In this sense, the small scale activities that start this third chapter seem to raise confused expectations as to the nature of its main possibility space, with this contrast serving to exacerbate the effects of the large and confusing household, that the player can suddenly start to manage. The large household management space, which follows from the brief sections that have the player character pick up his son and drive him to this home, is interspersed with many equally relevant, and equally accessible, activities. These are markedly smaller than the overriding possibility space that allows access to them, giving the sense that multiple smaller activities can be attempted within the frame of the larger possibility space that surrounds them.

The scale of a possibility space could also be construed as relative scale, compared to the human capacity to act. This, I'd argue, makes the third chapter of *Heavy Rain* so intimidating. The small opening sequences don't prepare the player for the large middle section of this chapter, and their character's abilities aren't introduced as being up to the task of completing all of the relevant activities within the given time.

As for texture, I would say the chapter opens with smoothly textured possibility spaces. These opening sections only allow for one activity each, and they offer a clear resolution once the conditions for completion are discovered. The player character can only meaningfully be made to walk to the car, to initiate the next action sequence. This second sequence has the character starting the car to drive home. These smooth lines of action stand in stark contrast to the bulk of the chapter, wherein a player is given limited means to figure out what conditions they're to meet, and what activities to select, in order to succeed.

Many activities are on offer at once, in the player character's home, and even the list of tasks displayed on his kitchen wall doesn't prepare a player for all the situations they might be confronted with. Furthermore, the time limit imposed on all of these activities only becomes apparent over time, as darkness falls outside, and if the player character's child is left to fall asleep in front of the television. All of these obscure conditions and simultaneous lines of action result in a rough and dense texture, as certain activities are locked off when others are engaged in, and the player inevitably loses control and their overview of the household. The main material of this chapter consists of choice and a consideration of

⁷⁴ 'Father and Son', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

options. If choices and results are left unclear, yet imposed on a player in such a dense web, it seems to result in a roughly textured possibility space.

What might pass for the luminosity of this chapter has already been discussed, I think. Throughout the possibility spaces of this segment of the game, the available choices and activities are obscured, and they have to be traced by the player at the cost of other options for activity, while time constraints press down. The player character can be made to go upstairs and cry over old family photographs, but this precludes the option of socializing with his son by the television. The player character can try talking to their son, but the wrong topics might make the child close up. These activities and effects have to be discovered by a player, perhaps even over several attempts at this single section of the game. None of the options are clearly suggested up front. This section of *Heavy Rain* has an obscure, darkened possibility space, which isn't even reflective of other possibility spaces in the game, although it can be illuminated by practice.

In the household section of this third chapter of *Heavy Rain*, the overriding possibility space is rendered in the interaction mode that affords free exploration and non-linear access to many smaller, prescribed action sequences. The contrast between this larger possibility space, and the many small activities that a player can engage in, can be described as a clear articulation of individual possibility space elements. Interface elements, superimposed in a close range around the main player character, indicate all locations that afford access to prescribed activities, and each of these activities is clearly different from the others, and constrained as opposed to the open-ended possibility space that frames them.

Following the regularity and ordered form of the preceding action sequences, the possibility space in the household section of chapter four of *Heavy Rain* is chaotic and organic, even if the many smaller activities, and their regular influence on the passage of time, creates a clear rhythm that's superimposed on this chaos. Each time the player character is engaged in an activity, the time constraint on this section is tightened in equal measure, with this same timer running more slowly during the exploratory section. The breadth of activities available to a player never seems to dissipate, with so many activities to engage in around the house. The player is constantly considering an equal measure of options in between each activity. There's an obvious rhythm to the player's activities in this dense and chaotic possibility space.

By the eccentricity of elements in a possibility space composition, I mean it's contrast or continuity with surrounding possibility spaces. This pertains to the shell menus that surround the game, and to the game's fidelity to lived experiences outside of the game. This property is similar to a building's relation to its surroundings. The possibility spaces in *Heavy Rain* afford noticeably different gestures than the surrounding shell interfaces that allow access to the game's diegetic content. These shell menus conform to conventional interface design, by only allowing for directional input and a single type of button press, in order to navigate the digital menu structure surrounding the game.

Regardless of this contrast to its immediate, digital surroundings, the game does seem to represent a degree of fidelity to its physical surroundings. Having to decide what to eat and how to spend an afternoon, having to brush teeth and turn on lights as the day passes; these decisions are surprisingly close to most people's everyday life, especially given conventional computer game narratives. Besides these conceptual and mental gestures, the physical gestures that are required by the game seem similar enough to their counterparts in reality. Slowly pushing down on an analogue control stick is a decent

simulation of pushing down on a doorknob, I'd say. As is quickly pushing this control stick up to flick on a virtual light switch. Having to rapidly press a single button for a length of time, and having to press a complex combination of buttons is tiring, as demonstrated in the fifth chapter of the game.⁷⁵ This is comparable to how climbing a steep incline would be physically tiring in actual reality.

I couldn't go into more explanations on any individual detail of *Heavy Rain*'s possibility spaces, but I hope to have indicated that most architectural notions of detail in composition could be translated to the study of possibility spaces, even if some of it was a bit of a leap, having no more space to explain my own understanding of these notions. *Heavy Rain* uses scale to create shocking contrasts between the size and complexity of possibility spaces. It uses texture to differentiate those spaces where a line of action is clear and singular, from those spaces where choices are many and information on their consequences is irregular. The obscurity of the third chapter in the game stands in stark contrast with a similar, but clear and obvious possibility space in its first chapter.⁷⁶ Rhythm appears when a regular and predictable set of actions is set against a chaotic and organic background of affordances. All the while, the game's varied and organic affordances for gestures are rendered with a fidelity that makes the game feel connected to the physical reality that surrounds it.



Figure 04 - In the situation displayed to the left, a player could check the schedule of tasks to the right, for an indication of what to do. They could also open the fridge to the left to either leisurely drink or to prepare dinner for the characters on display. They could also encourage the player character's child to do his homework, or go off to do the laundry, among many other activities. The image to the right shows time having passed in this scene. The player character's child has suddenly fallen ill, and needs medicine or comfort. At this point, as indicated by the two available monologues that are signified to the right of the player character, the player still needs to prepare for dinner and bedtime at this point.

2.3.4 The proportion and order of possibility space composition in *Heavy Rain*

Possibility spaces in *Heavy Rain* seem primarily composed to the purpose of an engaging and varied narrative. Linear action sequences are invariably followed by either an automated film sequence, or by an open-ended possibility space that affords a more leisurely or confused exploration. There's a steady and predictable rhythm to this variation, even if the exact point of transition between possibility spaces is varied and unpredictable. Each chapter of the game follows a similar pattern. The first chapter, as much as the fifth or tenth,

⁷⁵ 'Crime Scene', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

⁷⁶ 'Prologue', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

starts out with a smaller possibility space, that allows for some exploration and a small range of prescribed action sequences.⁷⁷ These invariably build up to a larger space to explore, with each chapter ending on a contrastingly complicated and climactic action sequence. The latter often influences the content of later chapters in the game as well. So there is a lot of rhythm and regularity to long term structure of the game.

At a smaller scale, as mentioned before, action sequences often end or begin in an unpredictable manner, and the composition of possibility spaces seems to derive organically from the events depicted. The tense and involuntary driving sequence in chapter eighteen, for example, calls for a constrained and oppressively kinetic, urgent possibility space, while the playground visit of chapter seven is presented by a space that is indefinite and uncertain at first, though it gains direction when the player character is made to follow their child's instructions to facilitate his playing.⁷⁸ In dialogue scenes, the player is always given a breadth of possible topics to engage, but is dependent on time constraints when broaching them, thereby having to judge the patience of a given conversation partner. When a player character appears to have time to consider and explore, the player is given this freedom as well. In the more kinetic action sequences, events are intimidatingly imposed on a player, and they have to respond quickly and adequately.

There seems to be a narratively informed order to the possibility spaces of *Heavy Rain*, where its composition at a small scale is meant to be naturalized and organic. On a larger scale, the composition is rhythmical and serialized, as it procedurally sketches out a sequence of events to an uncertain point of conclusion, in an engaging and pleasantly predictable manner. The apparent unpredictability of events and structure, at the smaller scale, along with the repeated contrasts between modes of engagements, account for much of the dramatic tension that's maintained throughout the game.

Given the scope of this project, I'll refrain from comparing the apparent arrangement of these possibility space compositions with conventional architectural orders, and I'll leave it at this more general description. Nevertheless, I hope to have indicated that the possibility space composition of *Heavy Rain* exhibits proportion, arrangement and considered order, in a further transposition of an architectural understanding of composition to computer game possibility space.

2.3.5 Conclusion

It seems valid and valuable to try and describe computer game possibility spaces in formal architectural terms, as pertains to their composition in this case. I've shown how the possibility spaces of *Heavy Rain* can be discussed in terms of their duality of space and mass, taken as a duality of affordance and constraint. Having identified several varieties of affordance/constraint compositions already, I was able to describe their interconnections, in terms of an architectural juxtaposition or intersection of spaces. Possibility spaces in *Heavy Rain* intermittently appear nested, interlocked, and directly or indirectly juxtaposed. Looking at the details of these possibility spaces, it seemed possible to describe them with a transposition of the concepts of scale, texture, luminosity, articulation, regularity, and eccentricity. Affordances and constraints appear in *Heavy Rain* at various scales and with varying measures of tangibility and visibility. These elements appear contrasted with each

⁷⁷ 'Prologue', 'Crime Scene', 'Hassan's Shop', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

⁷⁸ 'The Bear', 'The Park', in: Marchal, C., Cage, D. (2010) *Heavy Rain*; Paris: Quantic Dream.

other, in clear or unclear patterns, even as they stand out against their shell menu context and the physical actuality that surrounds the game. Finally, there appears to be an order to possibility space compositions in *Heavy Rain*. At smaller scales, affordances and constraints appear naturalized and organic, excitingly unpredictable, while the game has a pleasant procedurality and predictability at larger scales. This arrangement of possibility spaces causes a player to be engaged on an immediate level, while remaining unintimidated at the long term prospects of playing the game. In the following chapter, after discussing the remediation of narrative architectural properties, I'll see if a narratological understanding of the architecture of possibility spaces is equally as valid as this formal understanding seems to be.

3.- Remediating and transposing narrative instances

3.1.- A narratological analysis of spatial narrative instances

Following the preceding description of the remediated architectural property of composition, and its transposition for describing the composition of computer game possibility spaces, this chapter demonstrates the same methodology, though practiced on the architectural property of spatial narration. This follows from my stated intent of testing my analytic methodology on both morphological and typological properties of architecture. Besides a formal analysis of architectural properties, as influencing computer games, a narratological and interpretive approach is taken in this chapter.

Narratological theory generally states that a story performs several functions. Besides recalling a series of events in certain ways, and sculpting an image of time in that sense, besides using focalizing actors and aesthetic effects, to draw or repel an audience, and also besides dividing the diegetic from paratexts and the non-diegetic, a narrative constructs a certain frame of events as well, through its narrative instances.⁷⁹ It is the latter, the narrative instance, this initial and fundamental manifestation of a narrative as experienced by its audience, which I think can be demonstrated as a property of the architecture that is used in computer games.

For narratologist Gérard Genette, a narrative instance comprises a narrative voice and a degree of presence.⁸⁰ It also comprises the moment and time span of narration, relative to the events being narrated.⁸¹ Finally, a narrative instance exhibits some form of focalization, or the degree to which narration recalls the experiences of specific agents in a story.⁸² Contrary to traditional narratological notions, it seems that spatial narratives aren't limited to singular or consecutive narrative instances. Interestingly, most notions of spatial narrative appear to require multiple concurrent narrative instances to account for their functioning.

In geography and architecture, as the historian of architecture Adrian Forty describes, each use of the term space, since the nineteenth century, has implied a specific ideological or philosophical signification, and a framing of that space.⁸³ In geography, several theorists have expressly considered those sociopolitical or cultural processes, that might be seen to implicitly give such meaning to a space, in a manner that's comparable to how narrative instances function for Gérard Genette. The sociologist Henri Lefebvre came up with an influential threefold system, for example, of spatializing processes that account for many of the ways in which space gains meaning for us.⁸⁴ His model accounted for the conceived and

⁷⁹ Wurth, K.B. & Rigney, A. (eds.) (2009) *Het leven van teksten: Een inleiding tot de literatuurwetenschap*; Derde druk. Amsterdam: Amsterdam University Press: 159-227., Lecture 'Introductie cursusdeel, materiaal, doel, programma', Sanders, M.P.J. & Sintobin, T.M.J. (06 september 2012) Nijmegen: Lecture as part of the 'Analyse van muziek, tekst en beeld' Lecture Series at the Radboud University.

⁸⁰ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 244-247.

⁸¹ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 217-224.

⁸² Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211.

⁸³ Forty, A. (2000) *Words and Buildings - A Vocabulary of Modern Architecture*; London: Thames & Hudson: 256.

⁸⁴ Merrifield, A. (1993) 'Place and Space: A Lefebvrian Reconciliation', in: *Transactions of the Institute of British Geographers, New Series*; vol. 18, no. 4; s.n. (eds.); New Jersey: Wiley-Blackwell: 516-531.

prescribed spaces of maps and road signs, but also the perceived and affective spaces of claustrophobic elevators and pleasantly relaxing meadows, as well as the lived spaces of improvisational parkour runners and protesters making camp in public spaces. Geographer Edward Soja developed a similar trialectics of objectively measured space, subjectively experienced space, and a third spatiality that constantly forces a renegotiation, of our otherwise dualistic understanding of space.⁸⁵

The contemporary geographer Nigel Thrift recently built on these well known models, with a more comprehensive and logical fourfold system. In addition to accounting for space as constructed and conceived by our empirical modelling, or as perceived in subjective and affective experiences, or as lived and defined through embodied practices, Thrift proposes a fourth signifying process.⁸⁶ This fourth kind of spatial narrative instance, which implies and frames the meaning of a space, even before the events and actors of its narrative could become apparent, is that of a sense of place. Any space gives of a sense of place, for Thrift; a sense of the pluriform affordances for that space to be actualized in empirical observations, in subjective experiences and in bodily engagement. Yet there is never a definite ground for this sense of place. This seems to refer to what philosopher Brian Massumi describes as virtuality; the indefinite experience of the potentiality of a space, as opposed to the actuality of Thrift's empirical space, unblocking space and image space.⁸⁷ For philosopher Graham Harman, such a withdrawn and inexhaustible spatiality, which manifests in uncanny experiences and underlies our actual experiences, in an imperceptible manner, would signify the reality of a space as radically separate from our own experiences of it.⁸⁸

Thrift's fourfold model of spatializing processes matches Harman's fourfold ontological model of objects in many ways. Both models also adhere to the same square of opposition in Aristotelian logic, rendering them both capable of accounting for all types of categorical propositions, regarding objects in relation to their context.⁸⁹ For these reasons, I believe Thrift's model comprehensively describes the four fundamental ways in which a space can be framed as narratively meaningful by spatial narrative instances.

These four categories of geographical space, being empirical space, unblocking space, image space and place space, are used in the following, to demonstrate how architectural forms and possibility spaces are rendered meaningful in computer games. The following analysis of the *Assassin's Creed* series of computer games should demonstrate the remediation of these four spatial narrative instances, which always operate simultaneously, yet are each manifest in different ways. An analysis of the games *Starseed Pilgrim*, *Fit in*, *The Stanley Parable* and *Mountain* should demonstrate how a transposition of these narratological concepts can also help to make sense of these games.

⁸⁵ Soja, E.W. (1996) *Thirdspace - Journeys to Los Angeles and Other Real-and-Imagined Places*; Malden: Blackwell Publishers Inc.: 53-82.

⁸⁶ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 96-104.

⁸⁷ Massumi, B. (1995) 'The Autonomy of Affect', in: *Cultural Critique*; No. 31, The Politics of Systems and Environments, Part II; Minneapolis: The University of Minnesota Press: 84-95, 97-100, 104-106.

⁸⁸ Harman, G. (2011) *The Quadruple Object*; Winchester: Zero Books.

⁸⁹ Hacker, E.A., Parry, W.T. (1991) *Aristotelian Logic*; Albany: State University of New York Press: 155-169.

3.2.- Four spatial narrative instances in *Assassin's Creed* games

The computer games in the *Assassin's Creed* series are all comprehensive and expansive fictions, that each deal with a Lefebvrian struggle for control over urban spaces, and over the historical record.⁹⁰ They each take place in a different historicized urban region, within a frame story that tells of the contemporary computer simulations which allow access to these historical locales and situations. One can imagine Thrift's expanded model of spatializing processes as being explicitly represented or implied as well, influencing and giving meaning to these simulated architectural spaces, and the Lefebvrian struggles contained within, which would have various spatially signifying practices compete for dominance.⁹¹



Figure 05 - The image to the top left shows the main player character of *Assassin's Creed* scaling a tower in the Acre setting of the game, to empirically survey the otherwise oppressive city text. A superimposed interface shows an image of empirical space as well, as a radar map drawn from the position of the player character. The right image shows this same player character performing parkour practices, thereby resisting empirical space with one of the game's expressions of unblocking space.

3.2.1 Empirical space narrating the *Assassin's Creed* games

For a start, Thrift's notions of empirical space are clearly represented in *Assassin's Creed* games, as long as the player controls their player character in the default low profile navigation mode. Within the historical settings of these games, the player character is generally surrounded by restrictive environments, with the contemporary frame story superimposing even more limits to these same spaces. Even within these constrained environments, the player can take advantage of the empirical mapping and tracking systems that emphasize these constraints.

In each historical urban environment in this series, be it the twelfth century Jerusalem of *Assassin's Creed* or the fifteenth century Florence of *Assassin's Creed II*, a player is initially confronted with a very imposing and constraining use of architectural composition, which can be described with Kevin Lynch's morphemes for urban texts.⁹² Paths, edges, districts, nodes and landmarks all seem to limit and direct the player character in their default

⁹⁰ Lefebvre, H. (2000) 'The Right to the City', in: *Writings on Cities: Henri Lefebvre*; s.n. (eds.); Oxford: Blackwell: 147-159.

⁹¹ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 96-104.

⁹² 'Memory Block 04 - Jerusalem', in: Bélande, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft., 'Boys Will Be Boys', 'Sibling Rivalry', in: Désilets, P. & May, C. & Puel, S. (2009), *Assassin's Creed II*. Montreal: Ubisoft., Lynch, K. (1960) *The Image of the City*; London: MIT Press: 46-48.

mode of navigation. Player characters are surrounded by insurmountably high walls, and buildings that line narrow paths. City guards patrol the rooftops in most cities, indicating strictly regulated barriers. This is especially true where one district, as determined by the level of wealth therein, borders another district. The web of paths inevitably leads a player to city squares, and other less constraining nodes of various kinds, where landmarks create what little sense of direction there is to be had for players.

Players are initially constrained, and oppressively directed, by their surroundings in these games, creating an image of the city that is imposing; empirically organized and ordered as it is, by an apparent higher power. This higher power is in the strict organization of these cities, in their imposing and incomprehensible form, and in the lengthy and complicated processes of construction and decay, that seem to have governed the growth of these environments. In the Late Medieval Rome of *Assassin's Creed: Brotherhood*, for example, the Vatican City government centers and guard towers are visible from any point in the chaotic web of narrow paths, even as the ancient Roman centers that preceded this layout stand in ruins at the outskirts.⁹³

Exacerbating the empirical space that emerges from these urban texts, the player character's movements are also always controlled with artificial barriers, and with a constrained choreography, which are both imposed by the fictional computer simulation that is said to facilitate the player character's actions in these games. These barriers direct players towards goals imposed on them. Regarding the choreography, the player character can only be made to perform those moves that are indicated by the game's interface at a given moment. These controls are fittingly mapped to the physical control interface, in a manner reminiscent of a marionette puppet, with each button corresponding to specific limbs on the main character, as explained in the introduction to *Assassin's Creed*.⁹⁴

From the frame story to these games, interface elements are superimposed onto the historically set narrative. These map and track events as they occur, from a distanced and organized viewpoint. Any important observations are automatically registered in these games' shell menus and superimposed interfaces. In keeping with empiricism, as based on internalized models of sensory experiences, these maps and markers are always centered on the game's main player character, and drawn from their singular position.⁹⁵ A player is also often pointed to a paratextual map system and to the goal descriptions in shell menus, as to superimposed objective and game state markers as well. To Thrift, such iconic, top down or superimposed images of street plans and landscapes, that track a variety of actors and objects, are an index of someone or something that has empirically mapped and recalled a given space.⁹⁶ This aspect of the spatial, empirical narrative instance is an advantage to players, as opposed to the urban texts they are tasked with inhabiting.

⁹³ 'Man Of The People', in: Désilets, P. & Yohalem, J. & Plourde, P. (2010), *Assassin's Creed: Brotherhood*. Montreal, Singapore, Boekarest, Quebec, Annecy: Ubisoft.

⁹⁴ 'Prologue', in: Bélange, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft.

⁹⁵ Peter, M. (2015, Jun.) 'Rationalism vs. Empiricism', in: Stanford Encyclopedia of Philosophy, <http://plato.stanford.edu/entries/rationalism-empiricism/> (2015, Jun. 11).

⁹⁶ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 96-98.

This spatial narrative instance is a homodiegetic one, in narratological terms; the narrative instance seems present in the very fictional world that it's narrating.⁹⁷ As it pertains to the historical settings of these games, the empirical narrative instance seems to give a subsequent account of events that have already occurred.⁹⁸ In each of these games, the player is aware, from the frame story, of the end state that the story is to reach, but they themselves are still to uncover the exact events that are said to have led up to that end end state. As it pertains to the contemporary frame story, the narrative instance is one that is simultaneously narrating events, as they occur.⁹⁹ This narration also appears largely autodiegetic in the frame story, and given by the main player character in that frame story, as he or she navigates the diegetic shell menus that surround their exploits in the simulated historical settings.¹⁰⁰ The empirical narrative instances of these games are always ones with superior knowledge of events, as they occur, and there is little to no focalization apparent in much of their narration.¹⁰¹

The *Assassin's Creed* games are suffused with clear representations of an empirical space, of cartesian order and of docile bodies. This is represented by an imposing narrative instance, that has superior knowledge of each game's events. However, within this imposing empirical space that controls and directs the game's actions, each player character is also empowered by the superimposed map and tracking systems, which also emerge from this spatial empirical narrative instance.

3.2.2 Unblocking space narrating the *Assassin's Creed* games

Once a player has learnt to read the maps and the categorizations, of actors and objects, they know the limits and abilities of other actors and environmental elements in these games' environments. The citizens of sixteenth century Rome, in *Assassin's Creed: Brotherhood*, for example, have to keep to the streets and pavement. City guards are slow, but they can clamber objects to chase down the player character.¹⁰² The aforementioned empirical narrative instance renders these games' spaces as predictable and logically ordered.

The player, as a clear indication of the unblocking space that Thrift describes, can have their character scale sheer walls, run without tiring, hide in plain sight, and fight off or evade any attacker, in clear opposition to these empirically decided limitations, as long as they activate the high profile navigation mode for their player character.¹⁰³ This specific navigation mode allows the player character to cut across rooftops, and to fulfill any goal,

⁹⁷ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 244-247.

⁹⁸ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 217-224.

⁹⁹ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 217-224.

¹⁰⁰ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 244-247.

¹⁰¹ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211.

¹⁰² 'Man Of The People', in: Désilets, P. & Yohalem, J. & Plourde, P. (2010), *Assassin's Creed: Brotherhood*. Montreal, Singapore, Boekarest, Quebec, Annecy: Ubisoft.

¹⁰³ 'Prologue', in: Bélande, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft., Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 98-100.

without having to adhere to the rules of the city as conceived by the aforementioned empirical spatial narrative instance, and as imposed on them in the default, low profile navigation mode. In this high profile navigation mode, any main player character in these games can climb most of the landmarks in their surroundings, to get an overview of the city streets and the manipulable objects therein.

The player is intermittently urged to climb these towers, to use their telescope, or to activate a certain metafictional camera filter, for an overview and to regain control over their imposing surroundings. Those acts of modernist surveillance and *flânerie*, whereby the player constructs their own empirical view of the environment, are encouraged by the superimposed map system that automatically charts surroundings, and also by a superimposed camera filter that categorizes manipulable elements and surrounding citizens. This is outlined when the player character is made to climb a church spire or a guard tower, respectively, at the beginnings of *Assassin's Creed II* and *Assassin's Creed*.¹⁰⁴

All of this is a juxtaposed narrative of unblocking space, or of the lived space that Lefebvre posits in his trialectics, as a prime site for initiating acts of resistance against conceived spaces.¹⁰⁵ A player character can be made to engage in an entire mode of navigation, that allows them to push through traffic, climb across broken brickwork and scaffolding, and onto the supporting metalwork on decaying buildings, even as it also allows them to hide in alleyways, and to disappear into crowds.¹⁰⁶ Elements of ruin and decay are generally associated with these alternative lines of action. A player can learn to recognize these paths by their manipulable elements, and by the reach and dimensions of their player character.

This is an internally focalized narrative instance, in Genette's narratological terms, whereby unblocking space is exclusively rendered from the viewpoint of the main player characters in these games, relative to their specific bodily capacities.¹⁰⁷ This narrative instance relates spatial properties as they occur, and as the player character moves through space, but it also suggests future lines of resistant action, with the very possibility of resistance to these games' imposed environments.¹⁰⁸ Those resistant practices aren't acknowledged or facilitated by these games' map systems or goal markers per se, nor by any aspect of their empirical narrative instances, yet a player is encouraged to discover these freedoms by their own actions, and to act upon them to fulfil stated goals more efficiently. As such, this emergent alternative to empirical space appears as an unblocking and resistant space, following an active participation in the game's world, and it indicates implicit alternative practices, to those that are explicitly imposed on a player. The narrative

¹⁰⁴ 'Nightcap', 'Sibling Rivalry', in: Désilets, P. & May, C. & Puel, S. (2009), *Assassin's Creed II*.

Montreal: Ubisoft., 'Memory Block 02 - Kingdom', in: Bélande, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft.

¹⁰⁵ Lefebvre, H. (2000) 'The Right to the City', in: *Writings on Cities: Henri Lefebvre*; s.n. (eds.); Oxford: Blackwell: 147-159.

¹⁰⁶ 'Prologue', in: Bélande, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft.

¹⁰⁷ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211.

¹⁰⁸ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 217-224.

instance seems a heterodiegetic one, giving no explicit expression of these unblocking spaces, within the game's environments.¹⁰⁹

Apart from docile adherence, the often empirically constructed environments of *Assassin's Creed* games also invite resistant and alternative practices, expressing an unblocking spatial narrative instance in that way. This is a space that can be conceptualized by players, with knowledge of those environmental elements that comprise this unblocking space. This space isn't clearly present in the architectural representations of these games. It is implied, knowable with experience, and it becomes concrete and manifest as player characters are made to perform those resistant and actively resisted practices of climbing, running, and fighting in city streets.



Figure 06 - The left image depicts a player of *Assassin's Creed IV: Black Flag*. He is simultaneously viewing the game's main environments, and an alternative image of the same space, on the mobile phone in hand. This portable element of the game's image space is currently tracking the player character's movements on a map screen. The rightmost image shows the frame story to this same game, wherein the game's main environments are depicted as mere computer simulations, as seen from behind the desk of a software tester.

3.2.3 Image space narrating the *Assassin's Creed* games

Assassin's Creed already used intertextual references and 'alternate reality game' puzzles in its concluding narrative scene, to convince its single player that their actions in the game shed new light on the actual historical record, even outside of the game.¹¹⁰ That first game in the series presented a player with puzzles and codes, that had to be solved by group efforts and with outside knowledge, and which drew players to online communities and analyses of actual history. In *Assassin's Creed IV: Black Flag*, such use of Thrift's notion of image space is taken further than in other games of the series.¹¹¹ Besides foregrounding its empirical spatial narrative instance with surveillance architecture and mapping systems, and besides foregrounding its unblocking spatial narrative instance by way of its pirate player character, who has the overriding goal of subverting all organized powers in the Colonial Era

¹⁰⁹ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 244-247.

¹¹⁰ 'Epilogue', in: Bélande, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft.

¹¹¹ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 100-102.

Caribbean, *Assassin's Creed IV: Black Flag* also draws attention to the myriad alternative, equal and simultaneous representations of its spaces.¹¹²

Thrift's image space, or the space of cumulative, mediated references to an actual space, the space of intertextuality and *différance*, is initially represented by the game's shell interfaces. These offer real time or intermittent views of the game's simulated historical sites, by way of the aforementioned mapping and tracking systems.¹¹³ These shell interfaces also contain a fictionalized encyclopedia, which represents actual historical backgrounds to the game's environments and events, interspersed with subtly fictionalized elements.¹¹⁴ The entry for the queen's staircase in Nassau, for example, explicitly states that the landmark was inaccurately dated and wrongly represented in the game for the purpose of spectacle.¹¹⁵ These explicit reimaginings of the game's main environments, as being accurately historical, being a computer simulation, or as being a fictionalized history, are also present in the game's frame story. This frame story paints the historical environments as part of a fictional computer game, which is purportedly under development by a fictional game studio, on the date of *Assassin's Creed IV: Black Flag*'s actual release.¹¹⁶ This fictional game studio is said to be responsible for the development of the actual game *Assassin's Creed III: Liberation* as well.¹¹⁷

The lines between fictional representations and actual history are blurred all the more, with references to websites and online communities, maintained outside of the game, which contain additional information and activities, pertaining to the game's fictional world. The *Assassin's Creed Initiates* website that's linked to the game, for example, presents visitors with small scholarly tasks to perform, in its fictionalized encyclopedia and map systems, which each trigger rewards and tasks within *Assassin's Creed IV: Black Flag*.¹¹⁸ This website also ties *Assassin's Creed IV: Black Flag*'s fictional world in with the worlds of the other *Assassin's Creed* games.

Then there is the mobile phone application that allows access to the game's fictionalized encyclopedia, as well as the map system and several marginal management activities, which influence *Assassin's Creed IV: Black Flag*'s environments. *Assassin's Creed IV: Black Flag* projects images of its fictional world outward into the player's actual surroundings, even as it incorporates elements from those surroundings into its own fictional world.¹¹⁹ All this is done explicitly, and all of these elements are sufficiently separate from each other as to clearly represent divergent views of the same game environments.

¹¹² 'Mister Walpole, I Presume', 'Havana', 'Abstergo Interlude 1', in: Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal.

¹¹³ 'Shell Interface, World Map', 'Shell Interface, Progression Tracker', in: Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal.

¹¹⁴ 'Shell Interface, Database', in: Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal.

¹¹⁵ 'Shell Interface, Database, Landmarks, Nassau, The Queen's Staircase', in: Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal.

¹¹⁶ 'Abstergo Interlude 1', 'Abstergo Interlude 5', in: Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal.

¹¹⁷ 'Abstergo Interlude 2, Lobby', in: Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal.

¹¹⁸ 'Shell Interface, Initiates', in: Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal., s.n. (2014) 'Initiates', in: <http://acinitiates.com/> (2015, Jun. 11).

¹¹⁹ Ismail, A. & Guesdon, J. & McDevitt, D. & May, C. (2013) *Assassin's Creed IV: Black Flag*. Montreal: Ubisoft Montreal., s.n. (2013) *Assassin's Creed IV Companion*. Paris: Ubisoft Mobile Games.

This is a homodiegetic narrative instance, present as an entity within these games' fictional worlds, insofar as it is always represented by those fictional characters that maintain the software applications and shell interfaces and databases that comprise this image space.¹²⁰ The image space always reflects past events, as a clear indicator of subsequent narration. The narrative instance is focalized through the aforementioned fictional characters, as evident when their opinions on the image space are given, as side notes to images such as those in the fictionalized encyclopedia.

The many references to actual history, and the historicization of the game's many fictional elements, further blur the boundary between the game's contained videogame technospace, the supplemental fictional spaces of connected internet websites and software applications, and the actual history and contemporary space that surround the game. The *Assassin's Creed* games, and *Assassin's Creed IV: Black Flag* especially, are informed by alternative images of their own game environments. This indicates a spatial narrative instance that is representing image space.



Figure 07 - The image to the left shows the player character of *Assassin's Creed III* approaching the edge of one of the game's environments, as it is visibly in the process of being rendered, causing it to distort in a manner that emphasized the algorithms underlying the game's visual representation. The image to the right shows the player character to the frame story of *Assassin's Creed: Brotherhood* being manipulated by an alien entity, whilst exploring the uncannily implacable architecture that all power dynamics in these games are revealed to be revolving around.

3.2.4 Place space narrating the *Assassin's Creed* games

Toward the ends of the main narrative sequences of events, and at the edges of the digital environments in these games, another kind of spatializing process is always emphasized in *Assassin's Creed* games, with architectural representations. There's a fourth space that is rendered equally as important as the empirical order of the historical cities and of the constrained computer simulation. This is a spatial narrative instance that represents Nigel Thrift's notion of place space; the indefinite sense of spatiality that seems to underlie and afford other spatializing processes, though it can never be fully accounted for.¹²¹ It appears to inform all the disparate images of the environments in these games, and it is the reason

¹²⁰ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211, 217-224, 244-247.

¹²¹ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 102-104.

for resistant practices and unblocking space to appear in them. Yet this grounding for all these other spaces is only ever traced and suggested, and never fully revealed or explained.

At the start of *Assassin's Creed*, for example, the speculative technology that can project its frame story's player character into a historical past is demonstrated and explained.

¹²² In brief, there's a virtual reality interface that can decypher and render the genetic ancestry of the frame story's player character in a manipulable form. At the end of that game, however, the unexplained aspects of this technology are revealed to have been of alien origin, and a further explanation of their workings is subsequently denied to players.¹²³

Similarly, the complex, historically and sociopolitically contextualized shadow war, that informs the events of *Assassin's Creed II*, is eventually revealed to have been primarily motivated by alien, and subsequently unexplained, influences. Despite their apparent ability to simulate any historical setting, the frame story characters to these *Assassin's Creed* games are never able to reveal the origin of the alien artifacts and facilities that instigated their quests. Uncannily, these frame stories are also continuously revealed to take place under the supervision and control of the same alien beings that the player characters are always tasked with rooting out, from inside of the simulated historical spaces.

In the closing narrative sequence of *Assassin's Creed: Brotherhood*, to give another example, the player loses control over their frame story player character, as he is inexplicably forced to kill one of his companions. The reasons for this are never revealed in the series.¹²⁴ The frame story's player character is overtly manipulated in that scene, by an entity that had already appeared earlier in the game, but as part of the historical computer simulation in that instance.

In all of these cases, the alien influences are represented by primitive geometrical tools, functional and minimalistic buildings, and computer-graphical glitches, all crafted from an unknown and smoothly textured material, that's intermittently solid and dark or translucent and glowing. These science fiction objects contrast with the largely premodern or contemporary designs in the rest of these games. They also keep appearing at crucial moments in *Assassin's Creed* games, and they are continuously revealed to underlie and explain the events of these games, even as this is never further specified or explained. The games in this series all depict competing regimes of spatialization, competing narratives of space and competing narrative instances, while this struggle is consistently shown to be constructed on an implacable ground.

This spatial place space narrative instance is given with no focalization and no grounded origin, in contrast with all the other significations of space in these games. At times, these alien influences refer to past events, while they prophesy future events at other moments, and are of no specific narrative purpose on other occasions. The narrative instance of these implacable spaces seems heterodiegetically absent from the spaces it narrates, in yet another contrast with the other spatial narrative instances that these games have thus far revealed.

¹²² 'Prologue', in: Bélande, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft.

¹²³ 'Memory Block 07', 'Epilogue', in: Bélande, M. & Désilets, P. & May, C.G. (2007), *Assassin's Creed*. Montreal: Ubisoft.

¹²⁴ 'Epilogue', in: Désilets, P. & Yohalem, J. & Plourde, P. (2010), *Assassin's Creed: Brotherhood*. Montreal, Singapore, Boekarest, Quebec, Annecy: Ubisoft.

3.2.5 Conclusion

The representations of architecture in the *Assassin's Creed* series of games all seem to foreground the four narratives of space, or significations of space, that Nigel Thrift developed in his geographical work. Given the central narrative theme of competing regimes of power in urban spaces, it's fitting that these four types of spatializing processes are all equally and explicitly represented, and all of them in a different style. Respectively, empirical space, unblocking space, image space and place space appear represented by historicized architecture and imposing order, by elements of architectural decay and resistant acts based on the bodily affordances of a space, by the digital environments of the shell interface and its supplementary websites, and by those metafictional or unexplained architectural elements that are said to underlie these games' events in unspecifiable ways. These case studies, on the remediation of the narrative framing of a space in computer games, indicate that other parameters for architectural narrative might also explain the representations of architecture in computer games. That is a subject for later projects, however. In the following chapter, I'll first transpose these four narrative instances to explain the possibility spaces of *Starseed Pilgrim*, *Fit in*, *The Stanley Parable*, and *Mountain*.

3.3.- Four spatial narrative instances for possibility spaces

The following four case studies each foreground one of the four types of spatializing processes that Nigel Thrift describes, in the form of a possibility space, which could be construed as spatial narrative instances.¹²⁵ These possibility spaces can be conceptualized with Thrift's model, though they're not explicitly relayed through representations of architecture in these games, or through architectural metaphors. The following should demonstrate the use of architectural, geographical concepts for describing narratives of computer game possibility spaces.

3.3.1 Empirical possibility space narrating *Starseed Pilgrim*

In *Starseed Pilgrim*, a player can explore a large and two dimensional void of abstract primitive shapes, by moving the main player character about without falling, and by having this player character plant seeds. These seeds then grow out into structures that allow for further exploration.¹²⁶ The player is urged on by a black growth that's eating away at the environment. There is no explicitly stated purpose to the game, and no indication of what a player might find in any of the game's interwoven environments.¹²⁷

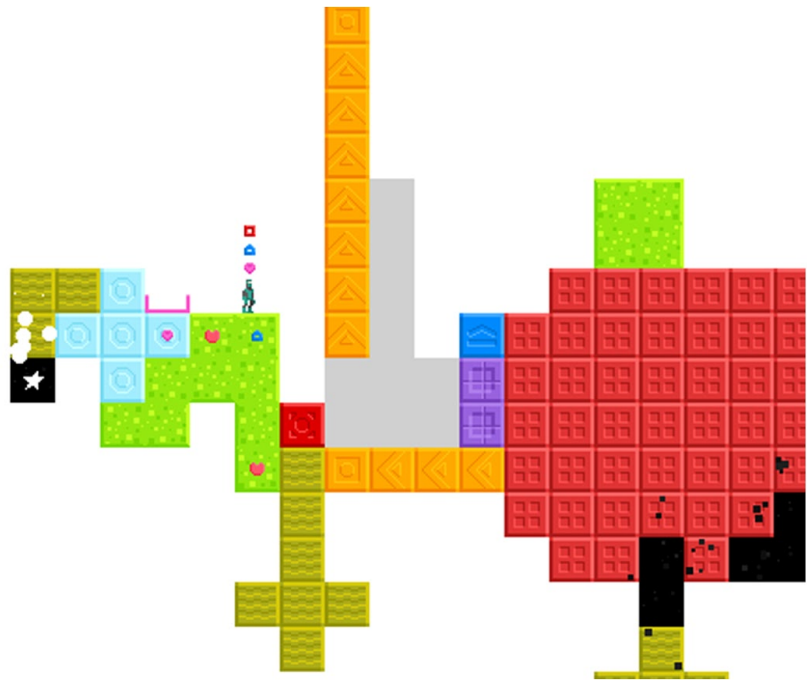


Figure 08 - This image shows the main player character of *Starseed Pilgrim* in the center, on top one of their planted structures. They're trying to get away from the black growth eating away at their footing, from the bottom right of this image. The visible structure emerged in an empirically predictable pattern, from various types of seeds. It allows the player to explore the game's world and purpose.

¹²⁵ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd., Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211, 217-224, 244-247.

¹²⁶ 'Prologue', 'Safe World', in: Martin, A. (2013) *Starseed Pilgrim*. s.l.: Droqen.

¹²⁷ 'Safe World', 'Puzzle World', 'Dark World', in: Martin, A. (2013) *Starseed Pilgrim*. s.l.: Droqen.

The player has to discover all of these things, as well as the different growth patterns, and the properties, of the various seeds that they have to plant in order to clamber on. Since every element in the game behaves according to predictable and concisely expressed properties, and since every element is manipulable in specific ways, the player can easily form an empirical model of the possibility space that affords their performance in the game. With little instruction to go on, a player will have to chart and track how, for example, the green seeds grow out in a winding pattern, the purple seeds grow more slowly in all directions at once, and the light blue seeds are less easily corrupted by the black growth, which in turn is eating away at all of the other growths. On top of this, there's a complex structure of parallel worlds to discover and chart, with each action in one world influencing the layout and usefulness of those other worlds as well.

As with all of the games in this section of my thesis, *Starseed Pilgrim* uses a homodiegetic narrative instance, in Genette's terms.¹²⁸ It clearly manifests its spatializing process through entities in the game's environments. All of these games also use zero focalization for the spatial narrative instances that I've analyzed, since these specific spatializing processes that they foreground seem to be ubiquitous and of equal influence on all actors within the games. All of these case studies also exhibit an interpolated narration, which narrates events as they occur, all the while commenting on what led up to the current game state.

Starseed Pilgrim exemplifies how a possibility space in computer games can also be productively understood as an empirical space, in Thrift's terms. It affords precise measurements, maps, categorizations and tracking.¹²⁹ If this game's possibility space weren't predictable and measurable, its complexity and obscurity would have discouraged any player from participating in it. If the game hadn't afforded as much manipulation of the environment, those players wouldn't have felt encouraged to act upon their own empirical model of the game's possibility space.

3.3.2 Unblocking possibility space narrating *Fit in*

The computer game *Fit in* presents a fine example of an unblocking possibility space. In this game, the player is instructed to make cutting gestures with a mouse cursor, to remove excess elements from a given geometric primitive shape, so that this shape can then be dragged and dropped into a given mold, as per the text instructions.¹³⁰ As the player 'corrects' the randomly colored shape, according to given instructions, it gradually takes on the color of the mold, even as each cut causes an outcry of pain to appear in text.¹³¹ These outcries are apparently uttered by the shapes that the player is mangling.

The game implicitly offers and explicitly rewards another solution to the situation, which perfectly exemplifies Thrift's suggestion that events, lines of flight, transformation and

¹²⁸ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211, 217-224, 244-247.

¹²⁹ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 96-98.

¹³⁰ s.n. (2014) *Fit in*. Paisley: Axel RB.

¹³¹ 'After first shape', in: s.n. (2014) *Fit in*. Paisley: Axel RB.

becoming might pose an alternative to empirical spaces of structure, systems and being.¹³² Once a player discovers that they can cut into any element on the screen, and that they could thereby adapt the mold to accommodate any of the given shapes, an unblocking possibility space opens up for them, which had always already been implied, in the properties of the game's agents. By allowing for the discovery of a valid alternative to the actions that a player is instructed to perform, *Fit in* foregrounds an unblocking spatial narrative instance, that takes the form of an abstract possibility space. As mentioned in the previous case study, this narrative instance is homodiegetic. It uses zero focalization and an interpolated narration that's simultaneous with the game's events, whilst it subsequently comments on their past origins.

This possibility space of alternatives encourages a player to explore their own agency, and to allow the actual properties of the shapes they encounter to inform their decisions, instead of acquiescing to the game's imposed order. This unblocking space isn't explicitly represented or referenced by an architectural metaphor. It has to be discovered through action, making it a good example of how unblocking space manifests through performances. This concept of a spatial narrative instance can apparently apply just as well to computer game possibility spaces, as it can to digital representations of architectural form.

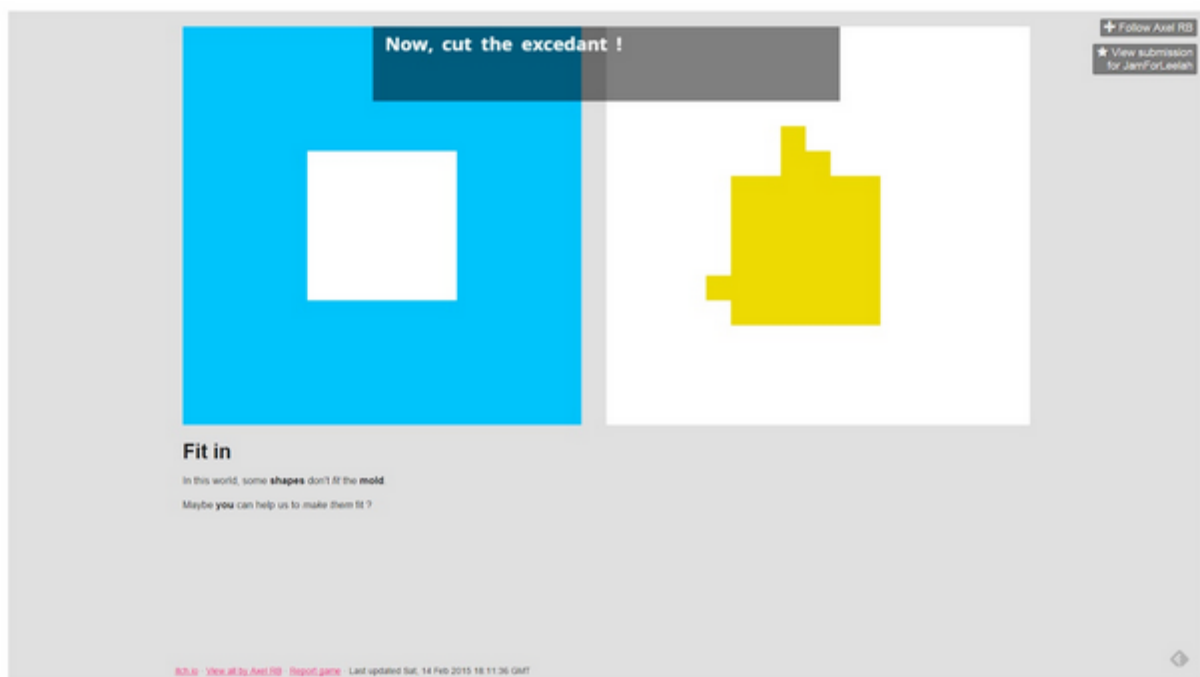


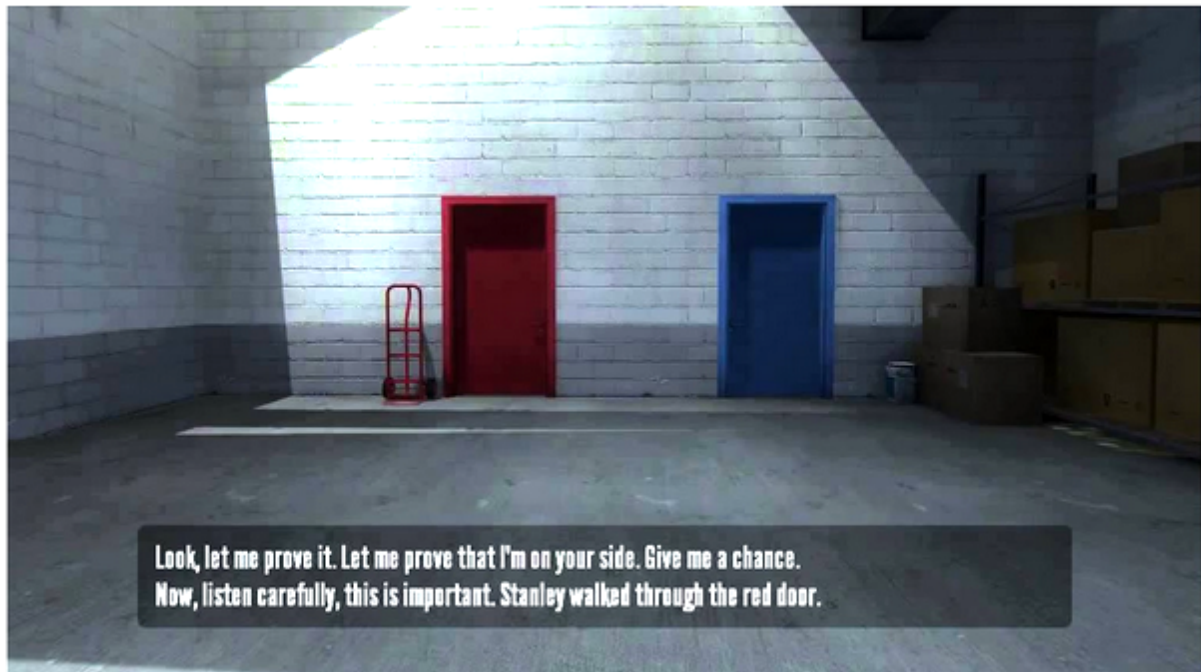
Figure 09 - This image of the game *Fit in* shows a mold to the left, which the shape to the right should be made to fit into, as per the instructions that appear to the top. Alternatively, a player can explore an unblocking possibility space to make the mold conform to a given shape instead.

3.3.3 Image possibility space narrating *The Stanley Parable*

The Stanley Parable presents a player with an exceedingly simple possibility space, but it comments on that possibility space extensively. It reimagines and reflects on that space with

¹³² Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 98-100.

every choice practiced.¹³³ This seems a valid example of how possibility spaces can take on aspects of the image space that Nigel Thrift describes.¹³⁴



*Figure 10 - As the subtitles to the bottom of this image transcribe, the narrator to *The Stanley Parable* instructs a player on what little choice they're to have the player character make. The player could also explore alternative paths, which leads the narrator to comment on them failing to listen, and it might even lead another narrator to comment on the repetitive futility of this game altogether. The *Stanley Parable* presents a broader image space for any given possibility space in this way.*

A player can choose to remain passive in *The Stanley Parable*, or they can move their player character around in the game's surreal office environments. The game will comment on this primary choice in various ways, and at various moments. The game's narrator voice will call it out if the player character remains still at the start of the game, for example, or mention it if they finally move to act and explore.¹³⁵ Besides this, the player can choose to conform to what the narrator's voice tells them should happen, or they can choose the one alternative action that's presented to them, for each piece of narrated instruction. In the latter case, they would be confronted with an increasingly angry narrator. Instead of going out the first door in the game, as per the narration, the player can close the door and stay inside, thereby drawing the ire of the narrator and causing the game to revert to its initial state.¹³⁶

In this way, the game offers a very limited possibility space, that's being commented on at every turn. The player repeatedly sees choice, while the narrator expresses a fixed script for them to follow. A metanarrative narrator will even comment, in a few cases, on the game's endless repetition of this same scenario, even if the player tries hacking the game

¹³³ Pugh, W., Wreden, D. (2013) *The Stanley Parable*. s.l.: Galactic Cafe.

¹³⁴ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 100-102.

¹³⁵ 'Stanley's Office', in: Pugh, W., Wreden, D. (2013) *The Stanley Parable*. s.l.: Galactic Cafe.

¹³⁶ 'Coward Ending', in: Pugh, W., Wreden, D. (2013) *The Stanley Parable*. s.l.: Galactic Cafe.

from outside of it, or if they escape the game's environments through faults in the simulated walls.¹³⁷ This metanarrative narrator posits quitting the game as the only valid and absolute end state. What's relevant is that the game continuously presents various alternative, existentialist views of the same minimalist possibility space, in a manner similar to what's described by Thrift, as the spatializing process of image space.

The continuous repetition of the game's scenarios, from initial state to one of the many end states, forces a player to reflect on the variants of the same script.¹³⁸ For each affordance for agency, for each sequence of cause and effect, various portrayals are apparently possible, and all are juxtaposed or superimposed as the player's considers their next act. As with the previous case studies, the narrative instance in *The Stanley Parable* is homodiegetic, and it uses an interpolation of subsequent and simultaneous narration, with zero focalization.¹³⁹ Without transposing the notion of an image spatial narrative instance to this game's possibility space, this game's narrative would have been hard to explain.

3.3.4 Place possibility space narrating *Mountain*

Thrift's place space presents us with Zeno's paradox, being that one can never find a definitive point at which a given object stops being perceived as that object, even if one starts stripping away all the objects and practices that are taken to define that thing.¹⁴⁰ In a transposition of Thrift's notion of place space, from architecture and geography to computer games, the game *Mountain* foregrounds this type of paradox.¹⁴¹ Even as more and more of its affordances and processes are discovered to be unmotivated and unproductive, the game never definitively ceases to be engaging as a game, and a player is left with the uncanny sensation of having been lured in, and kept occupied, by an illusory game space.

Having filled out a brief psychoanalytical form of sorts, the game procedurally generates the three dimensional rendering of a mountain for the player. This mountain rotates and is apparently floating in a bubble of atmosphere amidst an interstellar vacuum.¹⁴² Over the course of around fifty hours, as the game is run, forestation and sunlight and seasonal weather will procedurally affect the mountain's landscape, as a random assortment of objects also appears from the void, and crashes onto the mountain's surface. After this given span of time, one of a variety of cataclysms inevitably destroys the mountain, and reverts the game to its initial state.¹⁴³

A player can move the camera frame around the central object of the game, and they can use two rows of keys on their keyboard to play musical notes, and to have the mountain spin faster. The latter makes seasons and daylight pass by faster, to an uncertain purpose. At certain moments, surreal statements from the first person perspective of the mountain will

¹³⁷ 'The Escape Ending', 'The Serious Room Ending', 'The Map Glitch Ending', in: Pugh, W., Wreden, D. (2013) *The Stanley Parable*. s.l.: Galactic Cafe.

¹³⁸ 'Shell Interface, Loading Screen', 'The Confusion Ending', in: Pugh, W., Wreden, D. (2013) *The Stanley Parable*. s.l.: Galactic Cafe.

¹³⁹ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211, 217-224, 244-247.

¹⁴⁰ Thrift, N. (2009) 'Space: The Fundamental Stuff of Human Geography', in: *Key Concepts in Geography*; Clifford, N., Holloway, S., Rice, S.P., Valentine, G. (eds.); London: Sage Publications Ltd.: 102-104., Thomson, J. (2001) 'Tasks and Super-Tasks', in: *Zeno's Paradoxes*; Salmon, W.C. (ed.); Indianapolis: Hackett Publishing Company, Inc.: 89-92.

¹⁴¹ O'Reilly, D. (2014) *Mountain*. Los Angeles: David O'Reilly.

¹⁴² 'Prologue', 'Three hours in', in: O'Reilly, D. (2014) *Mountain*. Los Angeles: David O'Reilly.

¹⁴³ 'Epilogue', in: O'Reilly, D. (2014) *Mountain*. Los Angeles: David O'Reilly.

appear in text as well, based on indefinite conditions. All of this foregrounds a spatial narrative instance that renders the game's possibility space as primarily influenced by processes of place space. It seems a homodiegetic one, which uses interpolated narration with no focalization.¹⁴⁴



Figure 11 - This image from Mountain indicates a number of the obscure processes that have shaped this particular mountain. It shows one of the cryptic messages, to the top left, that the mountain seems to give for some reason. The image also shows how no interface clarifies what's going on, as this dynamic, somewhat manipulable scene goes on for around fifty hours. The game is engaging and it invites players to act, even as they might contemplate the illusionary nature of their perceived agency.

With the breadth of obscure processes at play, and the minimal representation of the player's agency, the game might seem a toy, or a long term simulation or management problem. Over time, though, it becomes increasingly unclear what actual influence a player has on the game. There seem to be game processes at play, and the game seems to react to what little agency it affords, but all this is left unclear. *Mountain* offers a possibility space, agency and just enough responses to invite play, but neglects to develop this system over time. This is likely to cause a player to uncannily realize that their sense of agency might just have been imagined, as with any significant processes they might have observed in the game. This is an exemplary display of the indeterminate place space transposed, as *Mountain* affords and invites an inscription of purpose and relationality, then undermines it with an indefinite specification of long term causes and effects.

3.3.5 Conclusion

In all, the above should sufficiently demonstrate the relevance of transposing Nigel Thrift's fourfold system of geographical narration, or signification, for the study of computer game possibility spaces. Without these concepts, it would have been hard to conceptualize how

¹⁴⁴ Genette, G. (1980) *Narrative Discourse - An Essay in Method*; Lewin, J.E. (tr.); New York: Cornell University Press: 161-211, 217-224, 244-247.

Starseed Pilgrim facilitates and invites organized exploration, how *Fit in* makes one feel rebellious, how *The Stanley Parable* seems so frustratingly indecisive, and how *Mountain* becomes an uncannily hollow experience that no entity can actually be blamed for.

4.- Final Conclusion

4.1.- Concluding remarks and summary

With this bachelor thesis, I hope to have furthered computer game literacy, by opening our understanding of computer games up to an architectural vocabulary. Before delving into the case studies proper, I've exhaustively explained the theoretical frame that informed my methodology, and the choice of case studies that served to demonstrate it. Having given the history of this project and the outline of my thesis, I explained how I had hoped my work would be relevant to the relatively insulated field of game studies. My use of their specialized terminology should have also proven fruitful for the fields of architecture studies, geography, philosophy, media studies and narratology.

Following these introductory considerations, I explained and studied what I take to be the remediation of architectural properties in computer games, as an initial indication of the relevant connections between these two media. Several case studies, which presumed a transparent immediacy in their display of architectural figures, should have proven the most concrete demonstrations of this remediation of architecture. These case studies were extensively described in the first parts of the chapters two and three, as remediating the architectural properties of composition and narrative instance, respectively. They should have demonstrated how high fidelity computer renderings, and a detailed model for interactions, can make architectural remediation in computer games a valuable expressive tool, that manages to make the spatiality of such games clear and meaningful in an already familiar manner. My extensive study of the remediation of architectural properties, in computer game representations of architecture, should have furthered my case, that the apparent transfer of architectural properties to a different medium renders a likewise description of computer games, with the language of a different medium, a valid object of study.

Accordingly, I then transposed those same architectural properties, as concepts to use for describing computer game possibility spaces. I was building on several theorists who've proposed a spatial understanding of computer games, but who have neglected to fully develop that with concrete tropes, figures and forms, to describe those uniquely spatial properties of computer games. This practice required case studies that foregrounded their abstract possibility spaces, with alienating hypermediation and a minimalist use of remedial elements. While the transposition of an architectural terminology took some effort, and it may not have succeeded entirely, these exhaustive case studies should still have demonstrated the use of a specific and concrete vocabulary, for describing the affordances and constraints of games in a spatial manner. In the second halves of the second and third chapters, I should have proven that such a methodology is able to address both the relatively formal properties like composition, and narratological properties such as narrative instances.

The first chapter of this thesis should have explained my theoretical frame and methodology, while the second and third chapters demonstrated analyses of the remediation of architecture, and transpositions of architectural properties to describe possibility spaces, for both the properties of formal composition and architectural narrative instances. Following this concluding summary, I'll list some prospective lines of inquiry, that might be developed after having concluded this project. I'll then end on some words of thanks and a bibliography.

4.2.- Further considerations

For the purpose of furthering computer game literacy, I might recompose the preceding text into more concise and simplistic descriptions, in various easy to publish formats and for a wider audience. Admittedly, my efforts to be exhaustive and comprehensive, even while limiting the scope of this project, haven't resulted in the accessible work that this thesis could have been with more refinement. In my researching and writing practices, I can never prevent myself from spending most of the available time by collecting notes and ideas, only to have them congeal into coherence in the final stretch of a project. Having been encouraged to follow my theories into unfamiliar fields, with little constraint, I also ended up having to explain most of the concepts and cases that I bring forward, which I could otherwise have merely referenced in this text.

The case studies that I did for this project were demonstrative, and I should look to practicing my methodology on the more sociopolitically relevant or contemporary cases, if only because the proposed methodology for this thesis could use more practical application. Given more time and future projects, I could also delve deeper into the fields of architecture studies and game studies. This would help me develop a more complete model of the medium of architecture, and a more complete picture of where my methodology traces game studies notions that are already known.

In all, the future for this project lies in rewriting the preceding text, and in supplemental case studies that address a wider understanding of both architecture and computer games. Beyond that, I might study the remediation and transposition of properties from other media, as well. The medium of choreography seems especially suited for this, with performativity being core to the experience of games.

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Bachelorwerkstuk - Aanvullend Portfolio

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Inleidend

Op de volgende pagina's is het aanvullend portfolio bij het voorgaande bachelorwerkstuk ingevoegd. Achtereenvolgens behelst dit:

- 1. De eindreflectie op het project, dat op deze pagina nog gegeven is
 - 2. Het goedgekeurde onderzoeksvoorstel en de status quaestionis bij dit project
 - 3. Commentaren van Marijn Dekker op mijn schrijven
 - 4. Commentaren van Twan Alofs op mijn schrijven
 - 5. Mijn commentaren op werk van Marijn Dekker
- [Van Twan Alofs ontving ik nooit een hoofdstuk om te becommentariëren]

Eindreflectie op het bachelorwerkstuk

Ik was onmiddellijk blij dat mijn begeleider van voorkeur overwogen en gekozen leek, op basis van mijn eerste onderzoeksvoorstel voor dit project. Daar wij al twee jaar samen aan een project hadden gewerkt, kende ik zijn stijl van begeleiding, zijn expertise en kende hij mijn valkuilen en werkwijze. Ook was hij van dit voorgaande project al bekend met mijn plannen voor dit project, welke we al veel besproken hadden. Geïnspireerd ging ik aan het werk, maar ontdekte al snel dat het uitleggen van game studies concepten en spelvoorbeelden veel inzet zou vergen. Ook het gefragmenteerde veld van de architectuurstudie kostte veel moeite om te onderzoeken, waarna het veel schrijfwerk vergde om de resultaten uit te leggen. In samenspraak met de medestudenten en begeleider in mijn projectgroep wisten we mijn ambities in te tomen, maar het resulterend verslag, dat hieraan vooraf gaat, is nog altijd omvangrijker dan verwacht was en gespecialiseerder dan gehoopt. Mijn enorme vrees is dat ik afgekeurd wordt op de lengte van dit werkstuk, iets dat mijn medestudenten en begeleider niet hebben kunnen voorkomen. In mijn enthousiasme produceer ik te veel en anderen hebben me in deze alleen maar aangemoedigd om onbekend terrein te verkennen en daarbij ook de stof uit te leggen waar zij tijdens de begeleiding nog geen vat op konden krijgen. Ik had gehoopt op meer bijeenkomsten, waarmee omstanders me meer in toom hadden kunnen houden en ik meer kans had gekregen om te zien of mijn verhaal nog begrijpelijk en compact zou zijn. Tevens is het jammer hoe weinig werk ik en mijn medestudenten elkaar konden sturen, met drukke agenda's voor Marijn en ik en een gebrek aan communicatie van Twan uit. Ik heb zelf dr. Munteán nog regelmatig gesproken op andere momenten, om toch mijn onderzoeksplannen zo tijdig als mogelijk nog bij te kunnen schaven. Ook op dit moment van inleveren bleken de begeleiding en instructie tekort te hebben geschoten, daar mij nooit op tijd verteld was over woordenlimieten of aanvullende portfolio's bij dit project. In deze lever ik dat op de volgende pagina's toch nog aan.

Bachelor Thesis -Status Quaestionis and Revised Research Question

Initial version of the project proposal, including a description of the research field, my proposed contribution to this field, a revised series of research questions and an initial bibliography

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Course: Bachelorwerkstuk
Addressed to: dr. L. Munteán
Date: 2015-march-06

Introduction

This report precedes my work on a bachelor thesis for Cultural Studies and concerns a brief analysis of those academic fields I deem relevant to this project, followed by a prediction of my contribution to these fields and a preliminary bibliography comprising works from those fields. Following this, I present a revised set of research questions for the project, and an overview of research strategies and intended results. An initial schedule for the project is added in closing.

Relevant Academic Fields

The initial object of this project is to formulate a set of parameters, or textual descriptors, for comprehensively and concisely describing artifacts that adhere to the art medium of architecture. This set is then to be tested on a select few computer games, to reveal specific intermedial connections between the artifacts of these two media, in addition to elucidating where a mere understanding of architecture will fall short when analyzing computer games. Architecture appears the structuring principle behind many of the simulated spaces visible in contemporary computer games, and architectural principles might even shed light on the structures of the possibility spaces that shape the procedural rhetoric of these games. This intuited and somewhat knowingly naive research goal pertains to several extant fields of academic inquiry.

Primarily, the part where I try to collate a set of descriptors for architectural artifacts exemplifies the field of cultural studies and media studies to some degree. Both fields have, in the past fifty years, taken a more inclusive, and consequently a more generalized approach to analyzing cultural artifacts, by giving equal attention to each type of cultural artifact. This inclusive approach has shifted attention to generalizing models of various media and to generalizing methodologies for the analysis of objects that share a medium.

Trying to glean a comprehensive set of specialized descriptors from studies of architecture befits the cultural studies approach. The same goes for my long term goal of formulating or collating a comprehensive set of specialized descriptors for computer game artifacts. Such sets of descriptors and their proof in case studies would have fit in well with the first year courses of Cultural Studies, as similar methods were taught for analyzing media such as film, music and literature. The comparative analysis of architecture and computer games, in turn, fits in with second-year courses on intertextuality and intermediality. The latter is also where media studies becomes relevant to this project, as mutual influences between media are a foundational assumption and central object of study in that field. I hope to apply these outmoded structuralist notions of fixed and generalized schema for media analysis in sufficiently nuanced and purposefully naive ways, so as to have it be relevant in these times of predominantly poststructuralist and intersubjective analysis in cultural studies. The contemporary, poststructuralist, turn towards a preference for spatial properties over temporal properties, when analyzing cultural artifacts might make my analysis of architectural elements in computer games sufficiently pertinent.

One might question why the field of game studies hasn't yet been mentioned. This field, over fifteen years, has tried to specialize in analyzing computer games, to the detriment of those more generalized models for computer game analysis that might have emerged, if a more inclusive approach were practiced. In this project, I purposefully avoid exclusive conjecture on the special and unique nature of computer game artifacts, as an inclusive and admittedly experimental mode of analysis seems more apt to me. This inclusive approach allows for my movements, from a generalized cultural studies point of view, sideways into more specialized methodologies that I base on cultural theory, intermediality and phenomenological philosophy, as well as allowing for my brief excursions to merely harvest concepts from the specific fields of game studies and architecture studies.

My Contribution to Relevant Academic Fields

I'm to expand on my work for the Radboud Disciplinary Honours Program of the Faculty of Arts, with a further application of the exploratory, experimental methodology that I'd developed for that project. By reengaging with that methodology, I can refine my practice and accountability, while providing further evidence of its feasibility and furthering its long term goals. In that previous project, I've been observing intermedial influences of film on computer games, whilst identifying computer game properties that deviate from these film properties. This mostly led to descriptions of the spatial, non-linear qualities of computer games, which stand in contrast with those aspects of film that are equally in evidence.

A comparison between computer games and the radically non-linear and atemporal medium of architecture seemed a logical next step, given these conclusions. Architecture was also chosen for this next comparison because its influence is evident in many visual and actionable elements of current computer games, and even in the invisible elements that organize possibility spaces for computer game players. In pursuing this new line of inquiry, I expect to give a relevant account of the unicity of computer games when compared to objects of architecture, and I hope to indicate the far-reaching influences of the architectural discipline on other media. More generally, the study of architecture hasn't yet seemed to result in a comprehensive set of descriptors for architectural artifacts. My project might contribute to that effort. In the long run, the computer game case studies of this project might add to the field of game studies. The cultural studies and media studies fields might benefit from my unconventional application of notions of intermediality; not to an analysis of the transfer of narrative between media, but to the transfer of physical forms and of those poetic properties that have an object speak of its own form.

Initial Bibliography

On phenomenological and structuralist analysis of cultural objects

- Gombrich, E.H. (1959) *Art & Illusion*; London: Phaidon Press Limited.
- Merleau-Ponty, M. (1962) *Phenomenology of Perception*; Smith, C. (tr.); London: Routledge.
- Deleuze, G. & Guattari, F. (1987) *A Thousand Plateaus*; Massumi, B. (tr.); Minneapolis: University of Minnesota Press.
- Deleuze, G. & Guattari, F. (1996) *What Is Philosophy?*; Tomlinson, H. & Burchell, G. (trs.); New York: Columbia University Press.
- Morton, T. (2013) *Realist Magic: Objects, Ontology, Causality*; Ann Arbor: Open Humanities Press.
- Bogost, I. (2012) *Alien Phenomenology: or What It's Like To Be a Thing*; Minneapolis: University of Minnesota Press.
- McLuhan, M. (1964) *Understanding Media: The extensions of man*; London: Routledge.
- Ryan, M. (2005) 'On the Theoretical Foundations of Transmedial Narratology', in: Jan Christoph Meister (ed.), *Narratology beyond Literary Criticism. Mediality, Disciplinary*; Berlijn: Walter de Gruyter.

Exemplary practices similar to my proposed research strategies

- Lecture 'Class 1. Rendezvous', Morton, T. (10 january 2012) Davis: Lecture as part of the 'How to Read Any Poem, Anywhere' Lecture Series at the University of California, Davis.
- Lecture 'Muzikale Bouwstenen', Meelberg, V. (18 november 2013) Nijmegen: Lecture as part of the 'Muziekcultuur' Lecture Series at the Radboud University.
- Meelberg, V. (2009) *Sonic Strokes and Musical Gestures: The Difference between Musical Affect and Musical Emotion*; Nijmegen: Radboud Universiteit Nijmegen.
- Meelberg, V. (2010) *Kernthema's in het Muziekonderzoek*; Den Haag: Boom Lemma Uitgevers.
- Ottens, M. (2015) *Enclosed movement-images of playful acts: An experimental tracing of concrete film properties in select computer games; the start of a process of elimination to uncover the specificity of the computer game medium*; As yet unfinished research project for the Radboud Honours Program of the Faculty of Arts; Nijmegen: Radboud University.

Concepts from game studies and architecture studies

- Van Antwerpen, E. (2011) *Spatial Storytelling in Computer Games: From Pixels and Polygons to Worlds and Their Explorers*; Nijmegen: Radboud Universiteit Nijmegen.
- TBA; game studies concepts
- TBA; architecture concepts and introductory architecture studies works

Research Questions

The aim of this research project is to answer this question:

How are parameters of architecture evident in computer games, yet insufficient for understanding them?

The following list of questions serves to separate those aspects of this central question, that inform the research strategies and sources of information to be used:

1. *How can the parameters of one art medium be evident in another medium, yet insufficient for comprehending that other medium?*
 - 1.1. *What is an art medium?*
 - 1.2. *What are parameters of an art medium?*
 - 1.3. *How can meaning be translated between media?*
 - 1.4. *How can meaning be derived from an art medium, in an intersubjective textual form?*
 - 1.5. *How can these parameters be organized, for an intersubjective and comprehensive transfer of architectural meaning in a textual form?*
2. *Which parameters of architecture recur in established methods for the study of architecture?*
3. *How is an understanding of these parameters of architecture evidently applied in computer games?*
4. *How is this understanding of architecture evidently adapted to sufficiently suit computer games?*

Research Strategies

The main research question will require explication in the introduction to my thesis and a summarizing answer in the conclusion of my thesis. The first of the questions, as they emerged from that overall research query, should be answered with an analysis of cultural theory and philosophy literature, similar to how I've answered this question for the Honours project that relates to this thesis. That first question, as it's written down, seems impractically broad, but it has led to the intuited methodology that I'm intending to test with this project. I already know most of the sources I'll want to cite and synthesize for this question.

The second question that emerged from the main one requires more analysis of theory in academic literature. I'll be looking towards introductory works and works on specialized concepts for this one, though. The parameters of architecture are what will be taught to students on their initiation into the study of architecture, and I don't want this list of parameters to be too specialized or complex if I'm to apply them to multiple case studies.

Case studies is what I'll be doing for the third and fourth questions on this list. I'll base my close readings of sections from select computer games on the theoretical frame established in the first section of my thesis, and I'll use these readings to indicate either the use or the adaptation of each of the properties of architecture that I'd described earlier. For each of these questions, it'll be important to limit the scope of what I'll be analyzing, though doubly so for this part of the project.

Intended Results

TBA

Schedule

TBA

The Architecture of Video Game Spaces

An experimental tracing of architectural figures in video games

*From digital representations of actualized architecture,
to the virtual architecture of digital possibility spaces*

Written by: Michel Ottens
Student Number: #4209729
E-mail: mwjk.ottens@student.ru.nl
Course: Bachelor Thesis
Addressed to: dr. L. Munteán (project mentor), ... (second assessor)
Datum: 2015-....-....
Word Count:

Insert Striking Architectural Sketch and Video Game Flowchart

Abstract

150 word Summary of the project, the report, the results and potential continuations.

Text in Red pertains to Known Needed Revisions

-.-. Index

[-.-. Index](#)

[1.-. Theoretical Frame and Methodology](#)

[1.1.- Introductory summary and objective for the following](#)

[1.2.- Stipulative Definitions, Theoretical Frame and Methodology](#)

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[1.2.6 Continued Stipulative Definition of Computer Games and Video Games](#)

[1.2.7 Video Game Literacy Via Case Studies for Architectural Figures in Video](#)

[Games, in Four Phenomenologically Determined Categories of Architectural Figures for Case Studies](#)

[1.3.- Concluding Summary](#)

[NOTES](#)

Hoi Michel,

Hier heb je mijn commentaar bij je hoofdstuk. Ik heb er qua inhoud eigenlijk niets op aan te merken. Qua vorm zou je om de duidelijkheid te verbeteren het in een soort verhaalvorm kunnen vertellen. Op dit moment is het zoals je al zei vooral heel veel theorie.

Wat mij vooral stoorde aan dit hoofdstuk, maar dat komt voornamelijk door het ontbreken van een duidelijke inleiding, was dat ik niet wist waarom je dit allemaal vertelde. Probeer in je inleiding van dit hoofdstuk te vertellen wat je in de laatste paragraaf verteld over de vier categorieën die je gaat toepassen op case studies. Vervolgens zou je het zo kunnen dat je het proces beschrijft hoe je hiertoe gekomen bent. Dus welke dingen heb je eerst gelezen, met welk idee zat je als eerste, en waarom beschrijven de huidige theorieën onvoldoende wat jij wil beschrijven.

Probeer daarnaast je onderdelen van het hoofdstuk ook nog op te delen in alinea's. Dit leest fijner en daardoor wordt het ook een stuk overzichtelijker, vooral omdat je geneigd bent om best veel informatie in één zin te stoppen. Je kunt er ook voor kiezen om je zinnen af en toe iets in te korten of op te delen in aparte zinnen. Gebruik dus niet teveel bijzinnen in één zin. Bij de derde bijzin raakt de gemiddelde lezer vaak al de draad kwijt, en hier is dat al helemaal het geval omdat het abstracte stof is wat je bespreekt.

Als laatste zou je, als dit tenminste mogelijk is, de vier categorieën aan de hand waarvan we architectuur ervaren, illustreren met afbeeldingen. Ik weet niet of je al case studies hebt geselecteerd maar screenshots zijn altijd handig, en het maakt het stuk ook plezieriger om te lezen met af en toe wat afbeeldingen ertussen.

Verder heb ik nog wat pietluttigheden wat betreft woordkeuze etc opgeschreven. Hopelijk heb je hier wat aan. Succes met schrijven!

Groeten van Marijn

1.- Theoretical Frame and Methodology

1.1.- Introductory summary and objective for the following

In the following,

1.2.- Stipulative Definitions, Theoretical Frame and Methodology

1.2.1 The Specialized Focus on Video Games

For my attempt at demonstrating the remediation of architecture in games, and the relevance of transposing architectural figures to interpret the possibility spaces of games, I've only selected case studies from the video game subset of the computer game form. This is to limit the scope of the project as much as possible, while retaining the most relevant of potential case studies. For lack of time to really delve into the game studies and architecture studies discourses, I also deem the video game form the most capable of tangibly expressing architectural figures and providing an architectural experience to its players. Moreover, by specifically targeting the video game form for my case studies, I can save time and reasonably disregard the homogenous, mostly static and narratively irrelevant physical trappings of conventional games in this form. The physical form of the games I'll be discussing, what new media specialist Ingrid Richardson would call their technospaces, unanimously comprises a large computer screen, connected to a speaker set and a computer, which is connected to a handheld control interface, held and manipulated by a player facing the screen, which displays the game's play processes.¹ As per convention, the player disregards their physical surroundings in all of these case studies, since only what's displayed on screen, what's tangible through the control interface and what's audible from the speaker set is rendered diegetic. By homing in on these audio visual and tangible computer renders, I can discuss more of the complex architectural figures that these games present. The leap to talking about digitized possibility spaces should be less of a leap as well, if the largely motionless player in front of the screen is left out of the picture.

Comment [Marijn De1]: Tangible: Whats makes you claim this? Is this your own claim or do you use this idea from another author? In that case you could cite him/her to improve clarity.

Comment [Marijn De2]: It could be a good idea to start a new paragraph here. This gives the reader a better overview.

Comment [Marijn De3]: You should either add a comma or the word "which" here. Otherwise the sentence doesn't seem to be correct.

Comment [Marijn De4]: Homing: is this the right word to use here? As far as I know, this word means "going home to...". What you mean to say here is zooming in/focussing, right?

1.2.2 Stipulative Definition of Games as a Structure for Play

Having briefly defended my focus on video games, let's define them for the purposes of this project. Video games are a subset of computer games. In turn, I take computer games to be a subset of the medium of games. Games are a form for voluntary playful activities, with a certain degree of regulation through rule and goal statements, according to the pioneering and influential works of historian Johan Huizinga and sociologist Roger Caillois.² They can exist as mere mental models for their players, or be physically manifest. This medium includes sports, board games and gambling practices. They can be dated as far back as prehistory, in the human archaeological record, going by the apparent recreational and ritual use of astragalus

Comment [Marijn De5]: Isn't this sentence to similar to spoken language?

¹Richardson, I. (2007) 'Pocket Technospaces: the Bodily Incorporation of Mobile Media', in: *Continuum: Journal of Media & Cultural Studies*; Volume 21, Number 2; London: Routledge: 205-214.

²Huizinga, J. (2008) *Homo Ludens: Proeve eener bepaling van het spel-element der cultuur*; Amsterdam: Amsterdam University Press: 28-55.; Caillois, R. (2001) *Man, Play and Games*; Barash, M. (tr.); Illinois: University of Illinois Press: 3-6, 11-36.

bones.³ Even crocodiles have been shown to engage in several types of controlled playful activities, either testing their physical capabilities, the use of objects as tools, or their social status.⁴ Plant shoots are similarly said to engage in playful explorations of their physical capacity in a competitive surrounding, instead of merely executing a genetic algorithm dispassionately, as they project and position the leaves on their growing stems to catch the most sunlight, for instance, all the while probing and compensating for their environment.⁵ Going by these observations, games might have a deep psychological, evolutionary or even ontological origin, and a literacy in the game artifacts of human culture seems all the more prudent. As a brief aside, I should explain my intent, with furthering game literacy through the purposefully naive study of remediation and an indirect tracing of medium specific properties.

Comment [Marijn De6]: I'm not sure if you should mention these two examples in your text. Although they sound very interesting (I didn't know about the plant shooting), they don't seem to add anything essential. As far as I can see, you could suffice with one sentence, saying that Dinets and Trewavas have stressed that games might have a deep origin. If you want to save words, for your next paragraph for example, you could leave these examples out.

1.2.3 Media Literacy and Media Literacy Via a Study of Intermediality

Media Literacy, New Media Literacy, Limited Means and Purposefully Naive Perspective to Build on Presumed General Understanding and to Test out a Phenomenological Approach. Demonstrating McLuhan's notion of Remediation and Williams' notion of Discursive Influences (?), Especially as Developed as Remediation. Synthetic Intermediality should lead to remediative influences, A Modification of Transmedial Narratology, as will be explained later, should lead to tracings of specificity, as food for later thoughtend on universal importance of games...

1.2.4 Continued Stipulative Definition of Games and Computer Games

Prior to this project, for a game design internship, I'd already collated a definition of the game artifacts of our human culture.⁶ I will stick with this definition here as well. In that project, my stipulative definition of games followed from a comparison of sixteen acknowledged definitions from the academic field of game studies. The similarly compounded definition by dr. Katie Salen and dr. Eric Zimmerman was chief among those I compared, but I also accounted for definitions by dr. Jesper Juul, by the influential computer game designer Chris Crawford, and those aforementioned descriptions by dr. Johan Huizinga and dr. Roger Caillois.⁷ I take a game to be a conceptual system that comprises rules, goals and quantifiable expressions of current states of that system. A game allows and motivates several apparently autonomous, participating

Comment [Marijn De7]: I'd: doesn't this mean "I would"? From what I see you intent to say "I have".

³Koerper, H.C., Whitney-Desautels, N.S. (1999) 'Astragalus Bones: Artifacts Or Ecofacts?', in: *Pacific Coast Archaeological Society Quarterly*, Volume 35, Numbers 2 & 3, Spring & Summer Editions; Costa Mesa: Pacific Coast Archaeological Society: 69-70, 73-75.

⁴Dinets, V. (2015) 'Play behavior in crocodilians', in: *Animal Behavior and Cognition*; Volume 2, Issue 1, Februari 2015; Kuczaj, S. & Highfill, L. (eds.); s.l.: Sciknow Publications Ltd.: 49-55.

⁵Trewavas, A. (2014) *Plant Behaviour and Intelligence*; Oxford: Oxford University Press: 176-178.

⁶Ottens, M. (2011) Analysis Report: On the Uses of Serious Games for the ABOE Training Project; Veghel: Vanderlande Industries: 3-4, 11-18.

⁷Salen, K. & Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*; Cambridge: Massachusetts Institute of Technology: 73-81., Juul, J. (2003) 'The Game, the Player, the World: Looking for a Heart of Gameness', in: *Level Up: Digital Games Research Conference Proceedings*; Copier, M. & Raessens, J. (eds.); Utrecht: Utrecht University: 30-45., Crawford, C. (1984) *The Art of Computer Game Design*; Berkeley: Osborn/McGraw-Hill: 1-18.

agents, to engage in an artificial conflict. This conflict is a confrontation of game play processes that is directed, to a limited but certain degree, by stated or implied rules and goals. In brief, a game is an enactive system that directs, expresses and cultivates a play between its participants.

In the subset of computer games, a computer is used to store, express and manipulate each element of the game to some degree. It does this using an interface to convert between the digital and analog objects or processes that are involved. Crucially, in this project, a game is taken to be actualized, as such, only when it is in play; when players are allowed to act and when the game play processes that govern rules, goals and feedback are running.

1.2.5 Phenomenology and Ludology as Intersubjective Study of Spatial Narratives

This definition calls for an intersubjective approach to describing games and their properties, which has led to me using a phenomenological methodology in the following text. I believe a game has to be analyzed as it's in play, from the viewpoint of a player, if one is to make comprehensive statements on how architectural representations might have been integrated into the experience, and how that experience itself might have been structured according to architectural principles. In line with philosopher Merleau-Ponty's foundational and influential descriptions of this analytic practice, I'll mainly be analyzing my own sensory experiences of the case studies posited, and their relations to my understanding of architecture.⁸ To emphasize the subjectivity of my intersubjective approach, I will also account for philosopher Timothy Morton's speculative realist understanding of phenomenology and aesthetics. He states that any aesthetic experience is also the experience of an irremovable distance between subject and object, so that a phenomenological description, nor any other form of description, can never fully account for the object being described.⁹ These methodologies for describing art objects, or at least my sensory experience of them, should serve to avoid an overly interpretative analysis, which will limit the scope of this project. They should also compensate for my being unable to really delve into game studies or architecture studies discourse, without diminishing results. Moreover, as mentioned, such a descriptive methodology follows from my purposefully naive intent to formulate new figures for describing computer games, and from wanting to consider games as running systems of processes.

Like Erik van Antwerpen in his cultural studies master thesis, I would propose to compromise between the narratological and ludological approaches to game studies.¹⁰ I follow narratological thinking, by acknowledging that the specificity of games is not to be found in their concrete forms and figures, but in what series of events these appear to express. These representations indicate a conceptual artifact, a narrative of events happening to actors against a cohesive background, which is a form that can be transferred between media forms without losing meaning, and which can be conceived of outside of its formulation in cultural media, as

Comment [Marijn De8]: Nor: This sentence doesn't feel right when I read it. Either you have to replace the word "nor" or you have to replace the word "never" in the next sentence. Right now, the sentence starting with "nor" is incompatible with the next sentence ("can never fully...").

Comment [Marijn De9]: But isn't the sequence of events a part of the game's concrete form? Of course this depends on your case studies, but you already described this in your honours project. In one of your chapters you describe that the player has control over the camera's point of view, but sometimes the game takes over, forcing the player to follow an already determined set of events.

⁸Merleau-Ponty, M. (1962) *Phenomenology of Perception*; Smith, C. (tr.); London: Routledge: ix-xii.

⁹Morton, T. (2013) *Realist Magic: Objects, Ontology, Causality*; Ann Arbor: Open Humanities Press: 19-21, 30-31.

¹⁰Van Antwerpen, E. (2011) *Spatial Storytelling in Computer Games: From Pixels and Polygons to Worlds and Their Explorers*. Nijmegen: Radboud Universiteit Nijmegen: 64-101, 165-170.

dr. Marie-Laure Ryan conceived of it.¹¹ However, I don't presume that interpreting the form of a game unequivocally leads to a conventionally linear understanding of a temporal narrative sequence, and I don't believe this should be forced. Instead, as Erik van Antwerpen did in his master thesis, and as per the central tenets of ludology in game studies, games should be taken to represent non-linear or spatial narrative concepts, which are best described in terms of their spatiality. Van Antwerpen developed this notion, calling it spatial storytelling, but he stopped just short of identifying concrete spatial figures represented in games. Game studies specialist Ian Bogost describes these computer game narratives as structured possibility spaces, comprising procedural rhetoric, but he also neglects to describe the specific forms, tropes and figures that these possibility spaces might be seen to take on.¹² My transposing architectural figures to describe these possibility spaces is an attempt to add to these other projects.

1.2.6 Continued Stipulative Definition of Computer Games and Video Games

Continuing the stipulative definitions, and to further limit the scope of this project, I take video games to be those highly popular kinds of computer games that mainly provide feedback on game processes, and player actions, via a video device, as philosopher of art Grant Tavinor concisely describes them as well.¹³ Such a video device is most often a rectangular, raster display computer screen. A television screen or computer monitor, for example. According to author and scholar Steven Kent's history of computer games, among others, the experimental and innovative PDP-1 computer program Spacewar was the first computer game.¹⁴ It was initially hacked by MIT student Steve Russell, and expanded on by his fellow students. This game already made use of a CRT monitor to visually represent the game's computer processes and digital data. Ralph Baer's work for Magnavox' Odyssey computer and Nolan Bushnell's creations at the Atari Corporation would popularize the video game, even as a long line of electronic games had already hinted at their potential popularity.¹⁵ The video game form has remained predominant throughout the history of computer games, that other forms, causing Tavinor to equate them. I do, however, feel that a distinction should be made between computer games and video games. This is to separate it from those computer games that don't primarily use video to express their processes at play. It also provides me with a more limited definition of the types of games from which an analysis of their architectural properties would naturally seem

Comment [Marijn De10]: Spacewar:
Shouldn't this be written in italic?

Comment [Marijn De11]: Remove a space

¹¹Ryan, M. (2005) 'On the Theoretical Foundations of Transmedial Narratology', in: *Narratology beyond Literary Criticism. Mediality, Disciplinarity*, Meister, J.C. (ed.); Berlin: Walter de Gruyter: 3-9, 18-21.

¹²Bogost, I. (2008) 'The Rhetoric of Video Games.', in: *The Ecology of Games: Connecting Youth, Games, and Learning*; Salen, K. (ed.); Part of 'The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning'; Cambridge: The MIT Press: 122-123, 125-128.

¹³Tavinor, G. (2009) *The Art of Videogames (New Directions in Aesthetics)*; Oxford: Blackwell Publishing Ltd.: 26-29.

¹⁴Kent, S.L. (2010) *The Ultimate History of Video Games: From Pong to Pokémon and Beyond... The Story Behind the Craze That Touched Our Lives and Changed the World*; New York: Three Rivers Press: 42-47.

¹⁵Kent, S.L. (2010) *The Ultimate History of Video Games: From Pong to Pokémon and Beyond... The Story Behind the Craze That Touched Our Lives and Changed the World*; New York: Three Rivers Press: 52-54, 59-63, 83-92.

to follow. As I mentioned at the start of this chapter, I consider video game technospaces to conventionally be mostly irrelevant to the digital content of these games. Video games physically comprise a largely immobile player, seated at some distance from a large computer screen, to which the game rendering computer and control interface are connected. I'll disregard this physical space in my case studies, and skip over to the more dynamic and complex renderings of architecture in the digital content of the case studies. In this way, the transposition of architectural figures also follows more naturally, from my observations on the remediated use of these figures.

1.2.7 Video Game Literacy Via Case Studies for Architectural Figures in Video Games, in Four Phenomenologically Determined Categories of Architectural Figures for Case Studies

After a preliminary analysis of architectural literature, and a phenomenological contemplation of the medium of architecture in general, I've come to a list of four types of architectural figures that I hope will be evidently used in computer games, from the case studies that I'll conduct. These are arranged in the order in which I take them to appear in our awareness of architecture. This arrangement is based on Merleau-Ponty's notions of space, as well as those of other philosophers that I'll briefly go into as well, where they're relevant for the case studies.

To Merleau-Ponty, space appears as a twofold system, comprising our bodily schematization of the environment as our body is related to it, and those backgrounds and emergent figures that we position as external to our body and affording our presence in certain ways.¹⁶ Space, then, is perceived as an interplay of abstract and conscious movements. To ontological philosopher Graham Harman, space similarly emerges from the tension between an object we experience as withdrawn from our full perception of it, and our internalized understanding of that object. Following from this, I first hope to identify architectural figures in video games that give players a sense of space. This should be manifest in digitized expressions of architectural space, but also in the implied possibility space for a player. **The video games provide ample examples to work with for this first category. Architectural theorists that I'll work with are**

After this, I will look for the use of architectural barriers, and obstructions to action in video games. This second category naturally follows from the first. After we have perceived ourselves as being in a volume of space, this space will appear as an architectural artifact by dint of it being bounded in some form. **The architectural theorist developed this notion by conceptualizing For this second category of the remediation and potential transposition of architectural figures, I can draw examples from the game**

As a third category, I'll start moving from a general sense of being in the presence of architectural artifacts, into the sensations of a specific architectural arrangement. I'll look at how an arrangement of volumes is bounded and connected to each other. This goes for those digital spaces where the interior is juxtaposed to open, naturalized surroundings, **as in the game These types of architectural figures can also be transposed to explain the experience of juxtaposed possibility spaces, like when a player is first constrained in their movements in, and the sudden opening up of a wide range of possibilities might urge them to act, or overwhelm them with affordances. I might use the cognitive mapping methodology by**

Comment [Marijn De12]: Make a footnote to clarify from which source you got this information

¹⁶Merleau-Ponty, M. (1962) *Phenomenology of Perception*; Smith, C. (tr.); London: Routledge: 117-129, 161-170.

urban planner Kevin Lynch, to chart these meaningful arrangements of possibility spaces, as they're experienced.¹⁷

My final, and perhaps most complicated category of remediated and potentially transposable architectural figures delves into the meanings that we can assign to architectural spaces and implied possibility spaces. To do this, without going too far beyond the pre-semiotic and pre-objective experiences that I'm mainly analyzing, I will use geographer Nigel Thrift's model for meaning-making spaces.¹⁸ His four categories of spatial signifying processes, that we experience simultaneously whenever we navigate any space, are comparable to those of other thinkers, but uniquely mappable to a logic square, denoting absolute propositions. In this same way, it also maps to Graham Harman's fourfold ontological model of objects, from which I derive my notion of spatiality, at least in part. According to Thrift, a space can result in empirical experiences, wherein the navigator is projecting their internalized notions of space onto their surroundings. This includes perceptions of material, texture, dimensions, and purpose. Simultaneously, anyone should also be aware of the possibilities for other interpretations of that same space, as evident from those that would take back their right to a space with radically resistant practices. Thirdly, one experiences space, especially in this postmodern reality that we inhabit, as the result of countless impositions of meaning, and in juxtaposition with countless different images of that same space. Finally, a space is experienced as a radically other place, separated and withdrawn from one's own body. This final signifying process is a condition for us experiencing spaces as backgrounds to action and as spaces for the presence of others as well. Games that would serve to illustrate the remediation of architecture to these purposes, but also the potential for possibility spaces to express these signifying processes, are

1.3.- Concluding Summary

In closing, a summary, before moving onto the case studies that demonstrate not only the remediated use of architectural figures in video games, but also the potential transposition of those figures to render these games' possibility spaces tangible.

¹⁷Lynch, K. (1960) *The Image of the City*; London: MIT Press: 46-48.

¹⁸Thrift, N. (2009) 'Space: The Fundamental Stuff of Geography', in: *Key Concepts in Geography*; Second Edition; Clifford, N. & Holloway, S. & Rice, S.P. & Valentine, G.; London: Sage Publications: 96-105.

The Architecture of Video Game Spaces

An experimental tracing of architectural figures in video games

**From digital representations of actualized architecture,
to the virtual architecture of digital possibility spaces**

Written by: Michel Ottens
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Course: Bachelor Thesis
Addressed to: dr. L. Munteán (project mentor), ... (second assessor)
Datum: 2015-....-....
Word Count:

Insert Striking Architectural Sketch and Video Game Flowchart

Abstract

150 word Summary of the project, the report, the results and potential continuations.

Text in Red pertains to Known Needed Revisions

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1.- Theoretical Frame and Methodology

1.1.- Introductory summary and objective for the following

In the following,

1.2.- Stipulative Definitions, Theoretical Frame and Methodology

1.2.1 The Specialized Focus on Video Games

For my attempt at demonstrating the remediation of architecture in games, and the relevance of transposing architectural figures to interpret the possibility spaces of games, I've only selected case studies from the video game subset of the computer game form. This is to limit the scope of the project as much as possible, while retaining the most relevant of potential case studies. For lack of time to really delve into the game studies and architecture studies discourses, I also deem the video game form the most capable of tangibly expressing architectural figures and providing an architectural experience to its players. Moreover, by specifically targeting the video game form for my case studies, I can save time and reasonably disregard the homogenous, mostly static and narratively irrelevant physical trappings of conventional games in this form. The physical form of the games I'll be discussing, what new media specialist Ingrid Richardson would call their technospaces, unanimously comprises a large computer screen, connected to a speaker set and a computer, which is connected to a handheld control interface, held and manipulated by a player facing the screen, which displays the game's play processes.¹ As per convention, the player disregards their physical surroundings in all of these case studies, since only what's displayed on screen, what's tangible through the control interface and what's audible from the speaker set is rendered diegetic. By homing in on these audio visual and tangible computer renders, I can discuss more of the complex architectural figures that these games present. The leap to talking about digitized possibility spaces should be less of a leap as well, if the largely motionless player in front of the screen is left out of the picture.

Comment [M1]: Je hebt het hier prima afgebakend, maar je zou het misschien nog specifieker kunnen maken door een game te kiezen. Het blijft nu namelijk nog wat vaag, terwijl ik denk dat het met voorbeelden beter tot zijn recht zal komen.

1.2.2 Stipulative Definition of Games as a Structure for Play

Having briefly defended my focus on video games, let's define them for the purposes of this project. Video games are a subset of computer games. In turn, I take computer games to be a subset of the medium of games. Games are a form for voluntary playful activities, with a certain degree of regulation through rule and goal statements, according to the pioneering and influential works of historian Johan Huizinga and sociologist Roger Caillois.² They can exist as mere mental models for their players, or be physically manifest. This medium includes sports, board games and gambling practices. They can be dated as far back as prehistory, in the human archaeological record, going by the apparent recreational and ritual use of astragalus

¹ Richardson, I. (2007) 'Pocket Technospaces: the Bodily Incorporation of Mobile Media', in: *Continuum: Journal of Media & Cultural Studies*; Volume 21, Number 2; London: Routledge: 205-214.

² Huizinga, J. (2008) *Homo Ludens: Proeve eener bepaling van het spel-element der cultuur*; Amsterdam: Amsterdam University Press: 28-55., Caillois, R. (2001) *Man, Play and Games*; Barash, M. (tr.); Illinois: University of Illinois Press: 3-6, 11-36.

bones.³ Even crocodiles have been shown to engage in several types of controlled playful activities, either testing their physical capabilities, the use of objects as tools, or their social status.⁴ Plant shoots are similarly said to engage in playful explorations of their physical capacity in a competitive surrounding, instead of merely executing a genetic algorithm dispassionately, as they project and position the leaves on their growing stems to catch the most sunlight, for instance, all the while probing and compensating for their environment.⁵ Going by these observations, games might have a deep psychological, evolutionary or even ontological origin, and a literacy in the game artifacts of human culture seems all the more prudent. As a brief aside, I should explain my intent, with furthering game literacy through the purposefully naive study of remediation and an indirect tracing of medium specific properties.

Comment [M2]: Ik vraag me af of dit relevante informatie is.

Comment [M3]: Ik denk dat je hier niet iets tussendoor moet doen, ik zou er een geheel van maken en dan hoofdstuk 1.2.3 eerder doen of later, maar niet tussendoor.

1.2.3 Media Literacy and Media Literacy Via a Study of Intermediality

Media Literacy, New Media Literacy, Limited Means and Purposefully Naive Perspective to Build on Presumed General Understanding and to Test out a Phenomenological Approach. Demonstrating McLuhan's notion of Remediation and Williams' notion of Discursive Influences (?), Especially as Developed as Remediation. Synthetic Intermediality should lead to remediative influences, A Modification of Transmedial Narratology, as will be explained later, should lead to tracings of specificity, as food for later thoughtend on universal importance of games...

1.2.4 Continued Stipulative Definition of Games and Computer Games

Prior to this project, for a game design internship, I'd already collated a definition of the game artifacts of our human culture.⁶ I will stick with this definition here as well. In that project, my stipulative definition of games followed from a comparison of sixteen acknowledged definitions from the academic field of game studies. The similarly compounded definition by dr. Katie Salen and dr. Eric Zimmerman was chief among those I compared, but I also accounted for definitions by dr. Jesper Juul, by the influential computer game designer Chris Crawford, and those aforementioned descriptions by dr. Johan Huizinga and dr. Roger Caillois.⁷ I take a game to be a conceptual system that comprises rules, goals and quantifiable expressions of current states of that system. A game allows and motivates several apparently autonomous, participating agents, to engage in an artificial conflict. This conflict is a confrontation of game play processes that is directed, to a limited but certain degree, by stated or implied rules and goals. In brief, a

³ Koerper, H.C., Whitney-Desautels, N.S. (1999) 'Astragalus Bones: Artifacts Or Ecofacts?', in: *Pacific Coast Archaeological Society Quarterly*, Volume 35, Numbers 2 & 3, Spring & Summer Editions; Costa Mesa: Pacific Coast Archaeological Society: 69-70, 73-75.

⁴ Dinets, V. (2015) 'Play behavior in crocodilians', in: *Animal Behavior and Cognition*, Volume 2, Issue 1, Februari 2015; Kuczaj, S. & Highfill, L. (eds.); s.l.: Sciknow Publications Ltd.: 49-55.

⁵ Trewavas, A. (2014) *Plant Behaviour and Intelligence*; Oxford: Oxford University Press: 176-178.

⁶ Ottens, M. (2011) Analysis Report: On the Uses of Serious Games for the ABOE Training Project; Veghel: Vanderlande Industries: 3-4, 11-18.

⁷ Salen, K. & Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*; Cambridge: Massachusetts Institute of Technology: 73-81., Juul, J. (2003) 'The Game, the Player, the World: Looking for a Heart of Gameness', in: *Level Up: Digital Games Research Conference Proceedings*; Copier, M. & Raessens, J. (eds.); Utrecht: Utrecht University: 30-45., Crawford, C. (1984) *The Art of Computer Game Design*; Berkeley: Osborn/McGraw-Hill: 1-18.

game is an enactive system that directs, expresses and cultivates a play between its participants.

In the subset of computer games, a computer is used to store, express and manipulate each element of the game to some degree. It does this using an interface to convert between the digital and analog objects or processes that are involved. Crucially, in this project, a game is taken to be actualized, as such, only when it is in play; when players are allowed to act and when the game play processes that govern rules, goals and feedback are running.

1.2.5 Phenomenology and Ludology as Intersubjective Study of Spatial Narratives

This definition calls for an intersubjective approach to describing games and their properties, which has led to me using a phenomenological methodology in the following text. I believe a game has to be analyzed as it's in play, from the viewpoint of a player, if one is to make comprehensive statements on how architectural representations might have been integrated into the experience, and how that experience itself might have been structured according to architectural principles. In line with philosopher Merleau-Ponty's foundational and influential descriptions of this analytic practice, I'll mainly be analyzing my own sensory experiences of the case studies posited, and their relations to my understanding of architecture.⁸ To emphasize the subjectivity of my intersubjective approach, I will also account for philosopher Timothy Morton's speculative realist understanding of phenomenology and aesthetics. He states that any aesthetic experience is also the experience of an irremovable distance between subject and object, so that a phenomenological description, nor any other form of description, can never fully account for the object being described.⁹ These methodologies for describing art objects, or at least my sensory experience of them, should serve to avoid an overly interpretative analysis, which will limit the scope of this project. They should also compensate for my being unable to really delve into game studies or architecture studies discourse, without diminishing results. Moreover, as mentioned, such a descriptive methodology follows from my purposefully naive intent to formulate new figures for describing computer games, and from wanting to consider games as running systems of processes.

Like Erik van Antwerpen in his cultural studies master thesis, I would propose to compromise between the narratological and ludological approaches to game studies.¹⁰ I follow narratological thinking, by acknowledging that the specificity of games is not to be found in their concrete forms and figures, but in what series of events these appear to express. These representations indicate a conceptual artifact, a narrative of events happening to actors against a cohesive background, which is a form that can be transferred between media forms without losing meaning, and which can be conceived of outside of its formulation in cultural media, as dr. Marie-Laure Ryan conceived of it.¹¹ However, I don't presume that interpreting the form of a game unequivocally leads to a conventionally linear understanding of a temporal narrative

Comment [M4]: Persoonlijk vind ik je aanloop naar de theorie wel erg lang. Ik vraag me af of het niet wat bondiger kan. Hierdoor zal je scriptie namelijk ook erg lang worden en ik weet niet of dat vanuit de eisen wel de bedoeling is. Daarnaast introducer je in zo'n korte ruimte zo veel nieuwe namen dat het (voor mij in ieder geval) moeilijk te volgen is wie nou wat zei en wat daar relevant aan is. Misschien dat je iets minder theorie kan gebruiken om het zo nog wat meer af te bakenen.

⁸ Merleau-Ponty, M. (1962) *Phenomenology of Perception*; Smith, C. (tr.); London: Routledge: ix-xii.

⁹ Morton, T. (2013) *Realist Magic: Objects, Ontology, Causality*; Ann Arbor: Open Humanities Press: 19-21, 30-31.

¹⁰ Van Antwerpen, E. (2011) *Spatial Storytelling in Computer Games: From Pixels and Polygons to Worlds and Their Explorers*. Nijmegen: Radboud Universiteit Nijmegen: 64-101, 165-170.

¹¹ Ryan, M. (2005) 'On the Theoretical Foundations of Transmedial Narratology', in: *Narratology beyond Literary Criticism. Mediality, Disciplinary*; Meister, J.C. (ed.); Berlin: Walter de Gruyter: 3-9, 18-21.

sequence, and I don't believe this should be forced. Instead, as Erik van Antwerpen did in his master thesis, and as per the central tenets of ludology in game studies, games should be taken to represent non-linear or spatial narrative concepts, which are best described in terms of their spatiality. Van Antwerpen developed this notion, calling it spatial storytelling, but he stopped just short of identifying concrete spatial figures represented in games. Game studies specialist Ian Bogost describes these computer game narratives as structured possibility spaces, comprising procedural rhetoric, but he also neglects to describe the specific forms, tropes and figures that these possibility spaces might be seen to take on.¹² My transposing architectural figures to describe these possibility spaces is an attempt to add to these other projects.

1.2.6 Continued Stipulative Definition of Computer Games and Video Games

Continuing the stipulative definitions, and to further limit the scope of this project, I take video games to be those highly popular kinds of computer games that mainly provide feedback on game processes, and player actions, via a video device, as philosopher of art Grant Tavinor concisely describes them as well.¹³ Such a video device is most often a rectangular, raster display computer screen. A television screen or computer monitor, for example. According to author and scholar Steven Kent's history of computer games, among others, the experimental and innovative PDP-1 computer program Spacewar was the first computer game.¹⁴ It was initially hacked by MIT student Steve Russell, and expanded on by his fellow students. This game already made use of a CRT monitor to visually represent the game's computer processes and digital data. Ralph Baer's work for Magnavox' Odyssey computer and Nolan Bushnell's creations at the Atari Corporation would popularize the video game, even as a long line of electronic games had already hinted at their potential popularity.¹⁵ The video game form has remained predominant throughout the history of computer games, that other forms, causing Tavinor to equate them. I do, however, feel that a distinction should be made between computer games and video games. This is to separate it from those computer games that don't primarily use video to express their processes at play. It also provides me with a more limited definition of the types of games from which an analysis of their architectural properties would naturally seem to follow. As I mentioned at the start of this chapter, I consider video game technospaces to conventionally be mostly irrelevant to the digital content of these games. Video games physically comprise a largely immobile player, seated at some distance from a large computer screen, to which the game rendering computer and control interface are connected. I'll disregard this physical space in my case studies, and skip over to the more dynamic and complex renderings of architecture in the digital content of the case studies. In this way, the transposition

Comment [M5]: Ik vraag me af of deze informatieve voor jouw onderzoek heel nuttig is. Het is wel interessant om te lezen, maar het maakt het onnodig lang en laat de lezer weer wat focus verliezen.

Comment [M6]: Misschien dat je iets te lang blijft hangen in het beschrijven wat videogames nou precies zijn. Ik zou één subhoofdstuk daar aan toewijden en ik zou daarin in een keer proberen duidelijk te maken wat de definitie voor videogames in dit essay zijn. Ik heb nu af en toe het gevoel dat er steeds maar randvoorwaarden bijkomen.

¹² Bogost, I. (2008) 'The Rhetoric of Video Games.', in: The Ecology of Games: Connecting Youth, Games, and Learning; Salen, K. (ed.); Part of 'The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning'; Cambridge: The MIT Press: 122-123, 125-128.

¹³ Tavinor, G. (2009) *The Art of Videogames (New Directions in Aesthetics)*; Oxford: Blackwell Publishing Ltd.: 26-29.

¹⁴ Kent, S.L. (2010) *The Ultimate History of Video Games: From Pong to Pokémon and Beyond... The Story Behind the Craze That Touched Our Lives and Changed the World*; New York: Three Rivers Press: 42-47.

¹⁵ Kent, S.L. (2010) *The Ultimate History of Video Games: From Pong to Pokémon and Beyond... The Story Behind the Craze That Touched Our Lives and Changed the World*; New York: Three Rivers Press: 52-54, 59-63, 83-92.

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As a third category, I'll start moving from a general sense of being in the presence of architectural artifacts, into the sensations of a specific architectural arrangement. I'll look at how an arrangement of volumes is bounded and connected to each other. This goes for those digital spaces where the interior is juxtaposed to open, naturalized surroundings, **as in the game These types of architectural figures can also be transposed to explain the experience of juxtaposed possibility spaces, like when a player is first constrained in their movements in, and the sudden opening up of a wide range of possibilities might urge them to act, or overwhelm them with affordances. I might use the cognitive mapping methodology by urban planner Kevin Lynch, to chart these meaningful arrangements of possibility spaces, as they're experienced.**¹⁷

¹⁶ Merleau-Ponty, M. (1962) *Phenomenology of Perception*; Smith, C. (tr.); London: Routledge: 117-129, 161-170.

¹⁷ Lynch, K. (1960) *The Image of the City*; London: MIT Press: 46-48.

My final, and perhaps most complicated category of remediated and potentially transposable architectural figures delves into the meanings that we can assign to architectural spaces and implied possibility spaces. To do this, without going too far beyond the pre-semiotic and pre-objective experiences that I'm mainly analyzing, I will use geographer Nigel Thrift's model for meaning-making spaces.¹⁸ His four categories of spatial signifying processes, that we experience simultaneously whenever we navigate any space, are comparable to those of other thinkers, but uniquely mappable to a logic square, denoting absolute propositions. In this same way, it also maps to Graham Harman's fourfold ontological model of objects, from which I derive my notion of spatiality, at least in part. According to Thrift, a space can result in empirical experiences, wherein the navigator is projecting their internalized notions of space onto their surroundings. This includes perceptions of material, texture, dimensions, and purpose. Simultaneously, anyone should also be aware of the possibilities for other interpretations of that same space, as evident from those that would take back their right to a space with radically resistant practices. Thirdly, one experiences space, especially in this postmodern reality that we inhabit, as the result of countless impositions of meaning, and in juxtaposition with countless different images of that same space. Finally, a space is experienced as a radically other place, separated and withdrawn from one's own body. This final signifying process is a condition for us experiencing spaces as backgrounds to action and as spaces for the presence of others as well. Games that would serve to illustrate the remediation of architecture to these purposes, but also the potential for possibility spaces to express these signifying processes, are

1.3.- Concluding Summary

In closing, a summary, before moving onto the case studies that demonstrate not only the remediated use of architectural figures in video games, but also the potential transposition of those figures to render these games' possibility spaces tangible.

Comment [M7]: Even een concluderende opmerking, ik denk dat je op de goede weg bent. Het is duidelijk en helder geschreven alhoewel ik soms wel vind dat je verzand in het noemen van namen en theoretische benaderingen. Hierdoor is het af en toe toch wat onoverzichtelijk. Daarnaast denk ik dat je gewoon een hoofdstuk moet wijden aan de definitie van een videogame. Nu komen er overal flarden voorbij en is het voor de lezer onduidelijk wat nou de exact definitie is. Als je deze structuur iets aanpast, dan denk ik dat je eerste hoofdstuk prima is.

¹⁸ Thrift, N. (2009) 'Space: The Fundamental Stuff of Geography', in: *Key Concepts in Geography*, Second Edition; Clifford, N. & Holloway, S. & Rice, S.P. & Valentine, G.; London: Sage Publications: 96-105.

Chapter 2: The Different Elements of the City of Los Santos:

Introduction:

The city Los Santos has different locations which have been copied from already existing locations in the city Los Angeles. Most of these locations contribute to a satirical interpretation; infesting these landmarks with stereotypical and ironic views thus painting a rather satirical notion of the city. But these buildings make up only a small portion of the city, whereas the other areas of Los Santos have been designed separately for this computer game (Image 1). These constitute by far the largest part of the city, and thus a significant part of the experience. In order to analyse what kind of image of the city is being portrayed in this game, it is necessary to analyse what kinds of spaces are constructed in the game and how the players perceive and use these spaces. To answer this question, I will use this chapter to analyse the formal aspects of the city, paying less attention to the social meaning of these spaces to the players. I will try doing this by using the theory of Kevin Lynch which he describes in his text *The Image of the City*.

Comment [MO1]: "city of Los"

Comment [MO2]: what do you mean?

Comment [MO3]: It wasn't just theoretical concepts. Most of his stuff was derived from experiments.

Explaining Kevin Lynch:

According to Kevin Lynch, there are several elements which seem to appear in many forms of cities. These elements are the paths, nodes, edges, districts and landmarks.¹ He argues that we divide the city into these parts for navigational purposes, both conscious as unconscious. The problem is that, on the one hand, this city is only a visual representation instead of an actual city. Furthermore, since this computer game has a specific procedural rhetoric, it means that most of these digital representations have quite different functions in comparison to their physical counterparts.² After all, all the elements in a computer game are simply the means to build up a narrative.

But on the other hand, we recognise many of these spaces as actual parts of a city. Because of this, even though this city is only a digital one, we do have certain expectations about these locations, regardless of their different functions. These expectations in combination with the specific gameplay, the procedural rhetorics, cause the player to nevertheless construct a specific cognitive map of the city in a similar process which Lynch describes. From this perspective, these different elements can still be a useful tool to analyse the different spaces in this city. I will use these elements to analyse what Henri Lefebvre describes as the "conceived space" of the city.³ From there I will continue on with the final chapter which will be about the actual experience of space and the spatial practices which are connected with this conceived space.

Comment [MO4]: Which rhetorical statement is being made, then?

Comment [MO5]: Why do these notions of cognitive mapping and conceived spaces overlap do you think?

Paths of the city:

Kevin Lynch defines the paths as "the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transit lines, canals, railroads. For many people, these are the predominant elements in their image. People observe the city while moving through it, and along these paths the other environmental elements are arranged and related".⁴ These same type of paths can be seen in the virtual city Los Santos. The city has many highways, streets, walkways, railroads, a few canals and a network of transit lines. However, the problem with these

¹K. Lynch (1960) *The Image of the City*. London: MIT Press: p. 49-83.

²I. Bogost (2008) "The Rhetoric of Video Games", in: *The Ecology of Games: Connecting Youth, Games and Learning*. Cambridge: The Massachusetts Institute of Technology Press: p. 125-128.

³A. Merrifield (1993): "Place and Space: A Lefebvrian Reconciliation", in: *Transactions of the Institute of British Geographers*. <http://www.jstor.org/stable/622564> (24 april 2015): p. 522-526.

⁴K. Lynch (1960): p. 46-47.

paths is that they are solely visual representations of the streets, walkways, canals or other forms of paths which one can normally encounter in most physical cities. Although they do represent their physical counterparts, they have a whole different function in this game.

Comment [MO6]: They're not just visual, but they produce noise and action in much the same way as actual streets... Just one degree removed from actual walking, by an abstracted physical interface

First of all, the paths of the city are actually dependant on the vehicle which the player opts to use as a means of transportation. Whilst driving a car, the possible paths are the roads, streets or the highways. However, these paths can be ignored at all times. As long as the car allows it, the player can freely cross across the countryside as well as different parts of the city which, in a physical and existing city, wouldn't be meant for cars to cross. This means that almost every empty space in this city, or any space which is not occupied by a building, could be considered as a path. Unlike a real city, the conceived space of these representations of paths, can thus be deconstructed at any given time by the whims of the player. The player can choose to drive on the streets, but can also decide to ignore these streets altogether and drive over the walkways instead, or steer his vehicle through the countryside or parchments in the city. This is not just a possibility; the game itself seems to encourage the player to actively ignore these pre constructed paths. It is quite often that the player is forced to break these paths in order to effectively escape the police, or to pursue one of the targets.

Comment [MO7]: No different from reality, again, except in the amount of enforcement. In a way, this should encourage players to 'reclaim their right to this city', which fits with the game's narrative of criminals feeling free as long as they pursue lawlessness

Comment [MO8]: grammar

Comment [MO9]: How, why? The way in which it's almost impossible and no fun to try to follow normal traffic patterns is one thing you should mention and explain...

This is even more the case when it comes to other vehicles. Beside cars, the player can also steal ships, blimps, helicopters or planes. If the player manages to break into the close by military base, he or she can even steal tanks or fighter jets. Especially when it comes to the flying vehicles, the player no longer has any clearly distinct paths in the city. All these paths dissolve as the player is free to move where ever he or she wants to go. This creates the idea of the city as one big possibility space, depending on the player's actions. By analysing the procedural rhetorics of the game, there is a whole different notion of a path: there are visual representations of the paths but these seem be there only to be broken.

Comment [MO10]: You need to go into this in more detail

Nodes of the city:

The nodes of a city are another element which we use according to Lynch to draw our cognitive map of the city. Nodes are "the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one structure to another. Or the nodes may simply be concentrations, which gain their importance from being the condensation of some use or physical character, as a street-corner hangout or an enclosed square".⁵ By analysing the possible ways of transportation which the game offers, it is possible to discern several context-dependent nodes and several general nodes in the city.

Comment [MO11]: You should try to describe these cognitive map morphemes in your own words.

In the same way as with paths, the experience of particular spots as nodes is often dependent on the vehicle used by the player to navigate through the city. While driving through the city by car, Lynch's original concept of a node does not change. There are some major nodes in the form of highways. Examples of these are the points where the Del Perro, La Puerta, Olympic or the Los Santos freeways intertwine with one another (Image 2). However, because the city is only a digital representations, it leaves a lot more options open to the player. Meaning that whilst flying through the city, or simply walking, these nodes quickly dissipates as you can experience the city from a whole different level.

Comment [MO12]: Those are designed to function as continuous paths for drivers, not as nodes where they stop to consider their goals

Comment [MO13]: "representation"

Comment [MO14]: again, grammar

Thanks to the specific gameplay which the game opts the player to adopt, it is also possible to mention several general nodes which aren't dependent on the means of transportations. Here, the nodes are not so much determined by the conceived space from the city as it is being projected upon this digital representation, but rather it is based upon the different "usable" buildings in the city (Image 3). For example, there are several buildings in the city which the player can use to restock

Comment [MO15]: Odd sentence

⁵K. Lynch (1960): p. 47.

on ammunition, repair or upgrade their vehicle, provide a source of income by robbing them or buying them, use as a safe house or buildings which the player needs to go to in order to complete a mission. These buildings will, once the player visits them often enough, come to function as nodes as well.

Edges of the city:

Another element of the city are the edges. Lynch defines the edges as “the linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroads, cuts, edges of development, walls. They are lateral references rather than coordinate axes. Such edges may be barriers, more or less penetrable, which close one region off from another; or they may be seams, lines along which two regions are related and joined together”.⁶

Edges in the sense in which Kevin Lynch talks about them still exist within the game, but rather than really being edges, these function once again as digital representations of their physical counterparts, and have a whole different function and thus a different logic behind them. Edges in the landscape which the player can encounter within the game include rivers, the mountain ranges and finally the seas surrounding the island on which the city is located. Edges within the city itself include fences and highways, most notably the Del Perro, Olympic, La Puerta and the Los Santos freeways, all effectively dividing the city into different parts.

However, some of these edges can easily be broken by the player. Mostly this can be done using a specific vehicle but even without one, the player won't have a hard time crossing/breaching some of them. Since the digital avatar of the player cannot grow tired and thus isn't affected by any form of fatigue, it is easy to swim across rivers or even swim across the sea. It is possible for the player to climb over the highway or even climb the mountain ranges to some extent. When it comes to this, these “conventional” edges only seem to serve as a digital representation to create a reality effect within the gameplay. In some ways, this contributes to a sense of freedom, since the player doesn't seem to be restricted in any way edges would normally restrict someone from exploring the city.

This is however not fully the case. In the gameplay, there can be named a different type of edge. Even though the city is depicted as a real city, most of the buildings can be seen as impassable blocks. Even the cheap shabby looking houses in the periphery of the city are indestructible. The player can try to drive into them with a car, shoot at them with a stolen tank or even crash a plane into them, but these buildings won't get damaged in any way, simply because there isn't an algorithm designed to calculate the consequences of the described actions.

This probably has to do with the amount of calculations needed to picture a possible outcome of a player crash driving into a house still being impossible for the gaming platform to handle up to now, but even so, this does effect the way in which these buildings function within the game, thus effectively producing a different type of edge in the game, namely the buildings themselves. Rows of houses or skyscrapers form an effective barrier to the player, which he or she cannot simply pass unless they have a way to fly over them. Thus these buildings function as an edge would function in Lynch his terms.

Districts of the city:

Another element which can be observed in almost every city is the district. Lynch describes this as “the medium-to-large sections of the city, conceived of as having two-dimensional extend, which the observer mentally enters 'inside of,' and which are recognisable as having some common, identifying character. Always identifiable from the inside, they are also used for exterior reference if

Comment [MO16]: These aren't nodes either, right? They don't force traffic to pause and they don't offer a variety of choices to the visitor. They serve one purpose, and don't service as spots where an urbanite chooses their direction.

Comment [MO17]: How do these differ from the real world counterparts?

Comment [MO18]: So the barriers are softer, but still barriers, right? In the real world, a person can climb mountains and swim across lakes as well...

Comment [MO19]: “extent”

Comment [MO20]: “seem to”

Comment [MO21]: They are, but to a lesser extent.

Comment [MO22]: “cheap”

Comment [MO23]: This is great. Do these limitations fit in with what the game affords and asks, generally, or do they frustrate and limit the player? To what degree does a player experience these abstract edges to their perceived virtual freedoms?

Comment [MO24]: Definitely not. It has to do with the limits of a game company that doesn't build or improve upon previous designs, but that keeps reiterating previous work to cut on development costs. Fully manipulable environments are possible and realized in some games, but GTA V is a very backwards game in this regard, repurposing 8 or even 12 year old game systems for the most part.

Comment [MO25]: This, again, is no different from actual reality, where people also can't cross houses or buildings as easily. In this case, the barrier in game is stricter than it is in reality

Comment [MO26]: “extent”

⁶K. Lynch (1960): p. 47.

visible from the outside”.⁷ This concept of districts remains largely unchanged from the notion of districts as used by Kevin Lynch to describe the different districts in existing cities. Like a real city, Los Santos has many different districts, each district having a different feel to it and serves as an indication to where the player might be located in the city (Image 4).

Each district has first of all its own visual appearance for the player. It is easy to see the differences between social classes by analysing this appearance, for example by looking at the different type of buildings present in an area. For example, there are several shopping districts, containing a lot of shops and a few high-quality houses nearby. Sometimes it is already enough to look at the name of the district to deduce what type of surroundings the player can expect.

Comment [MO27]: Are these districts also defined by what you do in them? Or in any way besides their decorative style?

Each districts can also be distinguished by it's own set of moral codes. These are reflected in the way of talking and the way of dressing. For example, in the districts associated with the upper class citizens, you will see different kinds of Non Player-controlled Characters (NPC's) as when you would be in the periphery of the city. The NPC's will wear more expensive clothes, and talk/react in a different way to you when you happen to pass by.

Comment [MO28]: You should expand on this.

Finally, in extension of the last point, it is possible to distinguish the different districts by looking at the possible modes of behaviour which the player can encounter in a particular space. This is reflected in the possibilities of encountering specific situations. Since the player can play as different characters which each start out in a different neighbourhood, they can encounter/expect different situations. For example, while playing as the character Franklin who at first lives in a shabby neighbourhood, he is bound to see some gang violence occur around him now and then. The same goes for the range of responses when the player walks through a specific district and decides to make specific type of actions. Bumping into NPC's in the wrong neighbourhood can cause these NPC's to attack the player, or even gang up on him, while doing this same thing in another district will only earn the player some scornful remarks.

Comment [MO29]: Nevermind the preceding comment. Is the player encouraged by the game to engage with these different environments? From what I remember, the stated goals in the game rarely related to the environment in which the action was taking place...

Conclusion:

I tried analysing the city by using the theories on cognitive mapping by Kevin Lynch. However, since this is a computer game, meaning that most spaces have a whole different set of logics and possibilities, it will create a whole new notion for most of these categories. Most of the elements present are simply visual representations of city elements, not the actual city elements as discerned by Lynch. They all have different functions while still evoking the same type of expectations from the player, creating a reality effect, while still adding a new layer of possibilities to them. By taking the changes which the procedural rhetorics of this game into account, the elements of Kevin Lynch can be used to come up with an analysis these digital spaces.

Comment [MO30]: This sentence is weird.

Many of the elements discussed by Lynch appear in this city, be in in a slightly different form. The only form which doesn't change a lot, are the landmarks as discussed in the first chapter, and the districts. The city has a few distinct districts each of them having different kind of visual appearances, and each of them offering different type of situations in which the player might find himself. This way these districts still function as some indication of where the player might be located in the city.

Comment [MO31]: "it"

Comment [MO32]: Odd sentence, and summarizing these findings in a bit more detail might help clarify?

Comment [MO33]: comma

The three elements which appear in a slightly different form are the paths,nodes and edges of the city. Because of the possibilities that the gameplay offers, the player will be less likely to sense clear paths or nodes in the city. This is mostly because the need for clear paths or nodes isn't needed in the types of transportation possible within the game. The lack of any distinct paths or nodes, except for the visual representations of these in the game, causes the player to experience these in a rather

Comment [MO34]: Do you explain this term anywhere in the text? As an aside, I really don't like this vague term...

Comment [MO35]: Odd sentence

Comment [MO36]: "with" or "given"

⁷K. Lynch (1960): p. 47.

loosely manner. This tends to give the player some sense of freedom, because they are encouraged by the gameplay to create their own paths through the city for most of the time. The notion of edges on the other hand is very much present in the game, and is, in the way in which the player can experience these edges, even intensified. Every building in the city is some way some sort of obstacle every time the player tries to make use of that freedom. This in turn, cause different experience of spaces and different spatial practices. I will try to analyse these in the next chapter.

Comment [M037]: "vague" or "loose" or something

Comment [M038]: Generally, a very detailed and interesting analysis. Check for grammar and weird sentence structure. Try and plug in more theoretical concepts or different thinkers. The text seems kind of sparse to me, as it is now. Also, if you didn't make the following images yourself, you need to reference their source, I feel.

Images:

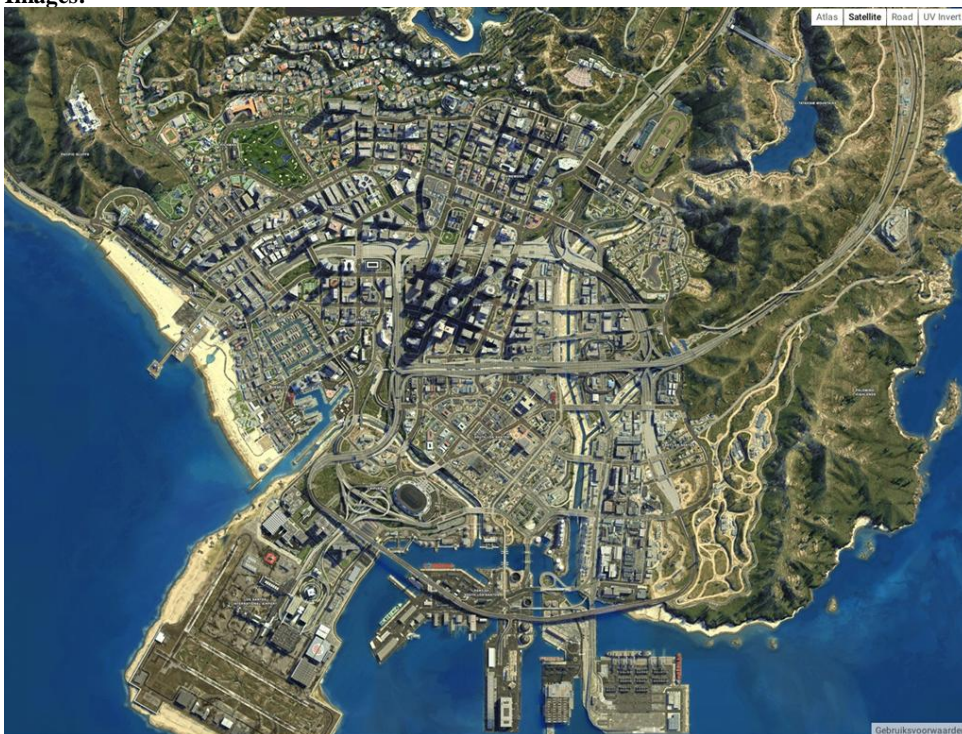


Image 1: An overview of the entire city as if it would have been seen from a satellite image.



Image 2: The different points which could be mentioned as nodes in the city, since they function as key junction points for the traffic and thus for the player while he or she traverses the city in a car.

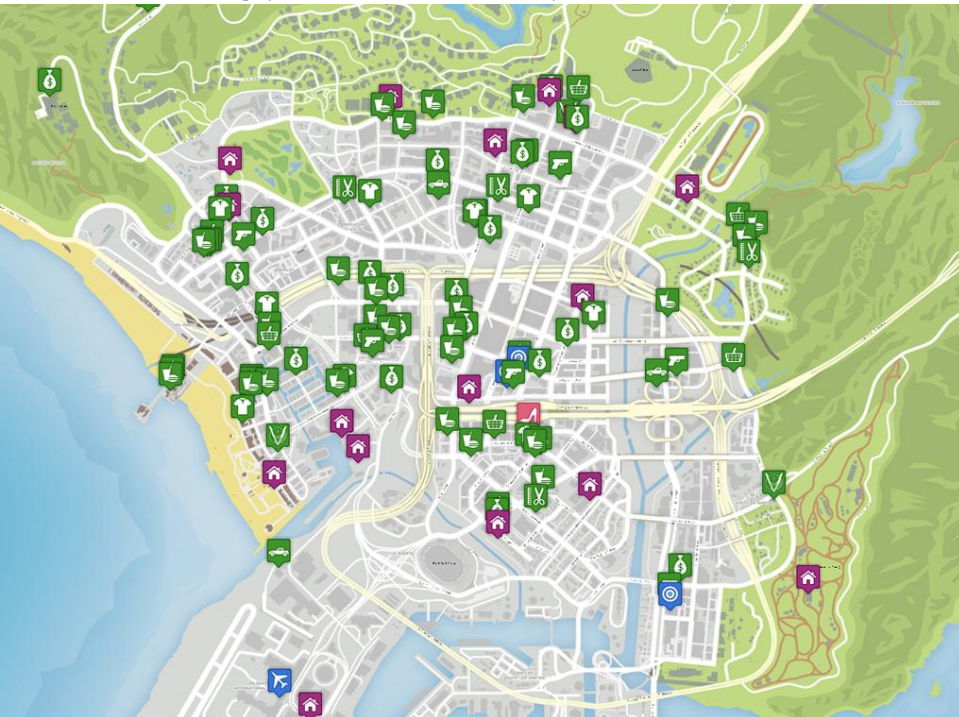


Image 3: These locations could be mentioned as other nodes in the city as these are the locations which the player regularly needs to visit.



Image 4: The different areas in Los Santos which can be highlighted as districts.