# Experiencing Gameworlds

## Understanding Zelda and Mario Through the Lenses of Art History and Phenomenology

Fritz, Björn

2025

*Document Version:*
Publisher's PDF, also known as Version of record

# Experiencing Gameworlds

## Understanding Zelda and Mario Through the Lenses of Art History and Phenomenology

BJÖRN FRITZ
DEPARTMENT OF ARTS AND CULTURAL SCIENCES | LUND UNIVERSITY

Experiencing Gameworlds

# Experiencing Gameworlds

## Understanding Zelda and Mario Through the Lenses of Art History and Phenomenology

Björn Fritz


LUND
UNIVERSITY

DOCTORAL DISSERTATION

Doctoral dissertation for the degree of Doctor of Philosophy (PhD) at the Faculty of Humanities and Theology at Lund University to be publicly defended on 16 of May at 13.15 in room LUX:C121, Department of Cultural Studies, Helgonavägen 3, Lund

*Faculty opponent*
Hans Sternudd

**Organization:** LUND UNIVERSITY

**Document name:** Doctoral dissertation **Date of issue** 2025-03-25

**Author(s):** Björn Fritz

**Title and subtitle:** Experiencing Gameworlds: Understanding Zelda and Mario Through the Lenses of Art History and Phenomenology

**Abstract:**

This thesis examines the immersive experiences of players in video game worlds, focusing on *The Legend of Zelda: Breath of the Wild* and *Super Mario Odyssey*. Drawing on art historical concepts such as perception, reception and perspective in academic painting, as well as phenomenological insights into embodied perception and atmospheres, the study explores how visual design, game mechanics and narrative structures cultivate a sense of presence in gameworlds. By analyzing the interplay between the sensory elements of games and the player's ability to project themselves into these virtual environments, this research provides an understanding of how gameworlds foster engagement.

The thesis argues that the immersive quality of a cohesive gameworld is shaped by the player's engagement in three intertwined modes: Play, Place and Story. These modes correspond to the player's main activities: following rules, exploring environments, and uncovering storylines embedded in the designed gameworld. Furthermore, the study highlights parallels between traditional perspective drawing and the three-dimensional modeling techniques used to construct gameworlds, illustrating common challenges and solutions for visualization. By considering video games as complex, interactive images, this work places them in a broader historical context of visual storytelling and shows how they extend a tradition of immersive visual narratives.

**Key words:**

Art history, phenomenology, video games, Nintendo, visual culture, perspective, space, architecture, narratology, ludology, game studies.

Classification system and/or index terms (if any) Supplementary bibliographical information

**Language** English **Number of s**: 208

**ISBN:** 978-91-8104-441-6 (print)

**ISBN:** 978-91-8104-442-3 (e-book)

# Experiencing Gameworlds

## Understanding Zelda and Mario Through the Lenses of Art History and Phenomenology

Björn Fritz


LUND
UNIVERSITY

Cover by Björn Fritz



Faculty of Humanities and Theology

Department of Arts and Cultural Sciences

Division of Art History and Visual Culture

ISBN: 978-91-8104-441-6 (print)

ISBN: 978-91-8104-442-3 (e-book)

Printed in Sweden by Media-Tryck, Lund University

Lund 2025

Media-Tryck is a Nordic Swan Ecolabel certified provider of printed material. Read more about our environmental work at www.mediatryck.lu.se

MADE IN SWEDEN

*To all my colleagues and fellow art historians who have shaped my way of seeing and thinking since that winter day in 1989 when I first walked into the university.*

# Acknowledgements

This thesis would not have been possible without the generous support of my workplace, the Department of Cultural Studies, which afforded me additional research time to complete this work years after I finished my PhD studies.

I am very grateful for the invaluable feedback and encouragement I have received from many colleagues. Although it is difficult to single out individuals, I have particularly benefited from the seminar given by the Division of Musicology and Sanne Krogh Groth, which has helped me in my writing on sound and music in games.

During the long and sometimes slow progression of this project, I have been fortunate to receive advice and stimulating discussions from my three supervisors: Jan-Gunnar Sjölin, Torsten Weimarck and more recently Max Liljefors, all professors at the Division of Art History and Visual Studies at Lund university. I am sincerely grateful for their support.

# Table of Contents


Abstract ..... 13

**Introduction ..... 14**

Background ..... 16

Research question and purpose ..... 19

Previous research ..... 21

Method ..... 28

Theory ..... 32

Delimitations ..... 36

The games ..... 38

The Legend of Zelda: Breath of the Wild ..... 40

Super Mario Odyssey ..... 42

**Part One: Image ..... 44**

What kind of images are these? ..... 48

Game development ..... 51

Video game graphics ..... 56

Perspective ..... 64

Generating an environment ..... 73

Sound and music ..... 82

Elements of a gameworld ..... 95

Ways of playing ..... 100

How are games images? ..... 104

**Part Two: Place ..... 106**

Let's start Breath of the Wild ..... 108

Let's start Super Mario Odyssey ..... 112

Landscapes and places ..... 115

The player's part....122
Parts and wholes....125
Identity in manifolds....130
Presence and absence....133
Making sense of space....135
Immersion and experiences....140
Flow....147
Atmospheres....150
**Part Three: Time....157**
The modality of story....160
The modality of play....166
The modality of place....175
Games as chronotopes....180
**Discussion....186**
Conclusions....194
Usability....196
Glossary of gaming terms....197
References....201
List of illustrations....206

# Abstract

This thesis examines the immersive experiences of players in video game worlds, focusing on *The Legend of Zelda: Breath of the Wild* and *Super Mario Odyssey*. Drawing on art historical concepts such as perception, reception and perspective in academic painting, as well as phenomenological insights into embodied perception and atmospheres, the study explores how visual design, game mechanics and narrative structures cultivate a sense of presence in gameworlds. By analyzing the interplay between the sensory elements of games and the player's ability to project themselves into these virtual environments, this research provides an understanding of how gameworlds foster engagement.

The thesis argues that the immersive quality of a cohesive gameworld is shaped by the player's engagement in three intertwined modes: Play, Place and Story. These modes correspond to the player's main activities: following rules, exploring environments, and uncovering storylines embedded in the designed gameworld. Furthermore, the study highlights parallels between traditional perspective drawing and the three-dimensional modeling techniques used to construct gameworlds, illustrating common challenges and solutions for visualization. By considering video games as complex, interactive images, this work places them in a broader historical context of visual storytelling and shows how they extend a tradition of immersive visual narratives.

# Introduction

This thesis explores the immersive nature of video games and how gamers engage with them on a multitude of levels. As a gamer, I have experienced how games can evoke a wide range of emotions and how our bodies respond to events on screen in a way that feels immediate and real. This study aims to understand these reactions.

I remember gameworlds as places I have inhabited, and sometimes they linger in my dreams. These virtual environments involve not only our minds but also our bodies, intertwining the physical and the digital in profound ways.

As someone who has been playing video games since the early 1990s - *Doom, Prince of Persia* and *SimCity* are among my earliest favorites - I approach this work as both a longtime gamer and an art historian.

The dissertation serves as a way station, drawing on more than thirty years of experience with video games and art history. Over the years, I have developed numerous ideas about how games and gameplay fit into the broader context of contemporary visual culture. Consequently, this research reflects my decision to find a perspective that connects video games with the disciplines of art history and visual culture.

During my academic career, I have lectured extensively on art, architecture and design at Lund university. In collaboration with my colleagues, I have taught students to engage with paintings, buildings and objects by encouraging them to spend time with the artworks before delving into their historical and contextual backgrounds. This focus on the object of study itself falls into the category of formalism. For me, this is an honest approach: the artifact is a thing in itself and in need of interpretation.

When I teach art history, I emphasize the direct encounter with a work of art, whether by looking at it, listening to it or perhaps touching it, as an important starting point. This approach emphasizes the personal, sensory experience before we move on to broader scholarly interpretations. For me, this principle is central to art history: the encounter between the viewer and the object is fundamental.

When I set out to write this dissertation on video games, I applied a similar methodology. To focus my analysis, I chose two games that I have played over

the past seven years: *The Legend of Zelda: Breath of the Wild* (Image 1) and *Super Mario Odyssey* (Image 2). My initial goal was deceptively simple: to understand the experience of playing these games and explore how they appeared like real places to me. However, the complexity of this task quickly became apparent.

The topic of experience is multifaceted. It is about the interplay between the images and sounds that construct the gameworld, the technology we use to interact with the game, and our own physical reactions as we move through these virtual landscapes.

In what follows, I attempt to untangle these intricate relationships and offer a perspective that combines phenomenological inquiry with the insights I bring from my engagement with art history as well as visual culture.

Image 1, Breath of the Wild, Link in front of a cathedral ruin, the Temple of Time.

# Background

Video games are an important part of today's cultural landscape. They reach a very large audience, measured in millions. They are expensive to produce and, when successful, bring in a large profit.

They require that every gamer has the right technology to play, either a gaming computer or a console such as the Nintendo Switch, Sony PlayStation or Microsoft Xbox. Playing games requires a certain economic investment on the part of the gamer. Games also place other demands on us as gamers, as a required playtime of 60 to 80 hours is common, and most games offer far more playtime if you want it.

The technology behind what we see and hear is equally complex and is often at the forefront of computer graphics development. In short, everything to do with games and gaming is huge and evolving, ready to take advantage of new technologies. For me, games represent a commercial, successful and popular frontline in the evolution of visual culture.

Video games have also developed their own aesthetics, driven by technological developments and playability requirements. This is not a single look, but a variety of different visual genres with some common themes such as movement, sound, interactivity and the use of color.

The colors of video games are the result of them taking take place on displays, allowing for vivid colors. Unfortunately, this will not be seen in this book. Image 1 lets us see a ruined cathedral in a grassy landscape from the beginning of Breath of the Wild, but not hear it, climb it, or fight its inhabitants. Nor does ink on paper lend itself to reproducing the glow from a screen.

A landscape painting on a wall invites us to look closely and allow ourselves to be drawn into the world of the painting. A similar landscape in a gameworld allows us to move around and see more of that world. Both are man-made images, both are landscapes, and they speak to us in a similar way. But the landscape in the gameworld goes both beyond the frame and beyond the horizon and requires so much of our time to be seen.

A central aspect of pleasure, both when looking at landscape paintings and when playing, is the possibility of being somewhere else. In painting we have to reach this other place through our imagination, whereas in the game landscape there is more to see, hear and do. The game landscape is active, and we encounter it as participants. There is a history of worlds constructed for our pleasure, for example in scenography and cinema, that predates video games. I assume that there are some parallels between them.

What I am trying to explain is that video games are complex images that demand a lot from their viewers and players, and that they have their own

specific traits, but are nevertheless part of a long tradition of creating windows onto other places.

Perspective drawing is a well-known technique used in many forms of image creation. It is not only a way of placing and scaling objects on a two-dimensional surface to make them appear realistic, but also a way of clarifying the relationship between us, the viewers, and the image. It sets boundaries for how detailed a part of the image should be and how color should be used to convey distance. In addition to these techniques for credibly representing a three-dimensional space on a flat surface, video games add time, a moving point of view and interactivity.

But video games are not just interactive images, they are also games. There are per definition goals to achieve and tasks to fulfil, the world has rules that set limits to the achievement of these goals.[1] And the gaming aspect of the world mixes with storytelling that encourages us to go further and explore.

Where a landscape painting invites us to look closely and explore the details of the artist's skill, the details of the place depicted, and perhaps decipher it as a mythological, historical or biblical scene, this is done slowly and carefully. As viewers, we need to take time to look at the image and think about it.

Games rarely do this, instead they are full of impressions and possibilities, there is always something new and enticing. We may stop and look at the details, and sometimes we are even aware of the craft behind the game's construction. But most of the time we are drawn to what awaits us behind a hill, a few trees or a building.

In this gameworlds are more like architecture and similar planned spaces such as cities or parks. We have to move through them and make ourselves a picture of the whole from all the parts. This image changes as we move and is thus not stable. The experience is a flow of impressions, and we can understand it through visual anchors like specific buildings or features in the landscape and by sticking to the gameplay and narrative.

Games can be defined as a set of rules that must be followed when playing in order to achieve a definitive outcome, we win or we lose.[2] In the two games I am examining, these rules are clarified by the environment, not by textual instructions. The final outcome is far away and not very urgent. This has the

[1] Jesper Juul, *Half-Real: Video Games between Real Rules and Fictional Worlds* (Cambridge, Mass. London: MIT Press, 2011), 55–58.

[2] Juul calls this the *classic game model* and defines as "1. a rule-based formal system; 2. with variable and quantifiable outcomes; 3. where different outcomes are assigned different values; 4. where the player exerts effort in order to influence the outcome; 5. the player feels emotionally attached to the outcome; 6. and the consequences of the activity are optional and negotiable." Juul, 6–7.

effect of inviting us as players to explore the gameworlds, to look at them as we would look at a building, a park or a painting.

This is typical for these two and many similar games, but not for all games. Both games contain a lot of puzzles, quests and combat; all elements that require us to act quickly and cleverly, often causing a lot of stress and a sense of urgency. These more intense parts of the games are embedded in a landscape, a space that we enter and experience from the inside. We are often in control of how intensely we want to play and how long we want to take it slow.

As we interact with these large, time-consuming and technically complex images, which also behave like places and architecture, we experience that we are in a place. We are part of the action and will remember that we were there. Therein lies the reason for this text. It is the fascination for these complex images and the desire to understand how we experience them from the inside.

# Research question and purpose

My aim is to clarify the visual complexity of video games and explore how they compare to other forms of visual representation, particularly those characterized by the use of perspective to create realism.

Art history and visual culture studies provide valuable tools for understanding how we engage with images. I hope that by applying this framework to video games, I can deepen the understanding of their visual environments.

My curiosity about games and gaming stems from the prominent role they play in contemporary popular culture. Video games demand a great deal from their players. in terms of time and engagement. It takes real effort to commit to a game, and yet gaming remains one of the most successful forms of entertainment today. This is often explained by the concept of escapism, the desire to avoid the real world. Occasionally I come across the idea that games are simple or childish, as if they are merely symptoms of a broader cultural infantilization. I do not find such negative explanations convincing. Instead, I believe we need to explore what makes video games so compelling and what draws players into the worlds they offer. Like art, literature, film, theater and opera, games provide rich experiences, often through the creation of imaginative, interactive worlds. Right now, games seem to be one of the most captivating options for those of us who are drawn to creatively constructed worlds beyond our everyday lives.

The complexity of gameworlds and the ways in which players experience them need to be explored in more detail. Many aspects are still unexplored and deserve careful investigation. To this end, I will examine the way we are drawn into the gameworld and how we can experience this world as if we were in it. Experiencing what we cannot physically experience is well known in art history. We look at plans of buildings and imagine the rooms, we follow paths painted in images and feel the weather that is depicted there, or we walk through ruins of buildings and imagine what they looked like a long time ago.

These experiences are not “only imagination” but consist of a multitude of ways of projecting ourselves into what we see and hear. Nor is this experience always one and the same. Experiencing Imperial Rome in the ruins of the Roman Forum requires a lot of knowledge and interpretive skill, but entering Hyrule through a Zelda game is easy.

Games like the two I’m looking at in this thesis, The Legend of Zelda: Breath of the Wild and Super Mario Odyssey, are made to draw us in. The many complexities of the construction are there to give us the experience of another place. As players, we are seduced into them.

My research question relates to our experience of the gameworld and assumes that this experience exists and that it is strong:

> *What creates the player's experience of being inside a gameworld?*

There is not one, but many causes, and the experience is not that of being inside a picture but in a coherent world that is unlike our own. For me, this also raises the question of how this happens:

> *How do the design of the game world and the player's desire to engage with it interact to create an immersive experience?*

This implies some connected questions about how we experience images in general, how we experience places, and how we form a mental image of a large place that we can only see in bits and pieces.

It involves questions about the specific form of images that games are, what are their formal qualities? How is the player implied within the gameworld? What creates the feeling of being there? Image 2 which you see here on paper, does not convey the feeling of going out into the world and experiencing an adventure like the situation in the game it depicts.

The use of the term experience is to ensure that my perspective is clear. I look at how we as players experience the gameworld from the inside. This is a specific perspective on gameworlds I hope makes them understandable and open to interpretation.

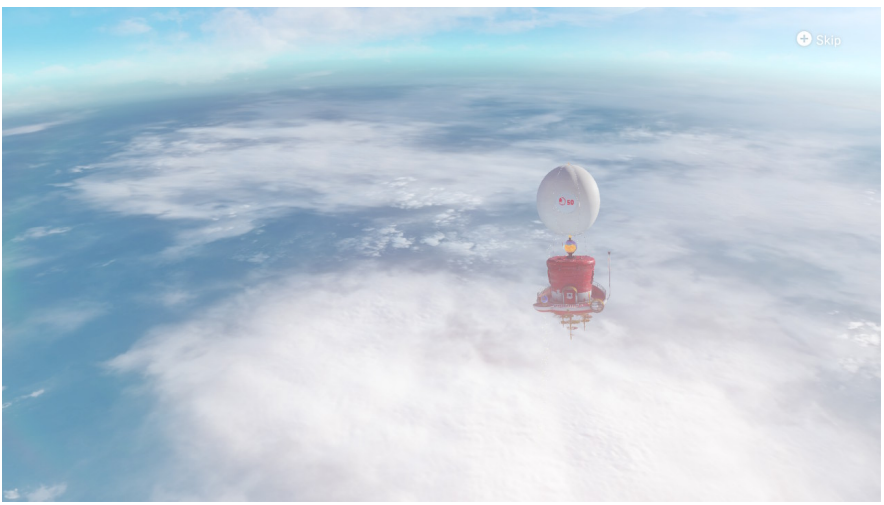



Image 2, Super Mario Odyssey, traveling between kingdoms.

# Previous research

Game studies are conducted in different research areas and for different purposes. This sometimes leads to heated debates about what game research is or should be. For my part, I try to stay away from this ontological discussion about the nature of game studies, as my main concern here is not to enter the field of game studies, but to see what happens when I try to bring an art historical approach to games and by looking at them as closely as I would look at images.

The three main branches of game studies can be described as *narratology*, *ludology* and *critical game studies*. They are not mutually exclusive; most texts will touch on two or all three of these areas.

Narratology has its origins in literary studies and regards games as a further development of the way in which a story is told. In this sense, games are a further step on a path of development that also includes the novel and cinema. Thus, the focus of a game is on telling a story, but the storytelling depends on the technology used. A novel is read line by line, a movie is shown and heard from beginning to end, but if you use a computer-based medium instead, you can create something less linear, often referred to as hypertext. A hypertext, such as a website, allows us as readers to make choices and find our own way through it.

Software is not necessarily linear and so we have new ways of telling stories. Brenda Laurel's *Computers as Theater* from 1991 is a starting point here.[3] She is not writing specifically about games, but about user experience design (also known as UX design). She suggests that if we think of the tasks we do on a computer as stories that evolve over time, we can achieve a more immersive and meaningful interaction with the machine. This led to her becoming part of *Purple Moon* (1996-9), a game design studio focused on games for girls.

The other major proponent of a narratological view of computer-based media is Janet Murray with her *Hamlet on the Holodeck,* originally published in 1997 and reissued in an expanded version in 2017.[4] While Laurel writes about the user experience of using computers, Murray looks at how this new

[3] Brenda Laurel, *Computers as Theatre* (Reading: Addison-Wesley, 1991).

[4] Janet H. Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, Updated edition (Cambridge, MA: The MIT Press, 2017).

technology can allow us to tell stories, the imaginary production of *Hamlet on the holodeck* in the title being one version of this.[5]

She compares the development of various computer-based media to the many changes brought about by the introduction of the printing press. And just as printed material has its own characteristics, computer-based media also has its own characteristics. These are the computer's ability to be procedural, participatory, encyclopedic and spatial.[6] This creates a pleasure that involves immersion, agency and transformation.[7] Murray writes about these qualities as part of as yet unseen versions of games, films, literature and television, but it is as descriptions of what a computer game should be that they have aroused great interest and form the basis for one side of a long debate about what a game essentially is.

A game in Murray's sense is procedural, i.e. the story of the game develops differently depending on the player's decisions. In a printed text, all decisions are made for us. Games are participatory, we have to be part of the action and cannot be spectators, in printed texts we are always spectators.

The encyclopedic side of games refers to the large amount of material from which the procedural story can draw. A game is built from decisions in a very large data set that is not presented in its entirety as in a printed text.

And finally, the story is told in a spatial environment and not by reading a text. This enables the experience of immersing yourself in the story, to have agency within it and to be transformed while participating in the narrative.

Narratology thus assumes that storytelling is the main object of study, but neither Laurel nor Murray claim that story is the basis for games per se. What they are exploring is the confluence of a new set of computational media and storytelling. But because they are both among the first to study games academically, and both write about computer games, they have inspired a different way of looking at the field: Ludology.

Ludology literally means game science, but to talk about the specific ideas put forward with the term ludology, I think of game studies to be an umbrella term that encompasses different types of writing about games and ludology as one of those types.

---

[5] The allusion is to Star Trek, where the holodeck is a technology that allows people on the starship to create fully immersive environments. In the TV series Star Trek, this allows the producers to shoot episodes that can be set in the wild west, a pirate ship or another idiosyncratic time and place, as it's all "on the holodeck".

[6] Murray, *Hamlet on the Holodeck*, 87–88.

[7] Murray, 113–14.

A ludological approach to games foregrounds the elements of play and gaming and posits that there is a history of play that goes back as far as humanity itself. The portal text here is Johan Huizinga's *Homo Ludens* from 1938, which is a history of *play* and offers a definition of play as a free activity outside of normal life.[8] Play also has a set of rules that all players must abide by, but the play has neither a goal nor a prize. Huizinga's ideas were further developed in 1961 with the publication of Roger Caillois' *Man, Play and Games*.[9] In this book he elaborates on game types and introduces a commonly used taxonomy of play. He also uses the terms *paidia* (unstructured play) and *ludus* (rule-based games) to describe that play activities lie somewhere on a spectrum between the two.[10]

Inspired by this Ludologists often define *games* as a specialized version of play that is less freeform and has an end goal that may involve some kind of reward. From a ludological perspective, the essence of a game is this set of rules, and the game can be played as long as the rules are followed. The visual representation of these rules may change, but the game remains the same.[11]

Caillois inspired Gonzalo Frasca, who coined the term ludology and used it for his influential but now defunct blog *ludology.org*.[12] Frasca, along with Espen Aarseth and Jesper Juul, defined the term ludology and advocated a view of computer games that focuses on the underlying set of rules rather than the visuals or storytelling in the game.

The supposed opposition between narratology and ludology is somewhat exaggerated. Neither side disputes the other's argument; the issue is what constitutes the essence of play. In reality, both sides have gained much by considering the other, and the dynamic has made game studies an interesting and vibrant field of research.

---

[8] Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture* (Kettering, OH: Angelico Press, 2016).

[9] Roger Caillois, *Man, Play and Games.* (University of Illinois Press, 2001).

[10] Since I do not classify the two games I am examining and it does not seem very useful in my context, I will not go further into this taxonomy of agon (competition), alea (chance), mimicry (role-playing) and ilinx (vertigo). Perhaps it should be noted that he places all games that offer immersion in the mimicry category, so my chosen examples belong there.

[11] A chess game, for example, often uses traditional pieces, king, queen, pawn, bishop, etc., that evoke a feudal landscape on the chessboard. However, the game remains the same even when these pieces are replaced with themed versions, such as Star Wars or The Simpsons chess sets. Chess is fundamentally about following the rules, not about reenacting a feudal war, a Star Wars battle, or a Simpsons storyline

[12] It is still available but is no longer actively updated by Frasca.

Both narratology and ludology are an integral part of contemporary game studies. Although ludology dominates much writing on game production, I believe there is currently a renewed interest in narratology, as seen in Sercan Sengun's *Six Degrees of Videogame Narrative* which examines narrative not as a singular entity, but as a multi-layered concept.[13] The entire anthology in which this text appears, *Games and Narrative: Theory and Practice*, explores the connections between narratology and ludology.[14]

Similarly, a recent issue of *Frontiers in Virtual Reality* addressed the topic of *Interactive Digital Narratives Representing Complexity*.[15] The term "interactive digital narratives" (IDNs) covers various forms of digital media, with games forming a subset. Some contributions deal explicitly with games, such as Bellini's *Interactive Digital Narratives as Complex Expression Means*.[16] This article illustrates a common approach in game studies: it begins with a general discussion of IDNs and concludes with a case study. In Bellini's case, the focus is on a single scene from a relatively unknown game, *Detroit: Become Human*, developed by Quantic Dream (2018).

This method of analysis, which foregrounds overarching frameworks before connecting them to specific games, is the opposite of the approach I want to take as an art historian. My focus is on the artifact itself, and the understanding I seek begins with a close analysis of its formal qualities. By placing the game at the center of the investigation, I aim to highlight its presence as an object that demands attention and interpretation. Moreover, I also prefer to analyze well-known games that have received wide recognition and appreciation.

This approach is a natural reflex shaped by my background in art history: you start with the object. When I say that I want to take an art-historical approach to the study of games, it is based on this principle: the study of games must begin with a thorough examination of the games themselves.

---

[13] Sercan Sengun, "Six Degrees of Videogame Narrative," in *Games and Narrative: Theory and Practice.*, ed. Barbaros Bostan, 1st ed. 2022., International Series on Computer, Entertainment and Media Technology (Springer International Publishing, 2022).

[14] Barbaros Bostan, ed., *Games and Narrative: Theory and Practice.*, *Springer Nature eBook*, 1st ed. 2022., International Series on Computer, Entertainment and Media Technology (Springer International Publishing, 2022).

[15] Hartmut Koenitz, Lissa Holloway-Attaway, and Andrew Perkis, "Editorial: Interactive Digital Narratives Representing Complexity," *Frontiers in Virtual Reality* 4 (February 10, 2023), https://doi.org/10.3389/frvir.2023.1132785.

[16] Mattia Bellini, "Interactive Digital Narratives as Complex Expressive Means," *Frontiers in Virtual Reality* 3 (May 26, 2022), https://doi.org/10.3389/frvir.2022.854960.

The resurgence of narratology should also be understood against the backdrop of the dominance of ludology in game development. Game development requires a deep understanding of how to create compelling rules systems to engage players. This focus is evident in works such as Jason Schreier's *Blood, Sweat, and Pixels*, where interviews with ten different game developers consistently emphasize what I would call ludological components: mechanics, rules, and systems that drive gameplay.[17] Similarly, textbooks for aspiring game designers, such as *Rules of Play* by Salen and Zimmerman, also emphasize the construction of rule systems as a core skill.[18]

While these texts are invaluable for understanding game development, their emphasis on ludology motivated me to explore games from the player's perspective instead. Again, this stems from my background in art history, where the focus is often on the artwork itself rather than the artist or the production process. Similarly, I want to shift attention from the mechanics of game development to the experiences that games evoke in players.

A third type of game studies deals with issues of politics and representation in video games and is defined not so much by a single text or author, but by an extreme case of online harassment of three women writing about games: Anita Sarkeesian, Zoë Quinn and Brianna Wu and is known as *Gamergate*[19] (2014-5). Feminist writing about games was not uncommon before this but gamergate brought the discussion up to a whole other level and most likely inspired many writers to study games critically.

Critical Game Studies is a type of game research that does not focus on media specificity or on games and gaming, but on the representation of gender, sex, ethnicity, class and the body in games and gaming culture. A typical example of type of game research is *Race, Gender and Deviance in Xbox Live*[20] by Kishonna Gray, which examines the gaming online community from the

---

[17] Jason Schreier, *Blood, Sweat, and Pixels: The Triumphant, Turbulent Stories Behind How Video Games Are Made* (New York: Harper Paperbacks, 2017).

[18] Katie Salen and Eric Zimmerman, *Rules of Play: Game Design Fundamentals* (Cambridge, Mass.; MIT, 2004).

[19] Gamergate represents a chapter in the emerging landscape of the so-called culture wars. While its complexity and impact are significant, it is beyond the scope of this book to go into the details. For more information, readers can refer to the comprehensive summary available on Wikipedia.

[20] Kishonna L. Gray, *Race, Gender, and Deviance in Xbox Live. Theoretical Perspectives from the Virtual Margins*, Tenth anniversary edition., Taylor & Francis Complete 2024 eBooks (Routledge, Taylor & Francis Group, 2025).

margins. Similarly the anthology *Queer Game Studies*[21] offers perspectives on representation, game design and the games industry from an intersectional queer, feminist and decolonial perspective.

It's a lively and exciting debate, and Critical Studies is a vibrant academic field, but in writing this book I want to maintain a more formalist approach, looking closely at the connection between the player and the game, but not going beyond that in the analysis. Not because this is an unimportant area of study, but because I want to find ways of understanding games through their own presence rather than through their role in society.

As far as I have found, there is no other tradition of game studies that focuses on the visuality of games, no group of researchers that can be more narrowly grouped under a particular name that writes about how a spectator meets a gameworld. This may have to do with the fact that most of the authors mentioned above are involved in game development, and game graphics are often treated as a technical problem rather than an esthetic one, as it is seen from an industry perspective.

However, there are some divergent types of writing on computer-based media, including video games, that take an art historical approach. There were quite a few books on the histories of visuality that lead up to and touch on video games published around the turn of the century.

These include books such as Sean Cubitt's *Digital Aesthetics* (1998), an exploration of the impact computer-based visual technologies can have on contemporary culture.[22] There's also Jay David Bolter and Richard Grusin's *Remediation* (1999), which discusses various computer-based visual technologies and how they are changing the medium compared to their analogue predecessors, the remediation of things like games, film and photography.[23]

Somewhat related to this approach is Lev Manovich's *The Language of New Media* (2002), in which he discusses the then-current notion of new media (by which he mostly means computer-based versions of older media) and ways of

[21] Bonnie Ruberg and Adreienne Shaw, eds., *Queer Game Studies* (University of Minnesota Press, 2017).

[22] Sean Cubitt, *Digital Aesthetics*, Theory, Culture & Society (London: Sage, 1998).

[23] Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, Mass.: MIT Press, 1999).

understanding them.[24] In it, he outlines a framework for new media studies based on film studies and points to the fluidity of these new media. [25]

And finally, in this group there is Oliver Grau's *Virtual Art, from Illusion to Immersion* (2003), which deals with the history of art that draws the viewer into the image.[26]

What these various writers within the then hot field of *New Media* have in common is that they write a large, mostly historical overview of computer-based media in general, and that includes a lot of different visual technologies.

Some games like *Doom* and *Myst* come up more than once which is not unexpected as they were among the most widely played games in the late 1990s. But the discussions about software-user interaction otherwise tend to be about lesser-known artworks that resemble or are based on games.

There are also a number of articles that deal with games in an art historical context. It is not possible for me to give a complete overview, as the publications are so decentralized and diverse. But some authors have been important to me in developing my understanding of the experience of being inside a game word. These include Bernadette Flynn, a alumn of the Cinema Research Center at the University of New South Wales. She has written two texts on navigation in games, relating it to geography and landscapes; *Games as inhabited spaces*[27] and *The Navigator's Experience,*[28] which have been particularly useful.

I hope to enrich the field of game studies and art history by bringing art history's focus on visuality as well as formal analysis to the study of computer games. There seems to be a lack of research that focuses on the player's experience, i.e. a reception perspective on games, which is what I am trying to address.

---

[24] Lev Manovich, *The Language of New Media*, Leonardo Book Series (Cambridge, Mass.; London: MIT Press, 2001).

[25] He defines five "principles of new media": numerical representation, modularity, automation, variability and transcoding. They all make it clear that new media are not stable, but change through the application of rules and user input.

[26] Oliver Grau, *Virtual Art: From Illusion to Immersion*, Rev. and expanded, Leonardo (Cambridge, Mass.: MIT, 2003).

[27] Bernadette Flynn, "Games as Inhabited Spaces," *Media International Australia Incorporating Culture & Policy*, no. 110 (February 2004): 52–61, https://doi.org/10.1177/1329878X0411000108.

[28] Bernadette Flynn, "The Navigator's Experience," in *The Pleasuers of Computer Gaming*, ed. Melanie Swalwell and Jason Wilson (Jefferson, N.C.: McFarland & Co., 2008).

# Method

My main method for studying gameworlds is the analysis and interpretation of images. This is a basic art historical practice of looking closely at images to understand how they make sense, a formalist approach if you like.

My understanding of the process of interpretation comes from Jan-Gunnar Sjölin's introductory textbook *Att tolka bilder*.[29] In this work, Sjölin proposes a method of image interpretation based on a semiotic framework that encourages a close examination of the expression, i.e. the image in front of us, and the creation of meaning through a systematic process of interpretation.[30]

Sjölin emphasizes understanding images on their own terms and trusting them as sources of knowledge in their own right. He argues for a thorough approach that considers all aspects of interaction: how we access the content, the process of interpretation and the types of meaning we can derive.

The expressions I examine in this thesis are video games, understood as complex images consisting of animated images, sound and interaction. Following Sjölin's methodology, I think about games through the four levels of interpretation he proposes: the material level (the games on the screen and the controller in my hand), the spatial level (the organization of space in the image), the iconic level (recognizable objects such as trees, swords, and enemies), and the verbal level (written and spoken text).[31]

Although I do not explicitly divide my analysis into these levels, Sjölin's framework has significantly influenced my approach and encouraged me to view gameworlds as multi-faceted images that need to be examined from different viewpoints. This perspective also underpins the division of this book into three main parts: Image, Place and Time, and it informs my understanding of time as a threefold experience of play. These structural choices reflect my synthesis of Sjölin's insights with the demands of analyzing video games.

When I say that my method is to look closely at the games I play, it means that I look at several of these levels to understand what makes the gameworld into the experience that it is. Looking closely does not just mean that I reproduce what I see, but that I systematically analyze it.

---

[29] Jan-Gunnar Sjölin, *Att Tolka Bilder: Bildtolkningens Teori Och Praktik Med Exempel På Tolkningar Av Bilder Från 1850 till i Dag* (Lund: Studentlitteratur, 1998).

[30] The common semiotic terms for expression and content are signifier and signified. Sjölin proposes expression and content as terms that allow for a simpler reading, and I will follow this here.

[31] Sjölin, *Att Tolka Bilder*, 78.

The process of interpretation serves to understand the gameworld and to answer the questions I ask about our experience of it. This forms a theoretical basis for the interpretation, which will be based on reception theory and phenomenology.

Image 3, My OLED Switch with blue and red controllers attached and my grey 8BitDo bluetooth controller. Not in the image: my TV to which the Switch usually is connected.

There is also a more fundamental level of methodology here, I have to play games. This is an enjoyable part of the research, and I can take my empirical material with me wherever I go, but it also brings its own complications.

First a note on my set-up for the game because that's part of my experience. I first played Breath of the Wild on the Wii U console with a Nintendo Pro Controller and later switched to playing both games on the Nintendo Switch console. My setup on the Switch usually means I have it hooked up to a large TV screen and connected to a stereo receiver and loudspeakers. I use an 8BitDo Pro 2 Bluetooth Gamepad as my controller of choice (see Image 3). Occasionally I have played both games on the Switch's built-in OLED screen using Bluetooth earphones. I considered evaluating the impact of different gameplay situations but decided against it to focus on the game as image. When I write about my gaming experience, I mean playing them on a big screen and with the sound all around me.

Looking at games is not always easy. On the one hand, I have to actually play the games in order to experience them as they are. On the other hand, I have to look at what happens in them. Playing a game is an involved way of seeing and we are easily drawn into the gameworld. When that happens, our way of seeing changes; it is no longer the observer's quiet search for interesting parts, but the participant's need to get things done inside the image.

I dealt with this problem in several ways to expand on my regular playthroughs: I have played slow sections of games to explore them carefully, I have watched others play through Twitch,[32] and I have watched playthroughs posted by others on YouTube. Of the two, YouTube has proven to be the most useful platform as it allows replay and pausing of gameplay.

This gives me a more general idea of how the games are played. It also allows me to see ways of playing I'm not personally engaged in, such as speedrunning.[33] The problem with watching others play is that the game becomes a movie with no interaction. And the problem with playing is that the interaction in the gameworld lessens my ability to look closely. By switching between the two, I think I have found a way that allows me to see more of the games.

There's no way to see everything in the games due to their size, so I have opted to study some parts of the gameworlds closely when I need to. This has all led to a particular way of looking at games that I want to bring from art history into game studies.

In art history, it is common to write about a single image and to do so in depth. The process of interpreting the image opens the possibility of studying the image in many different ways and using different bases of interpretation. Are we trying to understand what the artist has done, what we see or what the painting does in its society?

In most cases, the art historian is not the artist, but someone who sees the artwork as a finished product that has left the artist and entered other areas of the art world such as the gallery or the museum.

Almost everything I've read in the field of game studies has a different perspective. Jesper Juul, Janet Murray, Katie Salen, Eric Zimmerman and many others have the same way of doing and thinking about game research. They are all involved in game development to some degree and write from the developer's perspective.

---

[32] Twitch is a streaming platform where you can see and hear other people play games: https://www.twitch.tv

[33] More on this in the chapter *Ways of playing*, p. 100.

This has some consequences for the way game studies are written and how games are understood within these studies. They are all concerned with the invisible parts of the game, the ruleset, and the visual design of the game is described as a way of communicating these rules to the player. This in turn leads to the common practice of showing many ways of implementing different features in games and comparing them. So it is rare to write about a game and explore it in detail. Instead, the basis for writing is game development and in doing so they look at many games to explain how to do something.

There is two perspectives on the object of study, whether it's the game or the image. One focuses on the artifact and how it appears to us and affects us. The other focuses on the process of making the artifact and the role of its creator. I would say that both perspectives are prevalent in art history, but that the latter dominates in game studies.

I hope to bring this kind of close scrutiny to game studies. I want to focus on two related games and examine the experiences they create. Not because it’s a better way to understand games, but because it’s a different way to write about games and players.

The final methodological consideration I make here concerns the choice of games. The Legend of Zelda: Breath of the Wild and Super Mario Odyssey are both highly regarded games from a large and successful game studio, Nintendo.

I knew I had to write about at least two games, as comparisons between them make many aspects more visible. But I wanted games that differ from each other in the right way, namely in the way they construct a gameworld for us players, and that are otherwise reasonably similar. Both games are played on the same console, so there are no real technical differences. They're mainstream and aimed at a broad audience, so they're easy for most people to understand and play. And while these similarities make for great comparisons, it also focuses this book on a specific type of game.

Studying and writing about some parts of two fairly similar games is in some ways a very limiting choice, but it's a choice that allows the experience within those games to be explored.

# Theory

My theoretical framework is informed by my experience of being within a game while playing. I have divided this description of my theoretical approach into three parts dealing with *ontology*, *phenomenology* and *complex images*. They roughly correspond to the three main parts of this book: *image, play* and *time*.

In the first part, I treat games as a particular kind of image within a larger tradition of image-making. The opening question in this part comes from Vilém Flusser's *Into the Universe of Technical Images*.[34] What kind of images are video games? My attempt to answer this question is based on an understanding of the role of technology in the making of images.

I approach games as images through their technological basis and with a question of what they are, because I believe that this will shed some light on how gameworlds are created and how they encounter the player.

Flusser's way of describing technical images, images that run like a program on an apparatus is as much a part of this as what he describes as the next stage of this kind of image: the dialogic image.[35] This is an image that is not static, but evolves in dialog with the viewer, adapting and recreating what we see as we look at it. His concept of a technical image has its origins in photography, and the dialogical image is its continuation in computer-generated interactive images.

The other theoretical focus concerns problems related to the representation of three-dimensional objects on two-dimensional surfaces through perspective drawing. This problem preoccupied European artists from the early Renaissance to the mid-19th century, and I draw heavily on Martin Kemp's history of this development, *The Science of Art*.[36] As he writes about the technological development and the close connections between images and geometry, I see this as a natural precursor to the development of three-dimensional modeling with computers.

The second part of the book deals with the experience of being in a gameworld. Various phenomenological approaches will be used to understand how this is possible. My aim is not to write a phenomenological analysis of

---

[34] Vilém Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann Roth, Electronic Mediations 32 (Minneapolis: University of Minnesota Press, 2011).

[35] Flusser, 87–94.

[36] Martin Kemp, *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat* (New Haven, Conn.; London: Yale University Press, 1989).

gameplay, but to use different phenomenologically based ideas to explore different aspects of gaming that work together to create an immersive experience.

My understanding of a phenomenological approach here is that of an art historian, not a philosopher, so I am mainly concerned with aspects of the experience of images. This begins with E. H. Gombrich's description of the beholder's share in *Art & Illusion,* how we as viewers actively contribute to creating our understanding of what we see.[37] This in turn is further developed by Wolfgang Kemp's writing on *reception aesthetics*, which looks at how the image in its turn reaches out to the viewer and invites us in.[38]

My phenomenological approach then draws on Christian Norberg-Schulz's *Genius Loci,* which deals with experiences in landscapes and towns.[39] He offers a way of writing about places and landscapes that is firmly anchored in the experience of everyday life and architecture.

The same goes for Steen Eiler Rasmussen's *Experiencing Architecture,* which set me on the trail of connections between play and space with its description of the way some boys understood the church of Santa Maria Maggiore in Rome and the complicated topography surrounding it through playing with a soccer ball.[40] This connection between play and architecture was something of an eye-opener. It points to an embodied and joyful way of understanding the concepts of places and buildings.

To me Gombrich and Norberg-Schulz are linked by Heinrich Wölfflin's *Prolegomena to a Psychology of Architecture,* even though it predates both.[41] The Prolegomena deals with the experience and connection between viewers and places, as well as the bodies of viewers and the architecture they experience by way of what he calls embodied empathy.

This in turn brought me to Matthew Gladden, who in *Phenomenology of the Gameworld* explores ways to apply a phenomenological understanding of

---

[37] E. H. Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation*, 6. ed (London: Phaidon Press, 2002).

[38] Wolfgang Kemp, "The Work of Art and Its Beholder. The Methodology of the Aesthetics of Reception," Book Section (Cambridge, 1998), https://doi.org/10.11588/artdok.00001916.

[39] Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture* (New York: Rizzoli, 1980).

[40] Steen Eiler Rasmussen, *Experiencing Architecture*, M.I.T. Press Paperback Series (Cambridge, Mass.: M.I.T., 1964), 16–17.

[41] Heinrich Wölfflin, *Prolegomena to a Psychology of Architecture*, trans. Michael Selzer (Colorado Springs: KeepAhead Press, 2016).

place to game development.[42] Building on Gladden's work, I have drawn on his sources and adopted elements of phenomenological discourse from Robert Sokolowski's *Introduction to Phenomenology*.[43]

This introductory text, which draws extensively on the writings of Edmund Husserl, provides a framework for understanding phenomenology in the context of play. However, as my focus is on the phenomenological experience of place in gameworlds rather than complex philosophical analysis, I chose not to engage directly with Husserl's original texts.

Sokolowski's approach emphasizes the concept of intentionality, the idea that consciousness is always directed towards something, and emphasizes the interplay between thought, perception and the world. Although this is a central element of Husserl's phenomenology, it was criticized by Hermann Schmitz's *New Phenomenology*.[44] Schmitz questions the one-sided focus of intentionality and proposes instead that the objects of intentionality have their own form of agency. This perspective provides a valuable link to Wolfgang Kemp's aesthetics of reception, which similarly recognizes the interactive relationship between the perceiver and the perceived.

Furthermore, Schmitz's critique serves as a foundation for the emerging phenomenological study of atmospheres, an area that can be clearly applied to the immersive and experiential nature of gameworlds.

The phenomenological approach opens up several possibilities for understanding how we as players are in the gameworld. The first I have already mentioned: Gombrich's idea of the viewer's part and the second in the empathic connection between the viewer's body and the architecture that Wölfflin describes.

Then there is the idea of immersion, a term described and used by various authors to denote different aspects of being inside an image. An early version of immersion in video games comes from the writers within a New Media discourse of the late 1990s who focus on the history and materiality of the images.[45] A different and more directly applicable idea of immersion as a shield

---

[42] Matthew E. Gladden, *Phenomenology of the Gameworld: A Philosophical Toolbox for Video Game Developers* (Defragmenter Media, 2019).

[43] Robert Sokolowski, *Introduction to Phenomenology* (Cambridge: Cambridge University Press, 2000).

[44] Hermann Schmitz, *New Phenomenology, a Brief Introduction*, Atmospheric Spaces 6 (Sesto San Giovanni: Mimesis International, 2019).

[45] This includes texts such as Bolter and Grusin, *Remediation*. and Grau, *Virtual Art*.

against the real world comes from musicology.[46] Gladden has his own concept of immersion, as does Merleau-Ponty. From Merleau-Ponty's perspective, immersion relates to our bodily experience and leads to the concept of the body schema, an internal sense of the body's position, movement, and capabilities that enables us to interact with the world. This framework offers a way to explore how images can connect to and be experienced through our bodies.

The final two parts of this phenomenological approach to understanding gameworlds come from Mihály Csikszentmihalyi and Gernot Böhme. Csikszentmihalyi's thoughts on flow offer a way of understanding the intensity of our engagement in the gameworld and have something to say about us when we play.[47] Böhme's writings on atmospheres aids in understanding the overall production and experience of an environment.[48]

This group of texts represents for me the most important components of a phenomenological approach to understanding how a place represented on a screen is experienced as an actual place where we have been. The selected texts also emphasize how the player and gameworld work together on their respective sides of the screen to make this possible.

Finally, in the third part of the book, I focus on the ways in which time relates to gameplay, narrative and our experiences. This is to connect the themes of play and story from the first part with the theme of place from the second part and to make this connection visible through Mikhail Bahktin's concept of the chronotope; the way in which narrative bends time and place into shape.[49] The chronotope is not an explanation of how gameworlds work, but a model that can help in thinking about experiences inside gameworlds. It is also a suggestion for how to use genre more stringently in game research.

As I have discussed narratology and ludology in the chapter on *Previous research*, I will not do so here. Neither field is directly part of my theoretical apparatus, but they do play a role in defining my own writing as something adjacent to these fields.

---

[46] Rod Munday, "Music in Video Games," in *Music, Sound and Multimedia, from the Live to the Virtual*, ed. Jamie Sexton (Edinburgh: Edinburgh university press, 2007).

[47] Mihály Csíkszentmihályi, *Flow: The Psychology of Optimal Experience*, 1st Harper Perennial Modern Classics ed. (New York: Harper Perennial, 2008).

[48] Gernot Böhme, *The Aesthetics of Atmospheres*, ed. Jean-Paul Thibaud, Ambiances, Atmospheres and Sensory Experiences of Space (Abingdon: Routledge, 2017).

[49] Mikhail Bakhtin, "Forms of Time and of the Chronotope in the Novel," in *The Dialogic Imagination: Four Essays*, ed. Michael Holquist, 1981.

# Delimitations

In this study of games, I take a particular perspective: I examine games as a kind of image and analyze them from the point of view of the observer. My primary goal is to understand what happens when players immerse themselves in a gameworld. This focus inherently excludes some other aspects of gaming, such as the social context of gaming, discussions of its potential dangers, or ethical considerations within games.

This study is also not intended as an introduction to game design or game development, although I do touch on these areas to explain why certain experiences occur within gameworlds. I have endeavored to keep the explanations of the technologies used in game production short and to the point.

The games industry and the rapid development of computer technology have had a major impact on how games are developed, experienced and played. While these developments are important and would benefit from historical analysis, that is not the focus of this book.

When I talk about games and gaming in this study, I refer specifically to the visual image on the screen, the interaction with the controller, and the sounds of the game. I focus on the relationship between the player and the game, drawing on my own experiences and the accounts of others. With this approach, I aim to approximate the experience of an average gamer engaging with these games.

Although interviews with players might provide a more direct insight into the player's experience, this is not my chosen methodology. Instead, I rely on the interpretive possibilities offered by the understanding of images and the way they invite us to perceive and interact with them.

In order to look closely on what games do, I have limited my material to two games. Much of the literature on games does the opposite and selects its examples from a variety of games to examine how games are created. This limitation on the scope of the material stems from the way I intend to examine them. I am writing about these two games, not about games in general.

My selected games have many similarities and some differences, which makes them useful for comparisons. Breath of the Wild and Super Mario Odyssey were released by Nintendo for the Switch console in 2017.[50] This means that they were developed for the same technological platform and that

[50] Breath of the Wild was released simultaneously on Switch and the previous Nintendo console, the Wii U.

the differences in look, sound and features are due to the decisions of the game developers and not to technical limitations of one game or the other.

Since both games were developed by Nintendo, they share the company's focus on family-friendly game design. There is violence in both games, but it is cartoonish and playful and there are no signs of sexuality.

By selecting these games, I have severely limited the scope of this study. Games are many things to many people, and it would be impossible to write about them all. These two games have no social component, no co-op mode. They are not competitive, but rather playful.

I have done this in order to take a closer look at certain games, but the cost is that there is so much more to say, so many technologies and ways of playing that simply don't appear here.

# The games

Writing about video games from an art historical perspective presents a unique challenge: addressing two different audiences and bridging the gap between them. In my experience, the cultures of gamers and art historians resemble a Venn diagram with minimal overlap, something I hope to change. For readers less familiar with gaming terminology, a glossary of common terms can be found on p. 197.

To make these gameworlds more accessible, I have chosen to describe gaming as a shared experience, something we do together, you as the reader and I as the player. Given the immersive and engaging nature of gameworlds, this inclusive approach is a natural way for me to convey their impact.

To make my two examples accessible to non-gamers, I need to introduce them and give a brief overview of the franchises as well as a brief description of the game mechanics, the look and feel of the environments and the pseudo-geography of their worlds. Playing the games is the best way to understand them, and at the time of writing this book that is easily done.

However, games are one of those things that sometimes disappear quickly, a console disappears from the market and after a few years the games are no longer available. There may be remakes for newer platforms, but that's a remake, a different version of the game, and it relates to the original game like a copy of a painting relates to the original; it's close, but not the real thing.[51]

I chose Breath of the Wild and Super Mario Odyssey for several reasons. I had spent a lot of time playing Breath of the Wild before thinking about this book, and I had used other Zelda and Mario games in an article for an anthology on art and nature that became my starting point for this project.[52] Based on this I felt that this was material that would lend itself perfectly to a longer study.

Before deciding on these games, I played around with a lot of other possibilities. Should I go for the most interesting and engaging games I've played recently? Games like *The Stanley Parable Ultra Deluxe*, in which you're an office worker stuck in a constantly repeating and shifting loop of events driven by an untrustworthy narrator? Or *Sid Meier's Civilization*, a faux history game that's been around for a long time but keeps reinventing itself to

[51] The Mario and Zelda games depicted in Image 13 and Image 14 represent a version of this. They are played in an emulator on contemporary Nintendo hardware and on an OLED screen although they were designed for CRT screens.

[52] Björn Fritz, *Natur, Spel, Landskap*, ed. Peter Bengtsen, Max Liljefors, and Moa Petersén, 2018, http://portal.research.lu.se/ws/files/40307535/Natur_spel_landskap.pdf.

keep an audience? Is there a need for game historical depth that calls for old influential games like *Asteroids* and *Doom*? Or should I choose games that have had a big impact on gaming in general, like the fast-paced mobile game *Candy Crush Saga* or the giant fantasy RPG *Skyrim*? There are many interesting games that sit somewhere between art and games and do fascinating things with the medium of gaming, games like *Viewfinder*, where the player's point of view is a game mechanic, and *Portal*, where the physics of the world are the puzzles?

I have also been thinking about games that deal with architecture and urban planning. *Sim City, The Sims, Grand Theft Auto,* and *Lego City Undercover* are all games that deal with cities, but vary in genre between actual city planning, dollhouse emulator, car chase, and comedy. The latter four games were particularly interesting because, among other things, architecture is about places and the experience of them, both themes I knew I wanted to explore. I had to make a decision early on in order to start work.

So I chose a particular Zelda game, The Legend of Zelda: Breath of the Wild, and a particular Mario game, Super Mario Odyssey, because they share an interesting combination of similarities and differences. Even more important to my decision, however, was that both games convey a strong sense of place and have their own unique atmospheres. After playing them for a few days I have a strong feeling of being there, inside the games.

It should be said that these are specific types of games; they are made by Nintendo, a studio known for attention to details in game development and with a long history of creating well-crafted games. They are also excellent games, praised by critics and players alike. And unlike many other A-list games of today, they were released without any major bugs or glitches.

They seem to me to be made to be experienced, not to be won. They're different from, say, a player-versus-player game like *Halo* or *Fortnite*, where the main experience is fighting other players and the environment is an arena that we as players can barely explore if we don't want to lose the game.

Both Breath of the Wild and Super Mario Odyssey are games that have been developed with great care when it comes to world building. A lot of attention is paid to the details in the landscape, the behavior of the NPCs,[53] the use of sounds and music and all the other parts of the gameworld, and we as players are invited to wander around and discover them.

[53] An NPC (Non-Playable Character) is a character in a game that is not controlled by the player, but by the game's AI. NPCs often serve as quest givers, vendors or background characters and interact with the player in various ways.

I wish there was a way to let you, the reader, play the games I'm writing about, but alas there are only pictures in this book. Pictures can stop time and point out specifics in a game, and that is an effective way to study it, but it's no substitute for playing it yourself.

At the beginning of Part Two (p. 108), you will find two lengthy descriptions of the first minutes of the games written in order to introduce you to the worldbuilding of Breath of the Wild and Super Mario Odyssey. If you are unfamiliar with the games, these descriptions can provide a helpful introduction to them, apart from the brief overviews that follow next.

## The Legend of Zelda: Breath of the Wild

Image 4, Link looking out over a landscape in Breath of the Wild.

The Legend of Zelda: Breath of the Wild was released in 2017 for Wii U and Nintendo Switch, directed by Hidemaro Fujibayashi and produced by Eiji Aonuma, and is the nineteenth installment in the Zelda series. The series, which was created in 1986 by game designers Shigeru Miyamoto and Takashi Tezuka, comprises twenty main games and nine remakes. The series is constantly evolving in terms of gameplay, visual style and perspective.

In Breath of the Wild, the protagonist Link awakens to help Princess Zelda defeat Calamity Ganon. The beginning of the game on the Great Plateau serves as an unobtrusive tutorial, introducing mechanics such as running, fighting,

climbing and exploring shrines. The player learns how to manage their inventory, cook and adapt to the weather conditions.

The story unfolds as the player progresses, with the game offering an open world. While there is a suggested path, the player can choose their own adventure, explore different landscapes and take on various side quests. The game's story, conveyed through dialog, flashbacks and environmental clues, is integrated into the vast, interconnected gameworld.

The stunning audiovisual design of Breath of the Wild creates a seamless, cohesive world. Shrines scattered throughout offer puzzles and challenges. The game's success is reflected in a Metacritic[54] rating of 97, 30.65 million copies sold on Switch, and numerous awards. It is a remarkable open-world action adventure that invites exploration and offers a rich narrative.

While playing Breath of the Wild, we spend much of our time traversing the diverse land of Hyrule. This sprawling kingdom is divided into different regions, each with their own unique landscapes and climates. From lush forests and open fields to a picturesque lake district, snow-capped mountains, a fiery volcano and a desert, each area offers its own challenges to explore.

Along the way you will frequently encounter enemies, from the relatively harmless but ubiquitous Bokoblins to ferocious Lynels, powerful centaur-like creatures and menacing, spider-like Guardians. Danger lurks around every corner, but we have a choice: fight or sneak past unnoticed.

There are villages, shrines and towers all over Hyrule. In the villages, you have the opportunity to complete side quests, short tasks such as catching runaway chickens in exchange for rewards, and buying supplies or special clothing. These items of clothing often give you unique abilities, such as resistance to extreme cold or heat. Shrines challenge us with clever puzzles, while towers offer sweeping views of the surrounding landscape and unlock new parts of the map. In Image 4, we see a shrine on the left that radiates a blue light and a tower that stands out in the evening sky above the mountains on the horizon. In front of Link is a river with a low bridge, a stable with a roof in the shape of a horse's head and a field with trees; further to the right is a platform with a ladder leading upwards.

Ultimately, Hyrule is a land of tranquil beauty interspersed with moments of exciting action. When I think back to Breath of the Wild, I imagine myself standing in a sunlit field, the wind rustling through the tall grass, horses grazing in the distance and mountains looming on the horizon. As soon as I remember

[54] Metacritic is a website that collects ratings for films, TV shows, music albums and video games. From this, a weighted average is calculated with a maximum score of 100. The score is an indicator of the game's overall rating.

one landscape, another comes to mind: a frozen river surrounded by snow, a desolate volcanic expanse and so on. For me, this game is all about the joy of exploring breathtaking landscapes and treading unknown paths.

## Super Mario Odyssey


Image 5, Mario exploring a building in Super Mario Odyssey.

Super Mario Odyssey, a 2017 Nintendo Switch game produced by Yoshiaki Koizumi and Koichi Hayashida and directed by Kenta Motokura, is the fourteenth installment in the Super Mario series that began in 1985. Shigeru Miyamoto, the original creator of Mario and Zelda, is involved as a Creative Fellow. The game follows the classic storyline: Bowser kidnaps Princess Peach, and Mario embarks on a journey through various kingdoms to rescue her.

The game is a 3D platformer and features linear puzzles within the kingdoms, each culminating in a mini-boss battle. In the story, Mario chases and fights wedding planners who steal items such as a ring and a bouquet of flowers to prevent Bowser's wedding to Princess Peach, whom he kidnapped at the beginning of the game. The gameplay is based on jumping between platforms and contains allusions to the series' story, using both 3D and 2D perspectives. The visual style is playful, toy-like and crisp, emphasizing stylized and simplified objects.

The gameworld of Super Mario Odyssey consists of sixteen small maps, each with a specific visual theme. The game encourages exploration and discovery of secrets within these kingdoms, promoting engagement with the overall experience. The game does not have a single gameworld, but the coherent design and playful visuals help to make it cohesive. With a Metacritic score of 97 and 26.44 million copies sold by June 2023, Super Mario Odyssey is hailed as an outstanding platformer.

The kingdoms of Super Mario Odyssey are above all colorful and loud. They are also full of enemies who will pounce on you as soon as they see you. They look funny and aren't all that dangerous: angry mushrooms on legs called Goombas and red, blue or green turtles called Koopas. They will kill you as soon as they get the chance, and the same goes for the environment. It is full of ledges from which you can fall into an abyss. Fortunately, death in this game is neither hard nor tedious, with the press of a button you are back and can try again.

Everything is compressed here, a forest consists of a few trees that you run through in a few seconds, buildings are small and you can easily see around them. And yet there are openings, elevators, levers that raise bridges and secret doors everywhere. This game is all about quick exploration, finding secret locations full of coins, and battles where you jump on an endless supply of enemies and crush them into a puff of smoke.

There are also many objects that can only be found in Marioland. Take, for example, the row of three blocks, two brown bricks and a yellow one with a question mark, hanging in the air in Image 5. They refer to the similar structures in the earliest two-dimensional Mario games (Image 13, p. 58 shows an example). You are supposed to jump up and hit them with your head to win coins or power-ups, or you can jump on them to continue upwards to the next platform. This jumping from one small platform to the next can be found everywhere and in many variations: hence the name “platformer” for this type of game.

With the coins we collect, we can buy new clothes for Mario. In Image 5 he is wearing a tropical uniform that we bought in the previous kingdom. This is only cosmetic and does not bring any advantages in the game, apart from the joy of seeing Mario in different, often funny uniforms.

Super Mario Odyssey is a playful platformer that’s all about timing and jumping at the right moment. It’s a game that requires a lot of muscle memory in your hands and a playful mind willing to put up with some absurd kingdoms and enemies.

# Part One: Image

Image 6, Link following a winding path through a landscape towards an orange glowing shrine.

In this first part, I will focus on what happens when we look at games as images, taking a somewhat formalist approach to understanding them. A gameworld shown to us on a screen is like many other kinds of images, e.g. in cinema or painting, but it also has its own specific characteristics. Among other things, games are images that aim to engulf us as viewers, to draw us into their world. Take, for example, Image 6, a still from Link's journey through Hyrule, where the design of the landscape tells us a story; Link is our focal point, he stands in the landscape and is our stand-in in it. He is standing in the sunlight but looks towards a darker mountain range. There is a dirt road that we can follow down into a valley and up into the mountains, and a sign pointing us either down this road or off to the left. The road in the picture leads us past a beach and the sea and then up again to a focal point visible from afar, a glowing yellow shrine. This is one of the many cases where a still image on paper cannot show how much this shrine stands out, but in the game and on a display it is very much emphasized in the green and not so detailed landscape.

Image 7, C D Friedrich, *Wanderer above the Sea of Fog*, ca 1818 (Wikimedia commons).

Image 8, Claude Lorrain, *Landscape with Apollo Guarding the Herds of Admetus*, ca 1645 (Wikimedia commons).

This kind of landscape, which wants to tell us a story and invite us in, is widespread in landscape painting. Link, who stands at the beginning of the path and looks into this world together with us, is like the "back figure" in Caspar David Friedrich's landscapes (Image 7), who shows us how small we are compared to the big world and invites us to look at nature in front of us and reflect on it. The path that leads us on is a common feature in landscape paintings such as those by Claude Lorrain (Image 8), where a road lined with landmarks such as bridges, temples or towers marks a path along which we wander in the painting. The visual language of the landscapes in these examples is strikingly similar, and this suggests to me that they appeal to the same urge in me to wander into these images.

I want to look at games in a similar way to how I would understand other images. As an art historian, I have a repertoire of methods and theories that I can use when thinking about images. Questions of perspective and the way images are made play a central role in art history and are also applicable here. But video games are multimedia, so they use elements that are more likely to be written about from the perspective of musicology, sound studies or film studies. As I am writing from the perspective of an art historian, I cannot pay as much attention to these aspects as I can to the games as images, but I cannot

ignore the effects of sound and music either. Nor can I avoid the connections to film studies when it comes to understanding the staging of the gameworld or the use of time through editing and montage.

Then there are the parts of games that are unique and fall into the realm of game studies. In this book, I will discuss the media-specific elements necessary to examine how games can be considered as images to be analyzed. A gameworld is an image in which aspects from these areas overlap and interact with each other. The visual world, the music and sounds within it, the scenography and storytelling as well as the game, gameplay and rules form a coherent experience for us as players.

There are layers in this gameworld; a visual storytelling style that draws from old styles of landscape painting, coupled with various other media conventions as well as the contemporary peculiarities of games and computer animation. To make this more understandable to me, I need a specific point of view.

I suspect that you who are reading this are either at home in the academic disciplines of art history, musicology and film studies, or that you are very familiar with the conventions of video games. One of my goals here is to explain some elements of gaming to non-gamers in the academic world. As a result, there is a need to use ideas from different disciplines and to write somewhat interdisciplinarily in this first part of the book.

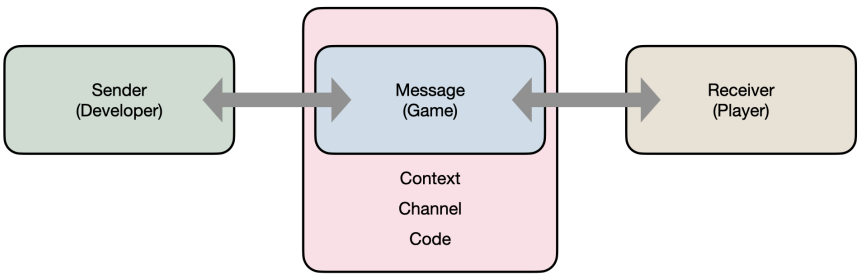



Image 9, Jakobson's communication model.

Gameworlds are complex images in that they are built by many connected but different parts. In order to clarify what I think about here I reach for the model of communication developed by Roman Jakobson (Image 9). It consists of a sender sending a message to a receiver and this message exists in a context, is sent over a channel and uses a code. The code refers to the symbols, rules,

and conventions used to create meaning in the game (such as visual style or game mechanics), distinct from the computer code that runs the game. The channel is the platform or medium through which the game is delivered, while the context is the cultural and social environment that influences both the creation and interpretation of the game.

Since my exploration of gameworlds isn't explicitly based on a semiotic or linguistic analysis, suffice it to say that my overarching aim is to understand the interplay between message and receiver, but that in this first part I need to address the message and its environment: the context, the channel and the code that constitute a game. In art history, the connection between the message and the receiver is often referred to as reception. It is this encounter in which the picture seems to draw me into its world. The examination of the message itself is often referred to as image analysis or image interpretation. It is also known as formalism; were one looks at images and tries to understand them from their internal logic while disregarding biographical and social context.[55]

I will begin this examination of games as images or messages, if you will, with an examination of their ontological status. And as with many questions of this kind, *"what are games really"*, we will not get definitive answers, but instead produce more questions.

[55] There is no specific, clearly defined terminology and several of the art historical texts I use here have their own versions of these terms. I personally think it makes sense to relate them to Jakobson's model to maintain a certain consistency in relation to the object of study.

# What kind of images are these?

In order to discuss my experience inside gameworlds, I would first like to clarify the materiality of games as images. On a physical level, games are computer code, and this code creates an image on a screen. Behind the word code lies a multitude of different parts that make up the game. The code is not monolithic, but contains various elements that together make up the entire gaming experience.

I do not aim to give an overview of game development, but rather focus on the parts of game development that affect what we see and hear when we play the game. This is a choice of perspective on games that allows me to examine games as a type of images.

So what kind of image is a game? Czech-born philosopher Vilém Flusser distinguishes some types of images according to how they are made. In his 1985 book *Into the Universe of Technical Images,* he divides them into three categories: traditional (handmade) images, technical images made with apparatuses such as cameras, and dialogical images that are interactive and made in dialog with the viewer.[56]

The technical image is an analog image produced by the light reflected from the scene depicted, while the dialogical image is computed from any input we want to use. These different types of images do not replace each other but expand the possible variations of images that can be generated. Flusser died in 1991, so his focus is on technical images, i.e. on photography and its apparatus. However, the idea of an expanding field of image types that extends the techniques of image production and his focus on the apparatus that produces them are useful for thinking about gameworlds as images.

The apparatus is not the camera, but the entire system of photography, including the manufacturers of film stock, the developers, the manufacturers of lenses and camera bodies, the gallery owners, the printers, the magazines, etc. His ideas about technical images are perhaps most easily understood in his book *Towards a Philosophy of Photography,* in which he views photography as an apparatus with a will to explore its own possibilities to run all possible programs.[57] Flusser's use of terminology may convey a misconception of technical images; a program is a type of photographic image and not a procedure to create it. The photographic apparatus strives towards exploring

[56] Flusser, *Into the Universe of Technical Images*, 8–10.

[57] Vilém Flusser, *En filosofi för fotografin*, trans. Jan-Erik Lundström (Göteborg: Korpen, 1988), 24–35.

every possible type of image that can be created. I would argue that games aim for a similar exploration of the possibilities of computer-generated images.

Although this book is not a philosophical inquiry into the nature of gameworlds and computer-generated environments, I find the perspective that Flusser applies in viewing technology as something independent and capable of agency relevant to my inquiry. To see games as dialogic images, we need to understand their technical and cultural origins and try to grasp a sum of what they are capable of.

As I understand Flusser the difference between a technical and a dialogical image lies in the image itself. The dialectical image is changing depending on the manipulations of the recipient whereas the technical image is stable once it's produced. The photograph takes a lived moment and makes it concrete (in Flusser's terminology). It keeps the moment and make it more visible by transforming it from the momentarily experience (Flusser calls it *photons and information*) into images through the use of an apparatus.[58] The dialogical image does this too, but remains playful, and produces a flow of images from a world of information.[59] Technical and dialogical images are produced from untouchable materials; photons, information, calculations and made concrete through an apparatus. Flusser does not dwell very long on the dialogical image, and he doesn't discuss games. But I think that the notion of an image created out of calculations and based upon a dialog with a viewer is a way of describing video games that helps us to understand the complexity of the materiality of a gameworld.

The image we see on the screen in front of us may be simple to understand, as it echoes many of our everyday viewing habits, but it is also the result of a long and complex dialog between us as players and the game, and with the mediated intentions of the game developers.

Into the Universe of Technical Images is a kaleidoscopic text that twists and turns and keeps going in new directions. For my purposes here, there are a couple of ideas that try to explain what kind of images a gameworld that I find interesting might be. One is about images as a way of capturing the real world moving around us, like a photograph that freezes a single moment in time. The other is about dialogical images that do not freeze this moment, but allow us to play with it. Flusser focuses on the process of producing technical images or playing with dialectical images. It is not about a static end product, but about the process of production. A gameworld is such an image that is never

[58] Flusser, *Into the Universe of Technical Images*, 16.

[59] Flusser, 87–94.

complete, but always offers something new, twisting and turning as we experience it.

However, a gameworld is not chaos, it is created, and it has a goal. The gameworld does it's part of the dialog in accordance with different types of rules put into it by the developers. To understand how this dialogical image talks with us and how we become part of making it we need to explore the parts that make a game an image producing apparatus.

# Game development

Much has been written about games from a developer's point of view, mostly because much has been written by developers. The focus then naturally comes to be on making games that are engaging and keeps the player playing. There is also a focus on game design, that is the designing of the rules of the game as the most important part of game development. This perspective on games and gaming, as something that you build and as something that comes from a set of rules that are given a visual form is highly specific and stems from the process of making games. In Jakobson's communication model (Image 9) we are thinking about the connection between the sender and the message. Most people who play games are not developers and oftentimes they will learn the rules from interactions in the game environment and not vice versa. As receivers in said communication model we come to the message from a different direction.

When Jesper Juul, the Danish game designer and researcher, describes games as a new technology, he writes, *"The first video game was probably Spacewar! […]. The video game is thus a little more than forty years old, and it has been part of popular culture for around thirty years. Compare this to the roughly seventy-five years of television, a hundred years of film, and five hundred years of the printing press."*[60] This is true, of course; video games depend on an underlying technology, and that technology has a history. However, technology is not the only driving force in the development of visual media; there is also a history of the development of images that art history has studied in depth.

Images as seen within art history are the result of influences that differ from object to object. One important influence is technology, for example the development of paint media, pigments and reproduction techniques. But there are also developments in areas that can be understood as intellectual technology, such as perspective drawing and its impact on Renaissance painting or color theory and its influence on the Impressionists. There are other influencing factors such as taste, fashion, politics and new uses of art. The list could go on, but in short, paintings must be understood as part of a visual culture that took place at a particular time and place.

Games are connected to a larger culture in the same way, and the continued development of computer graphics is an important part of that. The visuals of

[60] Juul, *Half-Real*, 3.

games in general are becoming more realistic, but this is just one of many concurrent developments that are leading to more powerful game engines.

As the name suggests, an engine runs all parts of a game: graphics, sound, 3D modeling, physics and much more. It therefore influences the look and feel of the game and sets its limits. Breath of the Wild and Super Mario Odyssey use game engines developed in-house by Nintendo itself. They are therefore closely tied to the capabilities of Nintendo hardware and the needs of Nintendo game developers. The production of large games requires specialization and division of labor in game development. A gameworld we experience as players is therefore the result of many contributors and clearly a studio effort, not the work of a single creator.


Image 10, Non-diegetic elements in Breath of the Wild.

Juul is often referred to as a ludologist, someone who studies games from a perspective that focuses on the rules and the game aspect as opposed to the visual representation of the game. In doing so, he often focuses on one aspect of the experience and is less concerned with the many layers of a game that work together to create the world of the game. However, in his book *Half-real: video games between real rules and fictional worlds,* he looks at the connections between *games as worlds that are played with* and *games as rules*

*that are visually represented*.[61] There is rarely a way to understand games as just one thing.

A typical example is the representation of a landscape with a character in it, with whom we as players can interact. This character is marked in some way so that we don't fail to speak to it. Juul's example is *The Legend of Zelda: The Wind Waker*[62] where an arrow hangs above the character's head.[63]

The same technique can be found in Breath of the Wild where both a small white triangle above an NPC and a circle with an A in it presents the possibility to press the A button to talk to the character, as seen in Image 10. In this image we can see representations of several rules for play, some of which are shown as part of the world and some of which are not. The fire and the wooden stool to the left of it are game rules; a place to cook food which restores lost health, and a place to rest, which fast-forwards time in the game. But there is another visual layer; the name Sagessa, the white triangle indicating that you can talk to her, the A-button and the health-bar full of hearts at the top left of the screen, i.e. the elements of the HUD.[64]

This second set is not diegetic; they are part of the rules of the game, but not of the world. They are there for us, the player, but not for the inhabitants of the gameworld. Our avatar Link occupies a strange position here. He is us and we see non-diegetic elements directed at him, and we make him react to them. This in-between position of the avatar connects us to the gameworld and vice versa. Somehow, as players, we accept this combination of narrative (the image of the world) and rules (the rules of the game expressed visually in the world) as natural in this context.

Juul views video games as games first and foremost and places them within the field of game studies as opposed to play studies,[65] and sport philosophy.[66]

---

[61] Juul, 23–28.

[62] Eiji Aonuma, Shigeru Miyamoto, and Takashi Tezuka, "The Legend of Zelda: The Wind Waker" (Nintendo, 2002).

[63] Juul, *Half-Real*, 2.

[64] The HUD or the *Heads-Up Display* is the on-screen interface in a game that shows the player important information, such as health, ammunition or objectives. The term has its origins in military aviation.

[65] *Play* is unstructured and with minimal or no rules; in the game of *tag* you run around chasing each other and one of the players is *it*, this player touches another player and shouts "*you're it*" and this player is now *it* and has to chase the others. There is no defined goal or end to the play. *Games* (like chess) on the other hand have set rules *and* outcomes. Thus play studies mostly deals with children's play.

[66] Juul, *Half-Real*, 7–8.

This is also evident in his understanding of games that can be played many times because they emphasize rules and you get better at beating those rules, and games that emphasize storytelling, which he says can only be played once because the story is then told and completed.[67]

I think this view underestimates the pleasure of being in another world, which is present in open-world games like Breath of the Wild as well as in player-versus-player games, where the game element is sometimes surpassed by the pleasure of doing something with your friends, not in reality, but in a fictional setting. Images and the experiences they evoke have a powerful effect in themselves. I believe this is one reason why many who engage in art enjoy returning to a work in a museum repeatedly throughout their lives. These experiences in the gameworld are a possible different outcome of the game, winning is not the only possible goal.[68]

A ludological approach to the study of games is often one that focuses on game development. This is often reflected in writing about new games. The genre of a game is often determined by the set of rules on which the game is built; so it's a platform game, a racing game, a first-person shooter, or something similar. In news stories about games and in reviews, a lot is usually written about the technical development, with a focus on graphical capabilities (such as frame rates and resolution) or rendering techniques. In art history, this perspective is unusual, or at least a specialized one. Most writing is about reception of the artwork, of experiencing it and understanding it, and writings about the effects of discoveries of new technologies, e.g. of new pigments in the mid-19th century, is not as common.

This is a difference in perspective. In game studies we are invited to understand the gameworld through the eyes of the developer. We get better at playing by understanding the rules and mechanics. We learn about glitches that make us play more efficiently because we understand the underlying technology. It's a ludologist's view of the gameworld; it's a set of rules to be explored and exploited. It's also a very exciting way to play games and be good at them.

An art historian, on the other hand, is usually an observer, someone who sees the finished, varnished and framed work of art in a gallery or museum and experiences this work in relation to himself. One may think about the artist and

[67] Juul, 6.

[68] Juul would disagree. In his definition of play, one of his six points is that the player is attached to an outcome. Applying this to the games I choose, winning means we finish the game and defeat the end boss, and losing means we don't finish the game. Juul, 40.

the creation of the artwork, but looking closely and experiencing it is the primary way of engaging with the work.

My point is that by exploring both positions towards games, we find a way to investigate and understand how games connect with their audiences. By treating gameworlds as images that are the result of technologies and their histories, but which are also understandable in their own effect on the player/viewer, I hope to uncover how games interact with us and entice us to enter into them.

# Video game graphics


Image 11, 2D gameplay wrapped around a 3D surface in Super Mario Odyssey.

As we move from the creation of a gameworld as a means of communicating game rules to the creation of a place in which we as players play, we need to address some questions about game graphics and genres.[69]

Super Mario Odyssey and Breath of the Wild both contain references to older games in their respective series. This can be through direct quotes, where locations in the gameworld are built as an updated version of the same location in an earlier version of the game. But it can also be quotes of previous visual designs or previous game mechanics.

This is used in many places in Super Mario Odyssey where the game changes between 3D and 2D gameplay as seen in Image 11 where a retro version of Mario in 2D is played on the surface of a 3D object within the 3D gameworld, showing the seamless transition between the two types of gameplay and visuals. In other parts it changes between open world gameplay

[69] In the context of video games, genre refers to both the genre of the story (such as science fiction, horror or western) and the genre of play mechanics (sidescroller, first-person shooter, RPG).

with free camera movement to a railroad shooter[70] type of game with a fixed camera.

These references are a kind of intertextuality; of place, graphic style and/or game mechanics, and as such they need to be understandable as gameplay for a player unfamiliar with this game while at the same time adding another layer of playful enjoyment to the longtime fan of the game series.

In order to avoid slipping into a history of technology, I will concentrate on some aspects that contribute to a better understanding of these two games. Matthew Gladden provides an overview of the development of games in *Phenomenology of the Gameworld*. He usefully divides game graphics into three types that have evolved sequentially, he calls them 1D, 2D, and 3D games.[71] All three types are still used by game designers today, so they do not replace each other, but rather branch out and form a variety of subtypes.

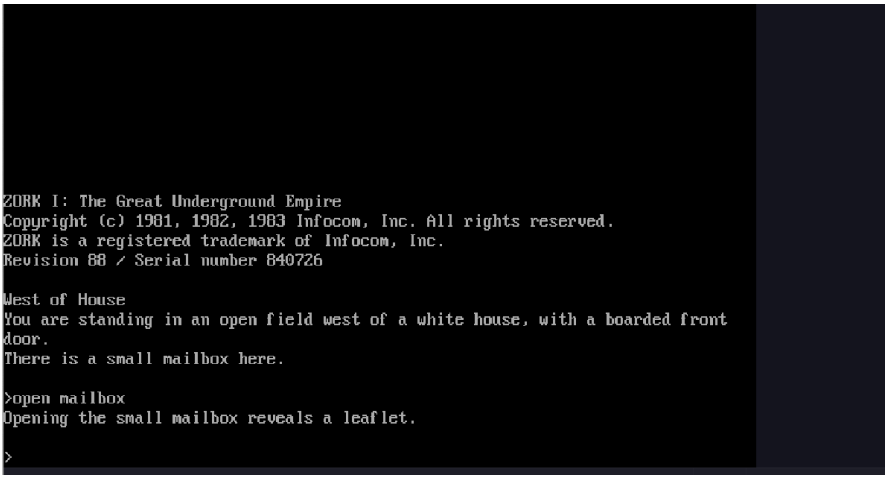



Image 12, *Zork,*[72] a 1D textbased game (played in an online emulator).[73]

[70] This refers to games, or portions of a game, where you as a player don't control the avatar's movement nor the movement of the camera; instead, you are transported along a set route and your objective is to avoid obstacles and hit targets, as if you were traveling by railway.

[71] Gladden, *Phenomenology of the Gameworld*, 111.

[72] Tim Anderson et al., "Zork" (Infocom, 1977).

[73] "Zork I: The Great Underground Empire | Play Game Online!," *Play CLASSIC Games Online* (blog), accessed September 5, 2024, https://playclassic.games/games/adventure-dos-games-online/play-zork-great-underground-empire-online/.

In Gladden's terminology a 1D (one-dimensional) game such as *Zork* in Image 12 is a text-based game in which the continuous line of text is what is one-dimensional in it.[74] These are the earliest types of games developed for the mainframes of the 1960s and still hold their own today, albeit not as apart of mainstream gaming. Such games may include illustrations, but the gameworld and gameplay take place within the text and the choices we make there.


Image 13, *Super Mario Bros*[75] a 2D sidescrolling game from 1985 (played on Nintendo's emulator on the Switch console).

A 2D game has two dimensions, up/down and left/right. The space of the game is the space of the screen. Gameplay may move up/down or left/right but not go into the gameworld away from the surface. Gladden further divides this into two common perspectives used in 2D games: either a God perspective, where we view the gameworld from above like a map (Image 14), or a side perspective as in Image 13, which can show a landscape with depicted depth, but movement within the gameworld is only possible in the foreground plane near the screen surface and only in two dimensions. The depicted depth in Image 13 is minimal, consisting only of the overlap of the characters in the foreground in relation to the greenery of the landscape. This minimal depiction

[74] Gladden, *Phenomenology of the Gameworld*, 114.

[75] Shigeru Miyamoto, "Super Mario Bros" (Nintendo, 1985).

of depth creates some unusual visual solutions, it's not clear what the brown wall-like structure the characters stand on is; a wall, the ground seen from above or a cut-through section of the ground on which they stand? There are many ways to represent movement in a 2D gameworld. The earliest versions of the Zelda and Mario game series are examples of two possibilities.


Image 14, *The Legend of Zelda*[76] 1986, (played on Nintendo's emulator on the Switch console).

The first Zelda game, *The Legend of Zelda* (1986), is played from a God perspective (Image 14), in which we control our avatar through a gameworld one screen at a time. We can only move within each screen, and when we pass one side of the screen, the game pauses and the next screen of the gameworld will be displayed with an animation that displaces the previous screen. The experience of being in this world is that of a coherent world in which we can move around freely, but the visual representation of the world is as if we have to look at it one whole side at a time through our screen, and that side has to be moved completely to the next if we want to move between them.

The first Mario game, *Super Mario Bros* (Image 13), is a side-scrolling game. We can move our avatar left or right, or jump up, but the world scrolls left all the time, so we must keep moving forward, to the right. The gameworld in Super Mario Bros is a long but not especially tall image that moves in front

[76] Shigeru Miyamoto, "The Legend of Zelda" (Nintendo, 1986).

of us on the screen. In both of these older games the mechanism for displaying a small portion of the entire gameworld is conceptually a bit odd when compared to how we usually look at images. In The Legend of Zelda we have to move around a large map and look at it section by section, in Super Mario Bros we have a long moving scroll that doesn't allow us to stop and look at it up close.

One possible hypothesis about these two types of spaces is their similarity to other types of images: the book page and the scroll. Both types are common in Japanese culture, and Nintendo is a Japanese company that often references Japanese culture in their games. Zelda would then represent the book type, where we flip through the image page by page, while Mario is an image on a long scroll, where we study one section at a time, but in one continuous image.

Games that allow us to move around in a rendered 3D world become common in the early 1990s. It is a complex development involving various techniques of 3D modeling, movement, handling of light and color, and different types of interactivity. The games in this book, Breath of the Wild and Super Mario Odyssey, are both part of series of games that have undergone much of this evolution. Breath of the Wild has some elements that reflect this, and Super Mario Odyssey often references its own visual history as discussed in relation to Image 11 at the beginning of this chapter.

Image 15, *Breath of the Wild*, an open 3D world where we can look and go freely.

In Image 15, a scene from Breath of the Wild, we see how a fully developed three-dimensional world creates the effect of an intelligible landscape in which we can walk around.

The step away from 1D and 2D gameworlds and into a more complex 3D representation as seen in Image 15 is also a step away from a clearly presented technicality of the images. The three-dimensional representation adheres to many conventions of art, photography and cinema and we can easily read them as realistic within that context.

What I'm getting at here is that gameworlds are part of a broader culture and offers intertextual connections with gaming history. The development of ways of doing game graphics is a development of the game engine. Unless we are aware of the capabilities of this underlying technology, we don't think of it as such. We simply see it as the way the game works.

The experienced gamer does not only take part in the gameworld at hand but also notes how it references older versions of the game in visual style as well as in gameplay. This intertextuality is complex; a soundtrack may reference an older soundtrack but switch it up from bleepy 8-bit sounds to a full pre-recorded orchestration. A 2D platform jumping section may be a reference back to earlier days of Mario games and their low-resolution graphics with visible large pixels but can also become complicated by wrapping around a 3D building in the full 3D world as seen in Image 11. This creates complexity and gives the gameworld its own kind of historical depth.


Image 16, a page of the inventory screens in Breath of the Wild.

This complexity is also enriched by the blending of different visual paradigms. The visual content of the game can be presented like a book in which we turn from one page to another, or like a scroll that continuously unwinds from one view to another, or like a landscape presented in full Renaissance perspective, and yet these different visual paradigms can easily coexist within the gameworld. One way we achieve this is by constantly changing perspective; an inventory screen in Breath of the Wild (see Image 16) looks and reads like a book and is available to us via a dedicated button on the controller. In this mode, our screen is an object in our lived world and we manage something in the context of a game on a console, but when we press another button and go back to the gameworld, to Hyrule, we project ourselves into the image and experience ourselves as being in the game.

This change of viewer position is so fluid and so common in games that it must be pointed out. One moment we are a young Link strolling through a landscape, and with the press of a button we are sitting in our living room, browsing through the inventory and maps. Another press of a button and we're back out in the world of Hyrule. This shows that playing is a very active form of perception. Not only do we do something within the gameworld, but we also make intertextual references and switch between different modes of perception.

This complexity is everywhere in the experience of gameworlds. When we look at a game, we have to remember that it is a complex piece of software that is in constant dialog with us, creating what we see on the screen and responding to our input. It uses 3D models, topographical maps, visuals, sound, music and game rules to create an interactive image, the gameworld we can play. This image is not drawn, but calculated taking into account the player's point of view, the position of their avatar, the model of the environment and a large number of possible variables that could influence the image (Have trees been cut down? Are the enemies moving? What clothes is the avatar wearing?) Rendering also needs to take into account the light sources in the scene (do they vary with the time of day in the game? Are there lights that can be switched on or off?) and their effects on the visible objects.

The number of variables for each view of the gameworld is large, and this view must be updated and thus recalculated 30-60 times per second to produce a fluid animation. The result is an interactive image that we see as a landscape created by reproducing a lot of earlier image-making techniques within a new medium. It has been suggested that a lot of so-called new media is remediation of older media techniques, and it is an enticing idea.[77] However, as we shall

[77] Bolter and Grusin, *Remediation*.

see in the next chapter the remediation that takes place within game building is a reuse of some fundamental building blocks of image-making, not wholesale remediation of old material.

The gameworld we experience is complex from a technical point of view; it is the result of advances in computer technology. But it is also complex in its connections to the surrounding visual paradigms and an image that is perceptually complex to us when we view it. To see the gameworld, we must engage with it and allow ourselves to be engulfed by it. We cannot avoid entering into a dialog with it. The many layers of experience and understanding of this gameworld demands our full attention if we are to understand it and actually play in it and arrive at some kind of outcome of this play. The intertextual, visual and technical complexities of a gameworld are so great that I suspect we need to immerse ourselves in it to understand what we are seeing.

# Perspective

A specific set of complexities has to do with the three-dimensionality of a gameworld. A gameworld as I describe it here, is, among other things, a two-dimensional representation of a three-dimensional world on a screen. In this respect, the representation is similar to perspective drawing and photography. But unlike these, a gameworld allows a changing perspective through an eye that is moved by the player and is not placed in a specific location by a painter or photographer.

Martin Kemp begins his book, *The Science of Art*, by saying, "*Linear perspective is a beguilingly simple means for the construction of an effective space in painting".*[78] And then goes on for 300 pages to discuss the complexities of inventing this simple technique and to show how the mathematical and scientific descriptions of space evolve hand-in-hand with the artistic use of space in the visual arts. The use of three-dimensional space in gameworlds is part of this techno-visual history.

When constructing a gameworld, the designer no longer skillfully constructs space on paper with a compass and ruler but rather reimagines a particular viewpoint some thirty to sixty times per second in order to generate a smooth, coherent world through which the viewer can move. The means have not changed, but the speed of drawing has, thanks to computers. The goal is still to construct an effective space.

For the sake of accuracy, we must think of this "effective space" as an "effective two-dimensional representation of a three-dimensional space." It is effective in several ways. The different methods of producing a perspective drawing, as described by Kemp, are effective in that they are repeatable methods.[79]

Perspective drawing also produces effects. It is a style that requires the superimposition and scaling of objects in the depicted space, which in turn create a division into foreground, middle ground and background that must be incorporated into the picture. That which is most important and must be clearly visible is taken into account when drawing the image and is therefore usually located in the fore- or middle ground.

Another effect produced is that of the observer. The production of a coherent three-dimensional perspective drawing is also a drawing with a single and

[78] Kemp, *The Science of Art*, 7.

[79] Repeatability is of crucial importance. This means that every possible space on a flat surface can be reproduced by anyone who follows the rules of perspective drawing, regardless of whether a draftsman or a computer carries out the drawing.

clearly defined point of view. This point of view places us in a constructed relationship to the content of the image; we can be made to look at it from above or below, for example. In this way, the image ascribes us a bodily position in relation to its content.

Taken together, these effects form the basis for a broad genre of images that produce a coherent representation of a three-dimensional world with a meaningful sense of depth and an easily understood relationship between the viewer and the image. It should be noted that the art that uses these geometrically constructed three-dimensional spaces is a rather small part of all art. Once we leave Western Europe, or the last 500 years of art, other ways of organizing pictorial space are the norm. [80]

This effective space in painting connects us as viewers with the depicted space and allows us to let our thoughts wander into the world depicted before us. It is a style of art that invites us to place ourselves in the painting, to follow roads in the landscape or to enter buildings, an effect that Gombrich described as us projecting ourselves into the image.[81] This leisurely daydreaming in front of a painting is, of course, not the sole intention of art that uses perspective drawings as a basis, but it is an effect that is present. Some artists, such as Lorrain or Piranesi, seem to take pleasure in creating these worlds that draw the viewer in. Others, like Poussin or David, seem to try to avoid this as much as possible and focus our gaze on the surface of the painting and the subject matter depicted there.[82]

The style of painting that creates an effective representation of three-dimensional space on a flat surface dominated Western art from the Renaissance to the beginning of the twentieth century. Photography creates the same kind of images and allows the same viewer to project themselves into the depicted space. In the nineteenth century, painting and photography shared this type of effective representation of space, but with the advent of avant-garde art at the beginning of the twentieth century, the genre of easily comprehensible

---

[80] The history of perspective is long, complicated and intertwined with the history of optics. Its development includes many parts of the ancient world, the Islamic world of the Baghdad Renaissance, and 15th century Italy. See Hans Belting, *Florence and Baghdad: Renaissance Art and Arab Science* (Cambridge, Mass. London: Belknap, 2011).

[81] Gombrich, *Art and Illusion*, 190–91.

[82] These different preferences can also be seen between various game genres. The games I'm writing about here, Breath of the Wild and Super Mario Odyssey, favor the full three-dimensional representation of Lorrain and Piranesi, while side-scrolling games like Super Mario Bros (see Image 13, p. 58) keep everything on the surface and are visually organized in the style of Poussin or David.

representation of space and its associated effects was left to mainstream photography and cinema.

I would like to suggest a way of understanding the connection between the development of technology and the purpose of image-making. From this point of view, art leaves direct representation and enters its own space of reflection on the possibilities of its techniques with the advent of Cubism and Futurism.

It could thus be argued that cinema can be seen as the next logical step in the development of images that invite us to a coherent representation of space. With the advent of moving images, technology adds time to images. Moving images, like painting before them, must create an effective representation of three-dimensional space on the screen; the viewer must be able to understand and participate in the space represented. But here the producer of moving images must also deal with time and its effects. This leads to new visual techniques such as editing and montage. They enable the filmmaker to position us viewers in time, just as a painter or photographer positions us in space. The creator of the images retains control over our experience.

In a gameworld, this control is not as absolute as in drawing, photography and film. As players, we can look in different directions and decide for ourselves how much time we spend on a particular task, at least part of the time. In both Breath of the Wild and Super Mario Odyssey, there are sections where the game controls our point of view and sections where time is controlled by the game, but this is not the norm. To create an effective space gameworlds need to be carefully balanced to determine who is in control: the viewer/player or the artist/developer.

The mathematical construction of an image is at the heart of controlling its perspective. Just as perspective is a calculated point of view and editing is the addition and subtraction of time. We may call these images calculated and conclude that they have been constructed by a creator with specific goals in mind as to what we should see. This calculated image has been a large and important part of Western visual culture from the Renaissance to the present day. It is often referred to as realistic, implying that it is more real than any other kind of image. Strictly speaking, this is not true. An image may be real in many different ways. An indexical image, such as a footprint, is real in a different way, and any image that is seen as an object in the world is real as such. Nonetheless, realism in my first sense, as mimetic representation, and construction have long gone hand in hand.

In his retelling of the development of perspective construction in the 15th century, Martin Kemp shows that the writing of treatises on perspective drawing by artists such as Alberti and Brunelleschi was closely linked to the growing interest in mathematics, and that this interest in mathematics was also

important for other areas of Renaissance society such as trade, economics, and architecture.[83] Technology, mathematics, and art interact in Renaissance culture, and one of the results is a new visual paradigm, that of calculated perspective drawing as part of image-making.

However, perspective drawing is only one part of painting. An artist can use it to create an effective space, as Kemp points out, but not everything in the finished painting can or should be calculated. Any use of perspective space creates a tension between the logic of space and a desired intellectual logic. Therefore, the space must be organized so that the most important objects are placed in specific locations. Other aspects lie outside the realm of a calculated perspective, such as color, texture and light. A painter can design these based on his experience, knowledge and good judgment, and the underlying construction of a coherent space is a good help.

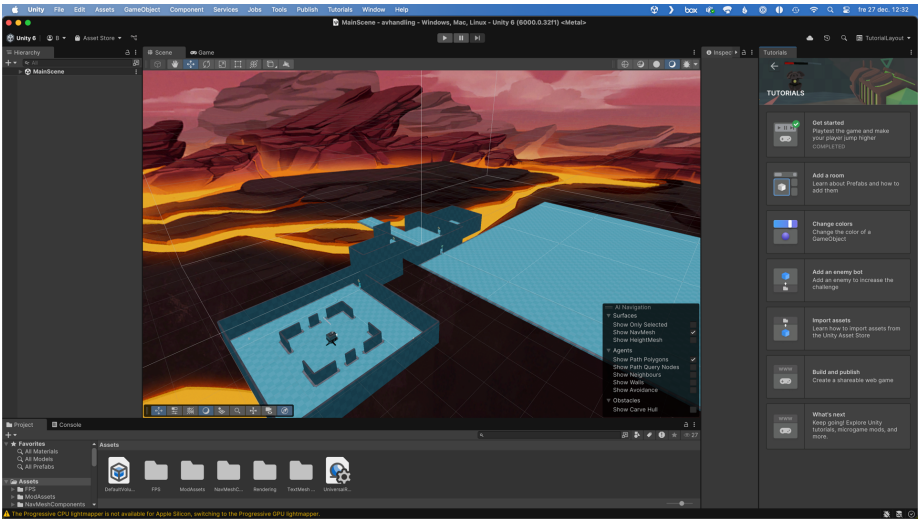



Image 17, a model of some rooms (in blue) in the game-development tool Unity.[84] The volcanic landscape behind it is a flat image, not a threedimensional model.

A computer working on a model of a world and using it to create a visual, moving representation of that world must accomplish everything by calculation, it is not capable of good judgment. The three-dimensional model

[83] Kemp, *The Science of Art*, 14–15.

[84] "Unity Real-Time Development Platform | 3D, 2D, VR & AR Engine," Unity, accessed October 17, 2023, https://unity.com.

that represents the basic shape of a gameworld (as seen in Image 17) is like a sketch of a perspective drawing under the surface of a painting. Color, texture, and light must be described in such a way that a viewpoint can be calculated during rendering of the image. Irregular objects must be modeled using the same methods as any other object. Fortunately, complex methods of three-dimensional modeling, such as Bézier curves,[85] allow the construction of smooth, rounded curves and surfaces.

The technique for creating images of three-dimensional spaces in art and in gameworlds is very similar, they are based on the same methods for calculating the field of view seen from a single point of view. Some problems are also similar, most notably the need to create an image that conveys a specific meaning. While depth composition and object placement solve many of these problems in the production of a static image, they are not as useful in a gameworld because there is no static point of view. Color and light in art are left to the eye and judgment of the painter; in a game, they must be calculated for each specific situation. Yet they cannot simply be left to mere rules, as light and color affect the player's experience. The solution is to control the set of rules that determine how light and color work in the game.

From the player's perspective, we should not have to concern ourselves with the production of perspective, color and light. They should form a coherent whole before our eyes. But no gameworld is without flaws. Technical problems become visible from time to time. The gameworld around us is a topographical model in which objects (grass, trees, castles, etc.) are placed. In Breath of the Wild, we move a lot on this model and this shows us some of these problems.

The gameworld gets its specific version of how to create an effective, coherent space defined by the need to calculate everything we see and leave the placement of the viewpoint to the player. This creates a particular kind of visuality in gameworlds.

In Breath of the Wild, the world is large and open, but only a small part of it is visible at any given time. The landscape with its hills and valleys contributes to this, as do the perspectives created by the gradations of color and detail. At greater distances, the landscape becomes bluish-gray and less distinguishable, and the amount of detail we can see also decreases, as can be seen in Image 15. This mimics familiar effects that are present in human

[85] A Bézier curve is a mathematical tool used in computer graphics to create smooth and scalable shapes. It allows designers to define a curve using just a few control points, with the curve adapting smoothly between them.

perception: levels of color and detail contribute to how we see depth.[86] In the real world these are limited by our eyes and the clarity of the air, but in games the limits are set by the capacity of the computer/console. There is a limit to the number of objects and the level of detail that can be calculated and displayed. The Nintendo Switch is not a graphical powerhouse, so games played on it have to be able to handle these limits.

In Breath of the Wild, the level of detail decreases quickly when we look at an open area of the game, and as we move around, some objects will clip in, meaning they appear out of nowhere as we get closer. Clipping is an effect caused by the limited graphics performance of the console. When there are a lot of objects on the screen, the more distant objects are only rendered when necessary. The camera in Breath of the Wild offers us a special version of perception, caused by the technical limitations of the console, but designed by the developers. Not only is the landscape designed here, but also our perception of it. We move around the landscape in a small bubble with a clear view, surrounded by a larger bubble with a not very detailed view. The world is an image with layers that form as we move around in it. What we see is also connected to what we hear. The soundscape of the game is created by sounds and music that are connected to objects and places. These sounds are placed in a three-dimensional soundscape and mixed and filtered along the way to fit the environment, something I'll get back to in the chapter on *Sound and music* (p. 82).

[86] Carolyn M. Bloomer, *Principles of Visual Perception*, 2nd ed. (New York, NY: Design Press, 1990), 125–29.

Image 18, Link looks out at Hyrule through a cave opening.

This problem is not as pronounced in Super Mario Odyssey because the environments are smaller and the objects in them are simpler. This is because the gameworld is constructed in a different way.

In both games, we often enter buildings and rooms. These rooms are often larger on the inside than on the outside. This is visually useful; we can get a good view of the outside of a building when it's smaller, but we need space to move around and do things once we are inside. The organization of space is guided by visual logic, not geometry.

What we perceive as the interior of a building is actually not the inside of the model of said building as seen in the gameworld, but another structure hidden somewhere in the game. This must therefore be taken into account when designing doors. If we look at Image 18 we are standing in a dark cave looking out over a sunny landscape and here the door is what we expect a door to be; an opening in the wall that leads outside. This is not the norm in these two games. Instead the situation in Image 19 is more usual; here we cannot see through the opening because the model is not there. We do not go through a door like in real life, but the door teleports us to another game map. This is what we see in Super Mario Odyssey and Image 19: the opening we can enter is full of white light, and we can not see anything of what's behind it until we are all the way inside.


Image 19, *Super Mario Odyssey's* doors, we'll never see whats inside until we have passed through to another part of the gameworld.

There is an interesting problem in creating realism in images. This problem arises from the need to adhere to the rules of realism, such as perspective or light, while at the same time creating an image that conveys a story. In a static image, both can come together through a skillful use of composition, but in a gameworld without a static point of view, this must be done differently, through a skillful use of perspective construction. This in turn is complicated by many different technical limitations. As players, we should not have to understand these complications, but we do have to accept some of the resulting conventions, such as buildings that are smaller on the outside than on the inside, as well as other design decisions made to create effective spaces.

The small exterior of a shrine that we see in Image 20 makes the building understandable in its place in the landscape and functions like a sign that says, look, there's a shrine here and you should go inside. If it was the same size on the outside as it is on the inside, it would be presented as something very important in the landscape (there are a few such structures in Breath of the Wild) rather than the small side quest that it is. But inside, there's a game within the game, a puzzle to solve, and it takes up a lot of space as you can see in Image 21. So, both the exterior and interior spaces of the shrine make sense in terms of the narrative, even if the geometry has to become magical.

Image 20, a shrine in Breath of the Wild seen from the outside.

Image 21, the same shrine seen from the inside.

# Generating an environment

What we see in a game was designed and created by one or more people. Although modern games have visual features that resemble photographs, they are all drawn by hand, albeit with the help of computers. The process has some similarities to drawing as practiced in conventional realist art, but there are also differences.

One way to understand this is to think of these images as dependent on technological developments. Perspective drawing is closely linked to mathematics, photography has developed along the lines of chemistry. And games are linked to the development of computers and computer graphics. The technological basis of these different ways of creating images has its advantages and disadvantages, and the constant evolution of technologies changes the visual environments we encounter.

A landscape painting is a representation of a landscape from a single point of view. A landscape in a gameworld is a model of a landscape that allows for a moving viewpoint and interaction. The interactive part is specific to games and makes them a special kind of images. A convention has developed to use the joysticks of a controller in such a way that the right joystick controls the camera and the left joystick controls the avatar. This results in a very game-specific image where the eye/camera and body/avatar are only half-coupled, allowing our eye to float smoothly and effortlessly through the environment.

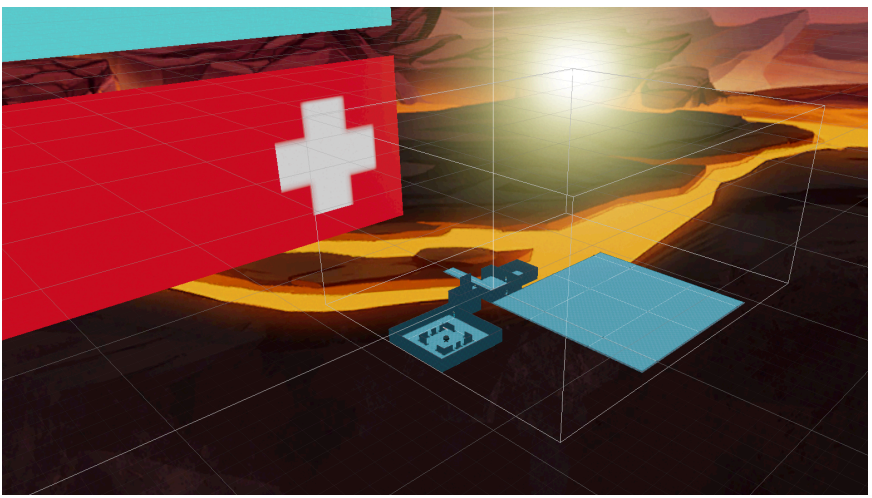


Image 22, a screenshot from the unity game development software showing the box, a grid and the lightsource. The blue structures inside the box is the gamespace.

When you construct a gameworld, you start with a box that forms the outer boundaries of that part of the game, as we can see in Image 22. If we imagine a game that takes place in a house, each of the rooms could be such a box. Outside the box there is nothing, just empty space.[87] If we want windows and doors, they are represented as pictures on the inside walls of said box, and if we try to look out through the window, there is no satisfactory illusion of space, just a flat image. Nor can we see through doors, as we saw in Image 19. Instead they are a picture of a door with a script associated with it that moves us from one box to the next. But we are not actually moving. We, as players of the game, are the one constant here. What happens is that the game changes what we see. It replaces one box with another, and it usually covers this up with some kind of transition effect, such as a black- or white-out.

This is not a particularly good illusion, but it is one that is easy to create and that doesn't require a lot of computing power. If we want a slightly better illusion we need to put all the boxes that makes up the house into a larger box that contains the house and a garden around it. This is what we see in Image 22, that there is more world outside of the box. This way we can see the garden through the windows, which would be actual openings in the boxes, and we get a better representation of the garden with depth and parallax movement, and we could see and move through doors and into another room seamlessly, as discussed in connection to Image 18.

The outermost level would also be a box with visible boundaries, but if we make the garden densely overgrown, we cannot get close enough to the walls of the world-box to see this clearly. The bottom of the box can be manipulated as a topographical model with rifts, hills and mountains. The remaining five sides of the box form the skybox, which is the edge of the gameworld covered in images depicting the kind of sky we want in this world. The skybox is the furthest background in the image and normally the player should never get too close to it, as this would destroy the illusion of a world without end.

The world is constructed as such a box, filled with of other modeled objects. Everything in a 3D game is a model: trees, houses, weapons, people are all models that can be used and reused with or without modification in many places in the game. These models, as well as the ground, are all drawn and defined within a Cartesian three-dimensional space. They consist of polygons[88]

[87] This space is visible in game development, and sometimes in glitches in the game. It is of course not strictly "empty" but a monochrome color, usually grey or black. In Image 22 this empty space is instead filled with a backdrop, an image of a volcanic landscape that will be visible through windows in the blue model.

[88] A polygon is a closed surface with three or more sides.

that can be described mathematically within this space. A fast computer with a good graphics card can display more polygons, a slower computer fewer. The number of polygons that can be displayed affects the level of detail of the visible gameworld as well as the depth of the field of view.

The next step in creating the image is rendering, which is calculating the path that light travels from our point of view (our eye) to the light source via reflections and/or transparent objects, once for each pixel on the screen. On a normal HD screen,[89] there are about two million pixels, and as mentioned earlier these calculations have to be performed thirty to sixty times per second. That's a lot of perspective drawing done so quickly and in such detail that we are rarely aware of it.

The games I write about in this book are both played on the Nintendo Switch, which is less powerful than other modern gaming consoles. This is evident in Breath of the Wild, where the landscape often fades into a bluish, less detailed version quite near the player, and in the simplified geometric style of Super Mario Odyssey. An irregular shape with a more natural look like the landscape in Breath of the Wild requires more polygons than a simple object with a cartoonish look.

Here the skybox is not visible; we can see how the sun changes its position, how the clouds move, how day turns into night, all these are phenomena that we know from nature. We know that the sky, day or night, is a picture on the walls of a big box, that the sun is an animation, and that the day and night effect is due to the placement of lights and colors in the gameworld, but it still looks like a realistic picture. This realism effect works whenever the visual style of the gameworld resembles other image styles that are considered realistic, such as realistic paintings and photographs.

Super Mario Odyssey does the opposite and shows off the artificiality of the gameworld. The horizon is covered with more or less obvious images, such as distant mountains or the silhouette of a city at night, and between these images and the part of the world we interact with are barriers, endless chasms or walls. The effect of playing inside a small world-box is right in our face, emphasizing the toy-like style of the gameworld of Super Mario Odyssey.

[89] Normal, or Full HD has a resolution of 1920x1080 pixels. Despite its name it is an aging technology often replaced by higher resolutions such as 4K/Quad HD or 8K/UHD today.

Image 23, The texture of the cliff-face becomes obvious when we see it up close, and Link is visibly a polygon based model, not touching the surface.

Every model has properties and one or more textures, in the context of 3D modeling these terms have specific meanings. A property says something about how the object should behave in the gameworld and what rules apply to it. Properties are needed for game programming and are often not directly visible but may include visual properties such as size and visibility.[90]

In art, too, objects have properties, but there they are determined by the artist, so that one part of a sculpture should be seen as flesh and another as cloth, although in reality both are made of marble. In art, the appearance must be there, but in a gameworld, the appearance must also be supplemented by a description of the object's properties. The final result is still an image and has nothing to do with reality, but when creating this image, the elements must be described as if they were the real thing.

A texture is an image that covers the surface of the object. Image 23 is captured close up and at an angle that lets us see the texture, that is the image of a grayish surface, covering the surface of the cliff model. Normally it would not be as visible as it is here. Most objects have multiple textures that give the surface properties such as color, pattern and bumps. If it's done well we can

[90] A property of "no collision" would mean that other objects can pass through it (e.g. water), or a property could say how light should reflect of the objects surface making it more or less shiny.

see stone or a tree trunk but sometimes the textures become visible when we get up close to them. Some things in the gameworld, such as spraying water, fire, and clouds, cannot be created by a model covered with a texture, but instead use particle effects that allow you to create predictable blurred objects without sharp boundaries.[91]

Rules must be defined for each gameworld and all the objects in it, e.g. collision detection so that we cannot walk through walls, and ways of interacting with objects. In many games, these rules are simple: we can pick up an object in one place and use it in another, but nowhere else. In other games, such as Breath of the Wild, this is developed into a complex physics engine that emulates a version of Newtonian physics in the gameworld. This allows for countless interactions in the game and gives the player the feeling of an open and more real world.

Just like in the real world, we do not see the actual objects in front of us, but the light that these objects reflect and that reaches our eyes. In the game system, the creation of the 2D image on the screen can be done in various ways from the 3D computer model of the world, a process called rendering.

Rendering can be done in many ways and is a complex and computationally intensive process. A detailed description of this process is beyond the scope of this book, but some understanding of the process is perhaps necessary to understand what kind of images we are dealing with.

Rendering involves mimicking the light rays that strike our eyes in the real world by computing how they would traverse the model and its surfaces in the gameworld.[92] Image rendering must be done on the fly, 30 to 60 times per second, to create a believable, moving, non-flickering image.[93] The way a model is rendered also determines the look of the game. Breath of the Wild is rendered to look like an animated movie, with cel-shading that looks a bit like watercolor painting. Super Mario Odyssey has a simpler rendering style that looks more like plastic toys. Many modern games strive for photorealism and therefore place high demands on the console or computer.

When our avatar moves in the game, we determine the direction in which it moves, but the actual body parts that move, such as legs and arms, which are

[91] A particle effect is a group om small 3d models or images that forms a larger object, e.g. raindrops make up rain or sparkles in a fire.

[92] This is a simplified description of ray tracing, a method for rendering three-dimensional images that produces good results. There are more complex methods that produce a much more natural image, albeit with correspondingly higher demands on computing power.

[93] This is the *framerate* and is usually variable, so that the framerate decreases when rendering more complex scenes and increases when rendering simpler scenes.

animated, are programmed. In many games, there are multiple versions of these animations to provide variety and make the movements more lifelike. Some animations are important for gameplay, such as fighting or running in tight places, and therefore need to be controlled with greater precision.

Other characters in a one-person game, NPCs, are controlled by scripts with different lifelike effects. Non-living objects move when they are thrown, hit or similar, and their movement is determined by the physics engine.

Longer animation sequences without player input can be executed in a variety of ways. The game can switch to a pre-rendered piece of video, or the computer can take control of the in-game models and run a preset script. If we are shown a bit of video, we can usually see this because there is some sort of transition in going from gameplay to video. If the cutscene is scripted there is no need for this, we just lose control over our avatar for the scene's duration.

Both Breath of the Wild and Super Mario Odyssey use pre-rendered cinematics, which can be seen in the cuts and crossfades between gameplay and cutscene. However, most of the cutscenes in Breath of the Wild are scripted. We can see this because Link, who may change clothes as we see fit, doesn't change outfit in the cutscenes but instead keeps what we have decided he shall wear and there are no visible cuts between scenes.

My schematic description of the construction of a gameworld hopefully makes it clear that there is a lot of work behind the production of the final result, i.e., the moving images on the computer screen that we see when we play the game. Everything in that image is computed on the fly (except for the cinematic cutscenes).

This is partly the same technique that a painter would use in perspective construction and sketching an image, but with some differences. When constructing a static image with paint on a canvas, a painter may balance the demands of perspective construction against the demands of visual logic. The precise construction of a perspective space also constructs a single vantage point from which the painting can be viewed. However, most paintings are viewed from many angles and need to be slightly less precise in order to give a good illusion of space to all viewers.

The larger the image, the more pronounced this need becomes. Martin Kemps demonstrates this in a brief analysis of the spaces in Leonardo's *Last Supper* (Image 24).[94] When Kemp analyses the space depicted in the painting, it becomes strange. The room in which Christ and the disciples are seated is large, mostly empty and of strange proportions. The hangings on the walls become proportionally larger the further back they are placed (in order to

[94] Kemp, *The Science of Art*, 47–49.

occupy the same space on the surface of the flat painting), there is doubt as to whether there is space enough for the disciples to sit, and the people at the ends of the table have no space at all. Leonardo deals with the logic of the flat image and the people depicted on it to make it visually comprehensible, and to do this some of the rules of perspective have to be broken. Kemp shows that two different ideas about the best use of perspective are at play: an artificial perspective created with rulers on paper, and a natural perspective based on the skill and esthetic judgment of the artist.

The latter is necessary to create images that make sense or tell a story, such as the dramatic groupings and interactions in Leonardo's Last Supper. In art that uses perspective drawing, this conflict between constructions that show how objects are arranged in space from a particular point of view and visual storytelling that requires the artist to change the rules to make sense is resolved by the artist in the composition of the image. It seems to me that storytelling is the more important factor and that adherence to a three-dimensional logic is less important in most cases.

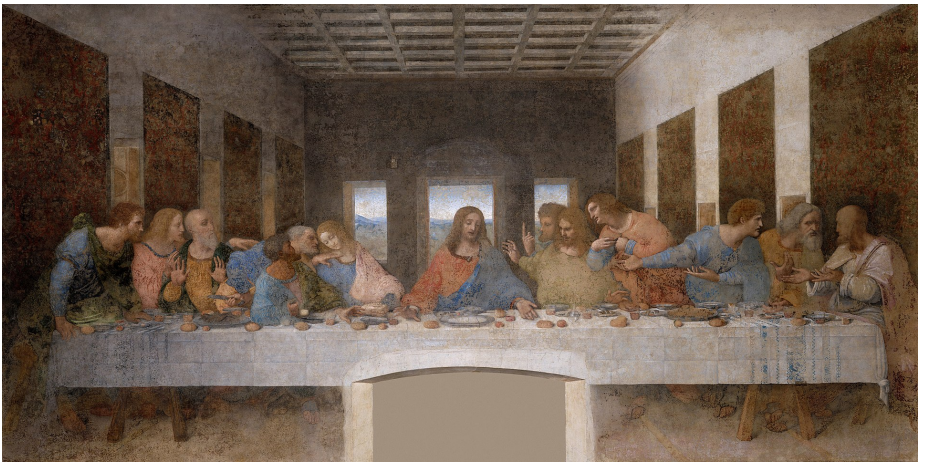


Image 24, Leonardo, *The Last Supper*, 1495-98 (Wikimedia commons).

In gameworlds, there is the same need for visual storytelling. It needs to be clear who is important in the scene, what is happening and where the player should go next, but the game is not a single image but a moving interactive representation of space. As a rule, there is no way to override the construction of an artificial, calculated perspective within the playable parts of the game through the esthetic judgment of a game designer. It is of course possible to do

this with a pre-rendered cutscene. Instead of playing, the player gets to see a piece of highly controlled video, and this is done in games to advance the narrative.

The introduction in Super Mario Odyssey is one such example; another is videos showing flashbacks to events before the start of the game in Breath of the Wild. Cut-scenes are a tried and tested visual technique in game design, but they come with some problems. They break the immersion of the player, who goes from participant to spectator, and most games take this into account by making cutscenes skippable. If something absolutely has to happen in the game's story, but we also need to give the viewer the option to skip it, there's a design problem, or at least something that breaks the immersive flow of the gameworld. But there are also cases where a cutscene within an intense gameplay section can give the player a much-needed break. Ultimately, it's about creating the flow and rhythm of the game.

Breath of the Wild and Super Mario Odyssey represent two different ways of building a gameworld: In Breath of the Wild, we get a large map and a landscape with long views. The game engine creates an area around us where the world is rendered in great detail and with all the audio connected to the place where we are. The further we move, the more the content of this area changes. Visually, Breath of the Wild is soft, a little foggy and offers some great views over hills and valleys, while Super Mario Odyssey is precise, clean and efficiently designed.

Neither of these gameworlds is fully persistent. In a persistent world, every action is preserved. If we move a stone, it stays in its new place when we return a few hours later. Although this is realistic, it can detract from the fun of the game. Sometimes we need to have the stone in the right, original place to solve the puzzle ahead. And both Breath of the Wild and Super Mario Odyssey reset objects that are important to gameplay in a way that makes the world a little strange. In Breath of the Wild, there's a game mechanic called Blood Moon that resets most of the game every 2 hours and 48 minutes. And yet some things are persistent in both games and the world is a balanced mix of realistic persistence and resetting to make the world playable.

The gameworlds of Breath of the Wild and Super Mario Odyssey are generated for us as we look at them. Their style is limited by technology, but depends mainly on audiovisual design decisions. Realism in gameworlds is relative. These two games show that gameplay and atmosphere can play a more important role than photorealism when it comes to producing an immersive experience. The care taken in designing the landscapes in these games ensures that they never feel random or repetitive, and the gameworlds show a high level of design skill. In other games, especially those with large gameworlds, forests

and mountains are randomly generated and quickly become repetitive. In these two games, there is hardly any repetition, and nothing feels random.

As this chapter has hopefully shown, the creation of the environment we encounter in games consists of many decisions made regarding many parts of the game design. It takes a lot of manpower and a lot of time to make sure that all these rules and decisions work together to give us a coherent image of the gameworld on screen. The worlds we see and play in are alive and real to us, even if they are created in an ongoing process by complex software.

# Sound and music

Image 25, Kakariko village at night.

Music and sound design work together in the world building in Breath of the Wild and Super Mario Odyssey. Objects, NPCs and environments are often designed with both visual and audio elements that create their respective characters. Actions are accompanied by sounds that identify them, some realistic, others more playful.

Places, such as the villages in Breath of the Wild and the various kingdoms in Super Mario Odyssey, have their own identifying music. Battles are often accompanied by a special soundtrack that makes them even more urgent, and the acquisition of things is accompanied by fanfares so that we don't miss out on having achieved something. There is diegetic music in some places, but it is not frequent. Instead, there is a mix of sounds and background music that creates an identity for the location or action on screen.

All villages in Breath of the Wild have their own melody with specific instrumentation. If we play the way the game tells us to, the first village we come to is Kakariko (Image 25), where soft flute and string music is played, Which places the village, as well as the architecture and NPCs, in Japanese culture. From there, we are sent to the village of Hateno (Image 26), where the music has a broader instrumentation (synthesizers, strings and marimbas are prominent here). It's a little faster than the music in Kakariko Village, but still

calm, and the designations are a bit more European, somehow evoking a walk in the countryside surrounded by farms and fields. In both cases it's a soundtrack that functions as a part of the world design, working in conjunction with the style of the place and its architecture.

Image 26, Hateno village at night.

In Super Mario Odyssey there is music for each kingdom in the same way as there is music for the villages in Breath of the Wild. It too is specific to the place and helps to emphasize the character of the place. While the music in Breath of the Wild seems original, the music here sounds much more like common movie music tropes: the first kingdom is Bonneton (Image 27),[95] a black and foggy place with Boos[96] in it, and the music is a sort of Halloween soundtrack with strings and a music-box like theme. Fossil Falls has music from an adventure movie, fast drums, strings and horns in a fast-paced, expansive piece of music. In this place we get an opportunity to catch and turn into a Tyrannosaurus Rex. The background music gets louder and turns into a kind of drum solo when we're in this form, giving extra power to the already powerful avatar. The next kingdom is Tostarena (Image 28), with music and

[95] A wordplay on bonnet, everything here is hat shaped.

[96] A ghost-shaped NPC that appears in many Mario games.

images strongly suggesting Mexico and old cowboy movies, and so it continues through the game's progression.

The main use of music in both games is similar and twofold; it either builds the atmosphere of a place or it creates tension and emphasizes speed in combat situations.


Image 27, Bonetton in the Cap Kingdom.


Image 28, Tostarena Town in the Sand Kingdom.

In other ways the two games use music differently. Breath of the Wild is surprisingly quiet in places and uses music sparingly. The landscape of Hyrule is mostly built from natural sounds of the environment and only occasionally a few piano notes, while Super Mario Odyssey is more chaotic and layers music and sounds on top of each other at times, again in keeping with the worldbuilding in both games. The Mario and Zelda games share a common composer, Koji Kondo (b. 1961), who wrote the original music in the 1980s, melodies that most gamers will recognize. He still works as a composer for Nintendo, but was not directly involved in the music for either Breath of the Wild or Super Mario Odyssey. However, his earlier music for the series is referenced in many places in both games, as are some of the stories and visual elements. Overall, Breath of the Wild features a wide variety of music, offering different moods with more subtle changes, while Super Mario Odyssey usually focuses on one main mood per kingdom.

The not-so-long history of game music from the 1980s to today is in large extent a history of technical development.[97] The Zelda and Mario game series have gone through all stages, from very rudimentary game sounds that were programmed, to 8-bit and midi-based music, to today's often orchestrated and pre-recorded game music. For a long time games and game music was limited by storage capacity on the medium used for distributing the games, this is no longer a concern. Both of my examples use pre-recorded music and sounds, but in different ways.

Hypothetically, there are several ways to use sound and music in games. There are the sounds that are part of the illusion of reality: the sounds of fighting, howling wolves, the sound of footsteps on different materials in different rooms. These are all "natural" sounds that are part of the world. A second category is music. There is diegetic music that comes from various sources in the games, NPCs singing, bands playing. Then there is non-diegetic background music, i.e. music and sounds that have no clear source in the gameworld, but have functions such as creating atmospheres, ambience or to stress the player. Music plays the same role in games as soundtracks in film and television. However, there are cases in games where the clear distinction between diegetic and non-diegetic sounds and music is blurred.

A third category are game-specific sounds that contribute to the understanding of the actions in the game. Examples include the fanfares we hear when we acquire something in Breath of the Wild or Super Mario

[97] Karen Collins, "Introduction," in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins, Ashgate Popular and Folk Music Series (Aldershot, England: Ashgate, 2008), 2–6.

Odyssey, specific sounds for different attacks and hits in a battle, and the clanking of certain weapons when Link carries them on his back in Breath of the Wild, alerting us to which weapons he will draw in battle. They also clarify the situation when the visual elements are too fast or too complex to be easily understood.

These three categories create their own specific problems. The sounds in the game, i.e. the natural sounds produced by the environment, must be placed in a soundscape that is coherent with the visual landscape. Soundtracks must work together with the environment and the storyline, similar to soundtracks in movies. Game-specific sounds must be clearly audible and understandable.

Image 29, two wolfs about to attack Link.

A wolf attacking us in Breath of the Wild is a simple example of how this works. If we approach a wolf, it might see us. There are probably a few conditions that need to be met for it to notice us, such as proximity and visibility in the environment. Depending on which conditions are met in the game, the wolf could run away or launch an attack. When it launches an attack, it howls. Howling is part of what the wolf can do, but it only emits this sound when attack conditions are met. The wolf starts its attack animation, circles us as seen in Image 29, and a few more wolves appear as if summoned by the howl. The wolves run around and make noises with their paws. These sounds get louder when they attack, and we draw a weapon. When we do this, some of them make a noise related to the drawing of the weapon, the wolves bark,

and their footsteps continue seemingly at random. Since there are multiple wolves and they all have four paws, the paw sounds do not have to be synchronized with the actual movement, but the sounds of the footsteps move around us in the space of the game, just like the wolves. When we kill a wolf, that is, if we have a weapon equipped and press the Y-button at the right moment, an animation of our attack with a hit sound suitable for the enemy and another for the weapon is played simultaneously and the game rules decide that it is a fatal hit for the wolf, it whimpers, falls down and is replaced in a cloud of smoke (with its own sound effect) by a steak that we can collect by pressing the A-button. For Nintendo, accurately placing sounds in a three-dimensional environment has always been part of building that environment.[98]

The connection between music and gameplay is carefully built into Breath of the Wild; when we fight smaller enemies, like the wolves, the background music is slow to start, and the fight may be over before it happens. An inexperienced player will get a fight with music, but someone that has played the game a lot and is fast in disposing of wolves won't. Music equals fighting here, not seeing an enemy. There are a lot of other fights we can get into while walking through Hyrule, and each of them has its own sequence of sound and action.

Bokoblins, like those in Image 30, are usually found in groups and sometimes in small tree forts. As we approach them, the soft sounds of the game landscape are gradually replaced by non-diegetic music signaling danger and battle, so we hear them before we see them. They use a horn signal, a diegetic sound from an instrument, to initiate a group attack on us unless we take out the horn-blower first. This way we can often sneak up on them and they are not very dangerous enemies except at the beginning of the game when we aren't well armed. The design of this type of enemy conveys, both through their appearance and through the music and sounds associated with them, that they are low-level, easy enemies.

[98] Tim van Geelen, "Realizing Groundbreaking Adaptive Music," in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins, Ashgate Popular and Folk Music Series (Aldershot, England: Ashgate, 2008), 94.

Image 30, a group of Bokoblins in a bad mood.


Image 31, A Guardian about to attack.

Guardians, on the other hand, are powerful enemies. They are highly visible and glow red and blue when they attack as in Image 31, but they have no sound or music until the actual attack. Then we will hear a fast, aggressive piano track mixed with some aggressive synth sounds that emphasizes their strength and aggressiveness and signals when the attack is coming. In the case of the guardians, the soundtrack is part of their attack, even if it is not diegetic. Most of the sounds in its attack are non-diegetic, such as the music, but there are also sounds that are in the gameworld, such as the sounds of it firing laser beams.

It's hard to tell all the sounds apart, but that doesn't detract from the experience of fighting a guardian. It stamps it's six legs up and down in a rhythm that follows the piano music, which is probably not meant to be diegetic. At the same time, it will move around fast and spins around, making his attack look like an aggressive dance routine set to the music.

In a fight like this, there is no clear distinction between what is in the gameworld and what is not. The distinction offered by the binary opposition of diegetic/non-diegetic is one way of making the complicated use of music visible, but as soon as we try to actually apply it to music and sounds in games, it becomes unclear. Diegesis means storytelling and refers to the way a world is built within a story. In a medium where storytelling is the main goal, such as narrative film, the lines are a little easier to draw. Games tell stories, but they are also games in which we play, and only in conjunction with the play element do these attack sounds make sense.


Image 32, Link in a fight with a Hinox.

Other enemies have similar ways of hiding in or occupying the land and soundtrack. The Hinox seen in Image 32 is a giant monster that normally sleeps. We can hear his snoring from a safe distance, so we can sneak up quietly and steal stuff from him. But when he wakes up, he has his own battle soundtrack. We can run away from a fight, and the volume of the battle music will tell us if we got away safely without having to turn around and look. The idea of an enemy signaling their intentions through background music is a way to break the illusion of a realistic world. But it does make for better gameplay.

Aggressive music as part of an aggressive enemy creates emotion and stress in us as players and is a clear signal to switch from an exploratory gameplay where we walk around and look at things to a combative part of the game where we have to win or escape. Juul writes about this shift in Half-Real, for him it signals a shift from fictional world-building to the reality of the game's rules.[99] I, on the other hand, understand this shift to mean that the game disrupts the illusion of a realistic world to instead create a temporary mini-world with clear rules for combat. The game shifts from open-ended exploration to a game with an outcome; we can win, lose or run away. And this shift is signaled by music. In Breath of the Wild, this happens in different ways and includes a varied interplay of scenery and soundscape. Enemies have a look and soundtrack that together give them their character.[100] There is not much repetition, since each enemy uses its music and sound in a different way. We can hear Bokoblins and Hinoxes and use stealth, but if we have awakened a Hinox, it's in full battle mode with stomping feet coming closer accompanied by aggressive music based on drums and trumpets.

Whether the attack music of Guardians and Hinoxes makes us want to fight or run away probably depends on how long we have been playing the game. In any case, the music causes stress and signifies the need for urgent action. My point is that not only do the enemies have individual sounds and soundtracks, but these are also used in different ways. This makes for a varied gaming experience.

In his article *Music in Video Games* Rod Munday points out another effect of music in games, which he calls cognitive immersion.[101] Here, the music acts as a wall of sound that allows our auditory system to focus on the gameplay and ignore other sounds around us. In Breath of the Wild, this is used in two

[99] Juul, *Half-Real*, 1.

[100] There are many different enemies, and variations of them. I will not describe them all, that would be long and somewhat pointless. They differ from each other in looks, sounds and in how they will fight you.

[101] Munday, "Music in Video Games," 56–57.

ways. While we explore and play the game rather casually, it doesn't require all our concentration, hence there is little music, but once a battle start, this effect of cognitive immersion kicks in and we get completely absorbed in the game. This, in turn, makes for a better experience that seamlessly shifts from casual to intense gameplay and back again with the help of good sound design.

But it is not enough to trigger the right sound at the right event in the game. Sounds and music are often played simultaneously, so a controlled mix is required where the most meaningful sound, i.e. the sound that conveys important information to the player, must be heard while the rest is turned down. This is done by ducking, where the loudest sound in the game is set and then the less important parts of the sound are temporarily lowered to emphasize the desired sound. Thus every action requires fast adaptive mixing that reacts to the actions in the gameworld.

Rob Bridget discusses this and other problems with game sound in *Dynamic range: subtlety and silence in video game sound*.[102] In his opinion, the problem lies in the huge number of different sounds; dialog, music, and sound effects that need to be mixed together at every point in the game. And although modern game consoles are good at this, most audio material is heavily compressed to achieve better clarity at the expense of dynamic range.[103] This brings the sound of games closer to the sound of radio and TV than to movie soundtracks. Bridget attributes this to a difference in listening etiquette, his term for the different listening habits of audiences in different situations.[104] He also explains that some games demand more from their listeners because they want to convey a more epic feel, and that there are better sound technologies available for game consoles.[105]

There are audible differences in the way Breath of the Wild and Super Mario Odyssey are mixed. In the latter, a more chaotic layering of music and sounds is used. It's also worth noting that the sounds in Breath of the Wild, but not the background music, also need to be adjusted to the environmental conditions. Sounds travel shorter distances in the rain, rooms have an echo, footsteps sound different on soft, hard, wet or snowy surfaces.

---

[102] Rob Bridgett, "Dynamic Range: Subtlety and Silence in Video Game Sound," in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins, Ashgate Popular and Folk Music Series (Aldershot, England: Ashgate, 2008).

[103] Bridgett, 131.

[104] Bridgett, 129.

[105] Bridget names THX and Dolby as well as 5.1 and 7.1 sound systems.

As players, we hear sounds around us that are correctly placed in a three-dimensional space if we have the right audio equipment. We perceive them as a soundscape. NPCs, on the other hand, do not hear the same way we do, but they react to our proximity and the sounds we make. There are ways to be more stealthy and make less noise as we move, and ways to be louder. We experience NPCs reacting to our proximity as if they can hear us. This is an important gameplay mechanic in Breath of the Wild, but not in Super Mario Odyssey.

While we hear sounds placed in a three-dimensional environment in Super Mario Odyssey, the NPCs react to seeing us, not hearing us. Thus, there are not many opportunities to sneak around. This contributes to the different characters of the two games; Breath of the Wild is layered and complex, Super Mario Odyssey is playful and loud.

Background music in games raises a few other technical issues that need to be addressed. As Tim van Geelen points out, a soundtrack in a game often needs to function like the soundtrack in a movie; it should enhance the atmosphere and respond to what is happening in the game.[106] In movies, this is difficult because the soundtrack must be precisely timed. In games, it's even more difficult because there is no stable time track of events to work with. Instead, adaptive music is needed. The music needs to adapt to what's happening in the game and it needs to change enough when nothing new is happening so that it does not repeat itself.[107]

Adaptive music is not specific to games. In his essay on *Theoretic approaches to composing dynamic music for Video Games,* Jesper Kaae sees similar structural problems in a variety of musical examples, from Mozart (*Musikalisches Würfelspiel*, 1792, in parts played according to the results of a dice roll) to music for movies and games via Stockhausen and musical minimalism.[108]

The problem concerns the need for two different kinds of changeability in dynamic music: variability and adaptability.[109] Music in games needs to be constantly varied because we can recognize repetition easily and it needs to

[106] van Geelen, "Realizing Groundbreaking Adaptive Music."

[107] van Geelen, 95, 100.

[108] Jesper Kaae, "Theoretical Approaches to Composing Dynamic Music for Video Games," in *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, ed. Karen Collins, Ashgate Popular and Folk Music Series (Aldershot, England: Ashgate, 2008).

[109] Kaae, 83.

adapt to an unpredictable path of actions by the player.[110] Kaae gives a theoretical overview of possible ways to compose variable music, while van Geelen describes some more concrete approaches in the context of game music.[111]

By comparing this with the audio engine documentation for videogame engines, it is possible to describe a common method for solving the problems of variability and adaptability.[112]

Game music is composed of smaller building blocks, a short phrase or just a bar of music, as needed. Sometimes larger pieces of music are assembled from these small parts for specific situations. Using smaller pre-recorded pieces of music means that the musical elements can be more easily reused in the game and it saves space and memory. The choice of musical pieces to play at a particular moment may be triggered by something in the game; a typical example is how the music in a fight change when the player's health drops below a certain level. As described earlier in this chapter location and proximity are other typical triggers.

The effect is similar to that of a soundtrack in a movie, but some things cannot be achieved, such as matching hits in a fight to the beat of the music. In Breath of the Wild this is compensated for by the creative use of images that don't show the moment of impact, but flashes of light or similar effects with a generous use of sound effects in addition to the soundtrack. In Super Mario Odyssey, fights and jumps don't match the beat of the music, but they have their own sound effects and a similar tempo to the music, so all parts have a similar rhythm and feel. The NPCs seem to move with the music, creating a choreographed effect, almost like a musical where everyone dances to music of unclear origin. It's not a strong effect, but it adds to the playful and chaotic atmosphere of Super Mario Odyssey.

It is also possible to vary the building blocks of the game's music using a technique that van Geelen calls parallel composing.[113] Here the music consists of multiple tracks with the same tempo and key, but with different emotional content, allowing for adaptive mixing between tracks. As far as I can tell from the tutorials and documentation for the *FMOD audio engine*, both mixing

[110] This is also described by van Geelen in van Geelen, "Realizing Groundbreaking Adaptive Music," 100.

[111] Kaae, "Theoretical Approaches to Composing Dynamic Music for Video Games," 86–90. van Geelen, "Realizing Groundbreaking Adaptive Music," 96.

[112] "Learn FMOD," accessed October 23, 2023, https://www.fmod.com/learn#documentation.

[113] van Geelen, "Realizing Groundbreaking Adaptive Music," 97.

parallel tracks and rearranging music blocks are common practices in creating game music.[114]

Game music relies on expressive shortcuts. Above, I described some of the background music in Super Mario Odyssey and how it depends on what we have heard previously in typical music from genre movies. A similar effect can be observed with certain elements in music in general. Van Geelen describes them in semiotic terms as pieces from which emotions can be built. Some of his examples are *"aggressively played strings"* meaning *"danger, anger, energy"* and *"heavy, low percussion*" meaning *"danger, strong, big"*.[115]

The soundscape of a game is an intricate machine that makes up a large part of the gaming experience. Sounds and sound effects tell us something about the place we are in. Sounds are placed in the gameworld and enhance the experience of a three-dimensional landscape. Music is associated with certain places and moments and thus becomes part of the evolution of the experience. Its adaptability is also helpful. It is both recognizable and varied enough that we still want to hear it after many, many hours of play. Nevertheless, some of the authors I have quoted in this chapter - van Geelen, Kaae and Bridgett - see great possibilities for developing game music much further. I will leave such speculation to them and focus instead on the phenomenon of immersion in games, an effect that often relies heavily on the use of music, images and gameplay in close conjunction.

It's easy to think about sounds and music in games on the one hand and the visual aspects of the gameworld on the other. But in games they are closely connected. Landscapes and locations have their sounds and music that are an integral part of how we experience them. Game elements, such as combat, have their own sounds. Within the gameworld, sounds and noises work together throughout the game.

[114] "FMOD - FMOD Studio Concepts," accessed October 23, 2023, https://www.fmod.com/docs/2.02/studio/fmod-studio-concepts.html.

[115] van Geelen, "Realizing Groundbreaking Adaptive Music," 100.

# Elements of a gameworld

As we have seen, a gameworld is constructed as a three-dimensional modeled space in which various objects, sounds and actions are placed to create an effective space that tells a story and prompts us to act. Several disciplines come together here: Perspective drawing, composing images in two- and three-dimensional space, programming actions and rules, music and sound production and cinematic editing are the building blocks of the worlds we experience in the games. However, our experience of the world is not an amalgamation of these different construction techniques, but the experience of a coherent world. We may become aware of the different parts of the game engine when they do not work, but in general we experience a place where we can do things.

In Breath of the Wild, the gameworld is a huge landscape called Hyrule, which contains several districts with different features, such as a lake area, a desert and mountain regions. In Super Mario Odyssey, the gameworld is divided into many small parts, kingdoms, which are separated by clear borders and spread throughout the world. We travel between them and finally to the moon. But here too we encounter specific landscape types based on lakes, deserts, mountains and more. Although the landscape types are similar, they differ visually between the two games. They share elements of landscape design, but not character.

These landscapes are full of roads but also allow for free exploration. The roads lead us from one place to another; these can be buildings, ruins or villages, all of which contain game events. We can do or see something there, which is part of the gameplay.

A game landscape is not only a landscape that we traverse, but also a game container that is divided into different locations where we can set a certain part of the game in motion. These parts are events such as puzzles, mazes or battles that make sense in a well-designed game in the place where they take place. Gameplay and landscape need to work so that we as players can understand them as a coherent gameworld.

The connections between gameworlds, landscapes, locations and parts are complex and vary from game to game. But there are parts of the gameworld and relationships between them that are constant. Gladden proposes a schematic model of a typical gameworld that seems useful for understanding the relationships between the elements of a generalized gameworld.

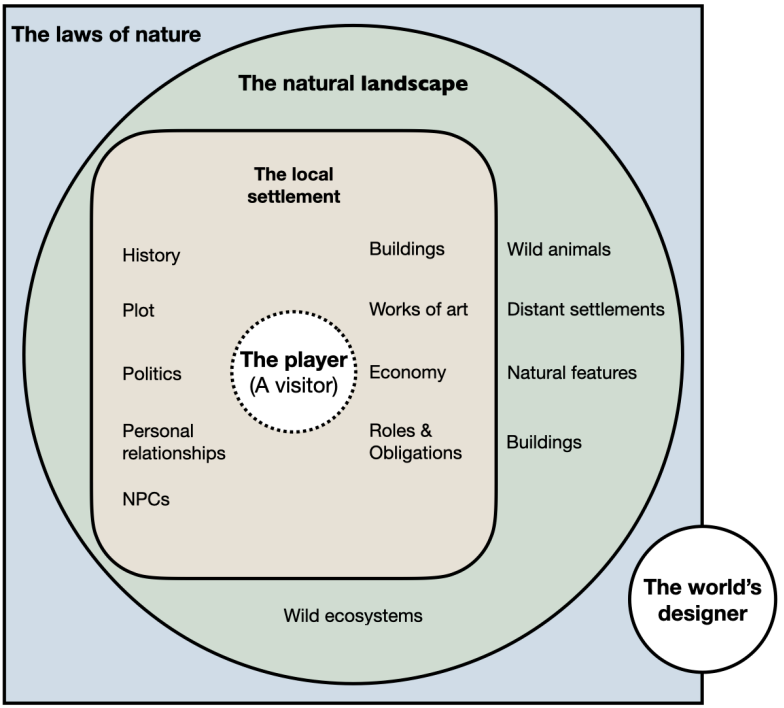



Image 33, Necessary and optional elements of a gameworld, after Gladden.[116]

This model, Image 33, can be understood in two opposite directions: The game developer works from the outside and inward, and the player experiences the game as its center and looks outward. It should not be understood as a model of all parts of a gameworld as it is constructed, but rather as a model of the basic building blocks of world building that create the game experience. Gladden divides these elements into necessary and optional. Necessary elements include built-up areas and/or landscapes, a designer, laws of nature, and the player.[117] Optional elements include other players, inhabitants, personal relationships, social roles, works of art, a cosmogony, an unfolding plot, and lands not encountered.[118]

[116] Gladden, *Phenomenology of the Gameworld*, 222.

[117] Gladden, 209.

[118] Gladden, 217.

In this way, the settlements and their surrounding landscape are the interface of the game. As players, we learn the game by exploring a place. We understand how the economy of a particular village works, and we learn about the history of the place. As we move on, we learn about the variations in other villages and how the nature around them works. We add more and more pieces to our understanding of the gameworld by walking around in it. And by walking around, we mean looking at a screen with a controller in our hand and loud sound. It's as if we can't really understand all these parts without making a world out of them that makes them comprehensible.

Both Breath of the Wild and Super Mario Odyssey are set in a landscape that includes built-up areas, *the natural landscape* and *the local settlement* in Image 33 respectively.[119] In Breath of the Wild, the buildings serve to entice the player to explore the land surrounding them. In Super Mario Odyssey, the built-up parts are mostly part of the platforms that form the core of the game's mechanics. The same elements and the same relationships between them are present in both games, albeit in different proportions. They create a sense of place and atmosphere within the gameworld, while also being part of the gameplay.

Whatever happens in this world must be governed by some kind of natural laws within the gameworld that determine actions and consequences.[120] This is the outermost layer of Image 33, which represents the rules of the game and the physics engine. Most of this layer is only indirectly visible, through the effects it has on objects in the layers within.

For example, there must be rules about what objects can be thrown or hit and what happens when they are. Rules determine where they land, and rules determine how much force is required to break an object.

In Super Mario Odyssey, these laws are simple: Mario can jump this many pixels if we press this button in this way. The box will break if these buttons are pressed in this way and causes Mario to do this in the game. These are simple, consistent rules that apply to every single action.

In Breath of the Wild, this system is much more complex. The laws of nature are implemented as a physics engine where things react to force, tilt, inertia, gravity, wind direction and so on. Some things burn, some materials are conductive to electricity. The player can use all these elements simultaneously, and various rules interact to determine the outcome of their action. This is a fundamental design decision. A physics engine allows the player to do things

[119] Gladden, 209.

[120] Gladden, 214.

that are unpredictable and allows play styles that no one has planned beforehand.

In both cases, the decision about the laws of nature in the gameworld is an essential part of the development of the game mechanics. Super Mario Odyssey focuses on precise jumping and running through a complex maze. The laws of nature in the game must therefore be simple and tightly controlled by the designer. Breath of the Wild, on the other hand, is open to exploration and the player experiences a great deal of freedom thanks to the physics engine, which makes different solutions to a task possible.

In a gameworld there are two necessary actors: the player who visits the gameworld and the designer who built it. The player, at the center of Image 33, is a visitor who is physically outside the game, but who puts himself in the game with the help of a camera and an avatar.[121] The game may only exists as code on a memory card, but the gameworld comes into being when it is played by us and then it unfolds around us.

As players, we are immersed in the gameworld and yet we are aware of our real-world surroundings. The designer, on the other hand, has left the game, but can leave traces in the game. Sometimes these refer to events outside the gameworld, or they are constructed as greetings from the developers to the attentive player.

Usually, these *easter eggs* are hidden or obscured in some way. In Breath of the Wild, for example, there is both a character and a location that serves as a memorial to CEO and designer Satoru Iwata, who died in 2015 during the game's development.[122] The player is lead to it by a light that is visible on some nights in one region of the game, and to get the reference you need to know who Saturo Iwata was.

Easter eggs are the most game breaking traces of the developers. Most of what we see from them is in the details, rules, models, quirks and visuals of the gameworld; all the things that make it a landscape with character.

These four necessary elements, usually along with some optional elements, are the basic building blocks of a gameworld. There must be an area in which to play, some sort of natural law, a player in the gameworld and a designer who sets the rules of the game.

Then there are all sorts of optional elements, such as visitors, a home for us as we play, foreign lands, social structures and plots that shape the experience

---

[121] Gladden, 216.

[122] Christopher Gates, "Former Nintendo CEO Memorialized In The Legend Of Zelda: Breath Of The Wild," SVG, March 13, 2017, https://www.svg.com/48672/former-nintendo-ceo-memorialized-legend-zelda-breath-wild/.

and make it feel like we are in a world rather than on a game board. It's a bit tautological to say that a gameworld is both game and world at the same time, but that's what makes it special. A gameworld tells several different stories at once; we explore, we follow a narrative, we learn to navigate a land, and we play to win all at the same time. We do not have to search for these different objectives, they take place simultaneously. When we are placed in a well-crafted gameworld with all the necessary and some or optional elements we are experiencing a world, not just a game environment.[123] According to Gladden we as players can concretize a gameworld when these elements are present even if the visual presentation is simple. But the opposite is also true, even in a realistically modeled gameworld we need to engage our imagination to make it into a world we want to inhabit.

[123] Gladden, *Phenomenology of the Gameworld*, 221.

# Ways of playing

The two games I'm playing and writing about here, Breath of the Wild and Super Mario Odyssey, have the same goal. There's a princess in a castle far away and we're supposed to help her. As for the story, it's pretty weak and it's not that kind of storytelling that makes the games interesting; it's all about the way towards the goal and building an explorable, interesting world around it. Storytelling is often secondary to the gameplay element and immersion in a gameworld.

There are many ways to play games, and players want different experiences. One way to recognize this is to look at the different estimated playtimes for different goals in the game. A quick Google search for "*how many hours of gameplay in ...*" will yield a lot of articles suggesting similar estimates.[124]

This is often referred to as *estimated playing time*. This is the time it would take us to complete the main story, without focusing on speed, but rather on the enjoyment we get out of it. The player will follow the hints and the suggested path through the game, avoiding most of the side quests. In this way, Breath of the Wild can be played through in around 50 hours and Super Mario Odyssey in around 12.5 hours. Breath of the Wild is a large open-world game with a lot of sprawling content, Super Mario Odyssey is a linear game that focuses on detailed exploration of small, self-contained areas.

Another way to describe the time the game takes is that of a completionist style of play. Such a player wants to find every secret, collect every available item in the game, and be sure to have seen and done everything.[125] The focus is usually on collecting all the collectibles. In Breath of the Wild, Korok seeds are hidden in many places (under stones, on the top of high mountains, in circles of water lilies etc.). There are 900 of them spread over a large map, and the estimated completionist playtime is about 190 hours. In Super Mario Odyssey there are 999 power moons (like Korok seeds in Breath of the Wild), but also 880 purple coins as well as 40 different outfits for Mario and 42 souvenirs that we can collect for our ship. That's a lot of collectibles for any game, and the most common estimate for a completionist playthrough of Super Mario Odyssey is between 30 and 60 hours. The shorter estimated playtime for

[124] There is no absolute way to measure gameplay outside of speedrunning, so these very non-specific estimates will have to do. What they really tell us is that gameplay takes a lot of time.

[125] Many modern games anticipate this type of play and are crammed with things to do and collect. Unfortunately, this overload of tasks often leads to repetition and boredom.

Super Mario Odyssey is mainly due to the smaller play areas, where it is much easier to search every nook and cranny.

A third type of gameplay is the speedrun, in which players compete to reach the main goal (defeating the game's final boss) as quickly as possible. This type of gameplay is different, it uses glitches and bugs in the game to create shortcuts and increase speed in ways the developers did not intend. It's a type of gameplay that ignores the gameworld and instead focuses on the game mechanics. This kind of player needs to know the game system well and ignore the gameworld and story. If we look back at the elements of the gameworld in Image 33 this player focuses on the outermost layers of *laws of nature* and on *the world's designer* ignoring the rest as much as possible.

The records are mostly recorded on the website speedrun.com and there are a lot of different kinds of speedruns, as well as a lot of peer reviews of the recordings. In this book, I am focusing on gameworld experiences, so I will not go into all the details of speedrunning, it is a topic on which Wikipedia has an excellent article.[126]

As of March 17, 2025, the current record for Breath of the Wild (any%)[127] was 23m 01s.[128] For Super Mario Odyssey, the current record (any%), is 55m 59s.[129]

Speedrunners in Breath of the Wild can use their knowledge and skills to get straight to the end and skip most of the game because the game is an open-world game, while Super Mario Odyssey is a linear game that forces us to play all or most of it to get to the end.[130]

There are more styles of play, but these three will suffice as examples of different approaches to play. The speedrunner plays the game mechanics, not the gameworld. It's a style of play that focuses on a good knowledge of what's going on behind the visual interface of the game, as well as a lot of training to gain excellent reflexes and hand control skills. It's an interesting way to play because it's about understanding the system the developer has created and uncovering invisible rules as well as finding bugs. The driving force is to gain

[126] "Speedrunning," in *Wikipedia*, March 17, 2025, https://en.wikipedia.org/wiki/Speedrunning.

[127] Speedruns are recorded in different categories, *any%* means you played through the game to the end regardless of how many or few side quests you completed.

[128] Set by Player5 from USA on 2025-02-17, https://www.speedrun.com/botw

[129] Set by Tyron18 from Italy on 2025-01-10, https://www.speedrun.com/smo

[130] At least until some serious bugs are found that cause a speedrunner to skip parts of the game. This happens regularly, and some obsessed speedrunners stick with their game of choice for years, looking for glitches and exploits.

knowledge about how the game works and the skills to use it. I see this as a kind of epistemological approach to the game, where these players take a very close look at the game to understand the mechanisms behind the visual gameworld.

The completionist playstyle is also a version of this epistemological approach, where the player focuses on getting to know the gameworld in its entirety, down to its most hidden corners and subtle details. While a speedrunning player uncovers and exploits an underlying, invisible mechanic outside or behind the visible surface of the gameworld, the completionist is in the middle of the gameworld playing it as a built environment full of things to discover. This kind of play is driven by an epistemological drive to know everything in the gameworld and to have an experience of said gameworld, and is therefore more in line with the kind of gameplay I focus on here.

There is also the possibility of playing the games to discover the story they contain, to play for the sake of the narrative content. We won't find much of that in Super Mario Odyssey. We have to fight a gang of evil wedding planners, but won't manage to stop Bowser to get all the things he needs for a wedding (flowers, a ring, a dress, etc.). Instead we will meet and defeat him in a final battle. In Breath of the Wild, on the other hand, there is a long story that we can uncover bit by bit and in different ways. We receive information and have to reconstruct the story from all the fragments we receive and the things we see in the game. This follows the basic principle of storytelling. The author of the story creates a plot with various withholds and secrets to make it more interesting, and we as readers have to reconstruct the story from the plot with the information and assumptions we are given.[131] This urge to uncover a story within the game is an epistemological urge, just like the completionist's urge to see and do everything. One is a textual knowledge that concerns the story, the other a visual one to see and collect all the objects, but the driving force behind it is similar.

All of these possible goals are measurable in one way or another. There are counters in the games that tell us how many objects we have found, and we will sooner or later uncover and understand the whole story (or we might misunderstand it, like any other kind of narrative).

In this book, however, I want to make a case for a different way of understanding the pleasure of play. The player does not necessarily seek knowledge, but experiences, the pleasure of being in a particular gameworld. This applies to the two games that are my examples. There were many versions

[131] Marie Gillespie and Jason Tonybee, *Analysing Media Texts* (Open University Press, 2006), 89–91.

before these two, and they all have similar stories and structures. Most players already know them before they start playing. And we still get a lot of enjoyment out of them, as well as adventure, awe, excitement, challenge, and all the other experiences a game can offer.

I would describe myself as a lazy gamer; I choose games that place a lot of emphasis on world-building and less on challenge. I play much longer than the expected playtime, but I rarely finish a game. Finishing the game would mean putting it on my bookshelf as done, and I want to stay in the well-built gameworld until I find a new one. To explore my pleasure of being in gameworlds, I will turn to phenomenology.

# How are games images?

The physical act of gaming consists of looking at a screen, hearing sounds and handling a controller. That's what someone watching us play a game sees, and it seems a little banal. Watching someone play offers similar experiences, no matter what game that person is playing.

The perception of the game while playing is something else. The gameworld we find ourselves in consists of many layers, some of which are perceived simultaneously and others over time. We must engage with the gameworld to perceive it, and this engagement is both intellectual, when we develop an understanding of the whole, and physical, when we react to its components with stress, fear or calm.

The gameworld becomes a coherent visual space when we play our part and engage with it. It is a landscape that extends far and deep beyond any single screen. It becomes a landscape for us, not because it is realistic, but because it adheres to conventions.[132] These conventions of perspective, the role of the viewer, and background music are all conventions of different media brought into game development.

The construction of the images we see and the sounds we hear is complex and builds on older visual strategies. The problem of how a story can be told in an image has been around for a long time, as have the connections between different media such as music and image. Gameworlds, very often, and certainly in the examples I have chosen, turn out to be landscapes that you can wander through.

This landscape was put together by the developer from elements that need to be discovered when you get involved in the gameworld. With video games, it is easy to suspend disbelief. Interacting with the image on the screen feels like we are entering a world and we are willing to immerse ourselves in the image and believe that it is a place.

This requires a lot of time from us. There are few cultural products that require as long an engagement with them as games. Some TV series may last 10-20 hours, but they are divided into smaller segments. Games can take ten times as long.

A gameworld is a technical image in Flusser's sense,[133] in that it depends on a set of technologies, an apparatus, and takes its form from that apparatus. But

[132] Realistic is a slippery word; the gameworlds of Breath of the Wild and Super Mario Odyssey look nothing like the real world as it is anywhere. We play in a cartoon-like world that obeys its own visual and spatial rules.

[133] Flusser, *Into the Universe of Technical Images*, 5–6.

it goes beyond that, because it is also a dialogical image, an image that requires playful interaction in order to be present for us. There is no gameworld if we do not play it; we can only experience it if we participate in it. A gameworld is a complex, multi-layered image that cannot be fully present without a playing audience that engages with it. In the two games I am writing about, we play alone and the gameworld unfolds around us. And yet we share this experience with millions of players who have done the same.

This engagement involves play, interaction through participation. It requires us to use the hand controller and explore, fight and hunt for treasure in Hyrule and Marioland. It also requires us to project ourselves into the gameworld, to engage with it in a way that allows us to experience it from the inside out, so to speak. How this happens is the subject of the next part of this book, which looks at how a game is a place for us to walk around in.

# Part Two: Place

In this second part, I will focus on the experience of being inside a gameworld treating it like a place. We imagine ourselves in pictures all the time. When we look at a landscape painting, we might imagine ourselves walking along the paths that extend into the landscape, we see images of houses in advertisements and dream of what it might be like to live there. Our perception of these types of images is active. In a gameworld, this is supported by interactivity. With the right joystick of our hand controller we can move our point of view and with the left joystick we move a proxy for ourselves within the image. This setup is the beginning of what enables us to experience gameworlds as if we could venture into them.

I have often thought of this as the ability to project myself into the gameworld (or into a painting, photograph or movie screen), an experience described by Gombrich as essential for experiencing images.[134] Wölfflin makes the same observation but extends this phenomenon of self-projection to all visual perception.[135]

The problem for me, though, is that the idea of projecting myself into an image is akin to fantasizing about being there, and to me that's a generalized description that doesn't account for the strength of the experience of being inside a gameworld. So I need to think more about how that works and expand on the idea of projection.

To play a game, we act inside the world of the game. This world is present in our minds when we are not playing. We remember the place and only a few overheard notes of the game music bring us back. My favorite games are places I dream about at night. It's as if the gameworld wants to draw me in and I want to enter it. It's a way of looking at an image that is stronger than fantasizing about it, it's an experience of a world that plays out over a long time.

I want to understand how this happens, how we as players can immerse ourselves in gameworlds. And I might as well give away the plot of this part

[134] Gombrich, *Art and Illusion*, 190–91.

[135] Wölfflin, *Prolegomena to a Psychology of Architecture*, 8.

of the book by saying that there is no single mechanism that makes this happen, but multiple ways of understanding how this experience of a place that is a gameworld happens.

Phenomenology plays a major role in this part. Christian Norberg-Schulz's version of phenomenology deals with the experience of landscapes and places. Some formal structures from Husserl's phenomenology, adopted by Robert Sokolowski, shed light on how they interact in the perception of a world. Other versions of phenomenology and theories of perception (Maurice Merleau-Ponty and Mihály Csikszentmihalyi) offer ways of understanding space as well as immersion and flow. Finally, in this part I will try to connect these parts of experience as atmospheres in Gernot Böhme's use of the term, and in doing so I must touch on the topic of the new phenomenology as a different take on the Husserlian tradition.

But before that, I will try to introduce the experience of entering the two games I have chosen for this book by describing the beginnings of the games, so that anyone who has not yet played them can benefit. These are descriptions of the first minute or two of the games that introduce us to their respective gameworld. If we want to talk about games as a place, I have to try to take you into the games.

# Let’s start Breath of the Wild

Image 34, Link in the Shrine of Resurrection.

When we start the Nintendo game The Legend of Zelda: Breath of the Wild and press the *“New Game”* button, we hear a kind of chime, similar to the startup sound of a computer, we see a black screen, and three small lines of text displayed in quick succession: *“Nintendo presents,” “The Legend of Zelda,”* and *“Breath of the Wild.”* All three in a small, unobtrusive font and without background music. The titles can be seen for 18 seconds. It is dark and silent and a light begins to shine behind the last line of text. It’s yellow and gets bigger and a somewhat metallic but also musical sound begins. Both get bigger and louder. It is the mumbling voice of a woman, as if she is at a great distance from us players.

Her voice becomes more intelligible, and the first command of the game is given: *“...Open your eyes...”*. It is both spoken and subtitled. There is a transition with a whiteout and then the world comes back into focus accompanied by sound effects. The female voice keeps asking us to *“open your eyes...”*. Our perspective changes and instead of seeing what the avatar sees in the game, we see him. He is lying in a pool of bluish water and in a blue light, we look down on him from above. His face and chest are above the surface of the water and the voice, which can now be heard clearly and very close to us, says: *“Wake up, Link.”*.

He is dressed in shorts, the water recedes from him, and then he gets up from the round basin/bed in which he was lying. We see this in Image 34 and it also lets us get an idea of the colors, lights, patterns and atmosphere of this cave. The camera switches back to his perspective, and we look around the room. A quick zoom and a sound effect point to a particular set of blue lights in a round pedestal as being important. Then the camera moves away from this first-person perspective, and we see our avatar, the boy called Link, whom we are now controlling.

As we move him, the camera follows behind him at a sufficient distance to see his whole body. The animations of the room, the avatar and the camera feel fluid and we flow smoothly through space. Every step Link takes is accompanied by a sound that tells us he is walking on a hard, stone-like surface and that it is wet. When he or we look at or interact with objects in the cave, they move, glow, and make machine-like sounds. It is dark and there is a mist in the air that makes the space we are in seem small and intimate. It's a bedroom, but also a natural cave full of glowing blue alien electronics and a slow humming sound.

This opening sequence of the game is only a few minutes long and consists mostly of pre-recorded video with only a brief gameplay interlude. The transition between video and gameplay is seamless. The entire sequence uses many cinematic effects such as close-ups, transitions, tracking shots, dissolves, voice-overs and sound effects to introduce the game. As players, we transition from the real world to the gameworld through a sequence of fast-paced events that use visual and aural language common in film.

This transition is very atmospheric, but short on narrative. We have been asleep and now we are almost naked and awake in a cage of glowing blue technology. This opening sequence builds up some moods: the blending of nature, the cave, the water and the almost naked avatar with technology, blue glowing lights, a disembodied voice and a strange bathtub.

This cave is also a small place with narrow walls, sounds give us clues about the size, and there is a set path that leads us on. If we go a few steps further, we get an inventory, a Sheikah Slate (Image 16, p. 61), which is the tool for several abilities in the game that I will not explain here, and some clothes, a pair of pants and a tunic. The clothes are hidden in treasure chests, which we must open by going near them and pressing the A button when prompted. Link can unlock them by hand or kick them.[136] When the chest opens, we'll hear a

[136] There are several animations showing the act of opening the chest. Which one is played depends on the particular situation, where he is positioned relative to the chest and if he's wearing boots or not.

sound effect, a burst of five rising fanfare-like tones, and see a shimmering light. Both indicate that we have found treasure.

When we acquire these things, we learn how to interact with them. The Sheikah's slate opens to reveal various options, maps, inventory, etc. When we get clothes, they appear in the inventory and we have the option to put them on (clothes are optional, except for the shorts/underwear). We can also walk and run, pick up various objects and throw them against the walls or push the larger objects around. The final objective in the cave is to climb a low wall.

Anyone who has ever played a videogame will recognize this opening sequence for what it is: a tutorial that teaches us the basic controls. How to walk, run and climb. How to recognize and open treasure chests and use items in our inventory, how to control our avatar with one joystick and the camera with the other.

If we have played many Zelda games before, we might also notice that this game has different mechanics to the previous ones: We can climb on anything. This may seem like a small thing, but it's a clever introduction to the openness of the gameworld and all its possibilities, even if we are not yet aware of it as players. Somewhere in this short opening sequence, after we take control of Link, he wins us over and we stop thinking about a boy in front of the game camera and start thinking about where we want to go and what we should do. We become Link and that happens quickly.

This is also the beginning of a story; a hero wakes up and hast to embark on a long and complicated journey to reach a (still unknown) destination. It is the familiar trope of *the hero's journey* that begins here. This narrative structure, in which a hero leaves his ordinary life and embarks on a journey in which he encounters difficulties and suffers defeats, makes friends, and gains knowledge until he finally reaches the destination of the journey, is a common template for storytelling. It can be found in Aristotle's *Poetics* and is further developed in Joseph Campbell's *A Hero with a Thousand Faces*.[137]

Campbell calls the hero's journey a monomyth, i.e. an archetypal myth that is retold in different forms. As players, we may know nothing of Campbell's explanation, but we are nonetheless familiar with the structure of the Hero's Journey and know that we are about to embark on an adventure.

A third function of this damp, small and dark cave with its bluish lights, strange signs and female voice, which could be in Link's head or in the gameworld, is to create an atmosphere. It is small and intimate, and the air is full of gray clouds of mist. With the help of the Sheikah Slate, we can open a

[137] Joseph Campbell, *The Hero with a Thousand Faces*, Bollingen Series: 17 (Pantheon Books, 1949).

large stone door. When we use it, a series of technological noises and bleeps sound, which sound strange in the environment but help to create a special atmosphere where cave and technology combine.

When we open the stone door it opens in a convoluted way with blocks of stone being pulled into the walls with scraping sounds. A warm, sunny light comes in and the same female voice says, *"Link ... you are the light...[...]"* and gives us a task to save Hyrule. We run up a flight of stairs, through a large puddle of water, and climb up a low wall (as we learn that this is expected behavior in this game), we walk toward the cave opening and see some greenery (Image 18, p. 70). And the game takes control again, we run out onto a grassy narrow strip of land (Image 35), to the ledge of a cliff and look out over a glorious landscape, while the sounds of the environment swell and become music. The dark technology and small interior of the cave were there to contrast with this magnificent first view of the gameworld with its grassy plains, deep forests and snow-capped mountains. The camera pans across the landscape and those who have played previous Zelda games will recognize some landmarks and understand that we will be going everywhere we can look, to the horizon and beyond. We see the title of the game once again and then the camera zooms in on Link and then past him to a hooded man and a ruined cathedral. From then on, we are in control of our movements for almost the entire time, the cinematic parts of the opening sequence are over, and the game begins in earnest.

Image 35, From the cutscene where Link runs out from the cave.

# Let’s start Super Mario Odyssey

Image 36, another beginning; this is Bowser kidnapping Princess Peach.

The opening sequence of Super Mario Odyssey is much shorter and more playful than what we have just seen in Breath of the Wild. It begins with the text *“In the sky above Peach’s castle...”* and if we have ever played a Mario game, we know that this means that Princess Peach will be kidnapped by Bowser and that the game’s not very important objective is that we rescue her.

After the text, a pre-recorded scene will be played in which we’ll learn that Bowser indeed is kidnapping Peach and intends to marry her. But the more important role for this opening is to create an atmosphere of playfulness; the sky is pink and purple with some light clouds, the full moon can be seen. The style is playful children’s book and very colorful as you can see in Image 36. Bowser is on what appears to be a 17th century inspired cartoon-style flying ship, he is also a turtle with heavy metal jewellery and in a white suit with purple decorations, already dressed for the wedding. His turtle shell is studded with heavy spikes.

Beneath the flying ship is a fairytale castle in a green landscape. The music is bombastic and Mario has a short fight with Bowser, which he loses. He is knocked off the ship, his iconic cap is destroyed and Bowser sails away with his kidnapped bride. He holds Peach in his hand, just as King Kong once held Fay Wray when he scaled the Empire State Building. It’s a short scene, less

than 90 seconds, and it's cartoonish and over-the-top. As players, we can only watch, nothing is interactive.

After falling from the airship Mario lands on a black and gray felt mat with a geometric pattern (Image 27, p. 84). It is the ground of a small, mostly black and white island on which most of the objects (lamps, houses, etc.) are shaped like top hats. We soon get the name Cap Kingdom for this nocturnal island surrounded by water and with the silhouette of a dark city behind it. It's a small place, we can see the final destination from the start and reach it in less than a minute. But there are also a lot of things to explore, small objects to use, ledges to climb on, houses to enter.

While Breath of the Wild is an expansive large world where we can move freely across the landscape, this gameworld is made up of a series of small islands for us to explore. The Cap Kingdom is the first and it plays the same role as an introduction to the game's controls and movement as the cave in Breath of the Wild.

Once we have reached our destination on this island, we are transported to the next one (the Cascade Kingdom), another small gameworld that we can explore in detail. While Breath of the Wild is huge and always tempts us as players to see what's over the next hill or horizon, Super Mario Odyssey is small and detailed, inviting us to enter buildings and other openings, search for secrets and find things.

I think of Breath of the Wild as centrifugal and Super Mario Odyssey as centripetal. There is a direction to their respective gameworlds that sets them apart. A centrifugal world lures us further away, inviting us to take a detour to see what's over the hill, to move outward and away, even though we see our final destination right in front of us and at the center of the gameworld. A centripetal world does the opposite. In Marioland, we are invited to open doors and enter structures so that we can travel further into the center of the world, and often that means we can travel upwards. We can see almost the entire kingdom we are in, but there are many secret openings to explore before we are done.

But that's not the only difference. Breath of the Wild is an open-world game in which we can go anywhere after completing the first few missions, while Super Mario Odyssey is a linear game in which we have to follow a set path and make some minor decisions about different options along the way. Both games are cartoony in their visual style, neither striving for photorealism. But Super Mario Odyssey looks like a child's playground, while Breath of the Wild is a slightly more realistic anime landscape. Breath of the Wild uses music sparingly; it is above all a quiet game full of gentle landscape sounds. Super

Mario Odyssey, on the other hand, is full of music and over-the-top sound effects.

There are more differences and similarities, but my point is to highlight the fundamental differences between these two gameworlds. Breath of the Wild is like a fairy tale in an open, sprawling landscape that invites us to go exploring; Super Mario Odyssey is a detailed miniature carnival, a series of small constructions that you have to look closely at. In both games, the style of the game is immediately established and the stage is set for our subsequent experiences. The opening sequences of both games are more cinematic than gameplay oriented. Therefore, both provide a smooth transition for us as players as we are transported from the real world into the game.

# Landscapes and places

By taking a phenomenological view of the landscapes and objects in the two gameworlds we just stepped into, we can explore the relationships between them and us as players. Theories of perception can help us to better understand how this relationship comes about. Phenomenology is a philosophical model for understanding the way we are in the world, while perception is a way of describing how our senses register the same world. Architect and theorist Christian Norberg-Schulz brings the two together in his writings on place, as here in *Genius Loci:*

> What do we mean by the word "place"? Obviously we mean something more than an abstract location. We mean a totality made up of concrete things having material substance, shape, texture and color. Together these things determine an "environmental character", which is the essence of a place. In general a place is given such a character or "atmosphere". A place is therefore a qualitative, "total" phenomenon, which we cannot reduce to any of its properties, such as spatial relationships, without losing its concrete nature out of sight.[138]

With the concept of place, Norberg-Schulz connects phenomenological reflections on the lifeworld and the things in it on an ontological level with a concrete understanding of architecture.[139] This idea of place seems valuable for understanding the experiences we have not only in real places, but also in gameworlds. They are full of places, and as players we need to go to them and see what they are about. The centrifugal effect felt in Breath of the Wild is caused by a multitude of places spread across the landscape. This also suggests that the centripetal feeling in Super Mario Odyssey is due to the fact that we as players experience this small part of the game as a single place, with a strong identity in terms of buildings, colors, sound, and music.

Both games take place in a variety of landscapes, including deserts, forests, plains, mountains and water-dominated landscapes. Link in Breath of the Wild has to protect himself from the cold in the snow-covered mountains and from the heat in the desert, and overcoming them is part of the gameplay and offers several solutions. Mario in Super Mario Odyssey doesn't freeze or get too hot, but icy places lack friction, which makes running more complicated as we run a higher risk of slipping over a ledge and falling off a platform.

---

[138] Norberg-Schulz, *Genius Loci*, 6–8.

[139] Norberg-Schulz, 8.

Landscape here is both visual storytelling and rule changing. When we play, we probably focus on the changing rules of the game, because if we don't, we fail and have to start over from the last save point. But we also understand these rules through the landscape and get a bigger picture of the gameworld through the sum of all the landscapes and places we pass through.

In Genius Loci, Norberg-Schulz suggests ways to understand these phenomena of place. A place is not just an abstract location, but a collection of buildings, objects and people that give it its character.

Norberg-Schulz addresses readers who are interested in architecture and therefore emphasizes that a place cannot be described in quantitative terms. The character of a place is something qualitative and not an objectively measurable effect.

A place can be a landscape or a settlement, and these two can be analyzed as space and character.[140] His description of place is open-ended and draws from many sources, but for my purposes here it is sufficient to assume that places are distinguished from landscapes by boundaries, that there is a clear outside and inside to a place, whether it is a settlement or a building.

There is, he writes, a relationship between settlement and landscape that resembles the relationship between figure and ground in Gestalt psychology. One is understood when viewed from the other, i.e. in relation to the other.

These types of concrete places have characteristics such as a direction, a center and a rhythm.[141] Together with things like material and light, they create the character or atmosphere of a place. He proposes five basic categories for a concrete natural understanding of places: Thing, Order, Character, Light and Time.[142] Thing and order are spatial, character and light are part of the character of the place. Time is the constantly changing part.

In the context of the games I am writing about, this way of describing place and character works well. A gameworld has a large and abstract geometric space in which a concrete space takes shape as a landscape with buildings in it. In Breath of the Wild, there are pseudo-dwellings[143] that have recognizable traits of the kind of settlements Norberg-Schulz writes about, such as borders

[140] Norberg-Schulz, 11.

[141] Norberg-Schulz, 12.

[142] By ”order” or ”cosmic order” Norberg-Schulz means the way in which things are structured out of a disorderly flow of nature, such as buildings along a road or mountains surrounding a valley. Norberg-Schulz, 28.

[143] These are not depictions of real villages to live in, but buildings related to the game, although they have some visual similarities to inhabited places. Hence the “pseudo” dwellings.

and an understanding of the village in the game as a different place that the landscape around it. Enemies from the countryside, for example, would never enter the villages no matter how open they are.

In Super Mario Odyssey there are no villages, but buildings and only small parts of the landscape, so we perceive the differences differently here. There are distinct boundaries for each kingdom and a similar character for everything within the kingdom. There may be parts that look like forest, lakes and desert in a kingdom, but at the same time the boundaries and character make us understand the kingdom as a unified place.

In both games, there are built-up areas with centers, directions and rhythm that help us understand how to move around in them. Rhythm is central to Super Mario Odyssey, as it is closely linked to the main game mechanic of running and jumping off platforms. Signs and roads in both games give us clues as to the direction. We make sense of the gameworlds with the same understanding of landscape and place as we would use in the real world.

Image 37, Link in the atumn landscape of Akkala.

Norberg-Schulz's five categories for understanding places are clearly defined in gameworlds, we can see how they can be applied to a scene like the one in Image 37: A thing is an object or asset in the game, something the designer can place in it, such as the cliff that forms a wall on the left, the trees and rocks that line the path, the tower in the background, and the volcano. Order is the way to create meaning when structuring both the landscape and

the objects in it. The cliff keeps us from going in one direction, a path suggests another. The tower needs to be explored, and the volcano is a challenge waiting for us.

The character could be the goal a developer wants to achieve, like the late summer or early fall atmosphere of this place. The character or atmosphere is the most complex idea here, so I will come back to that. Light in a game is a controlled and calculated quality, much more so than in the real world. Here it's sunny and clear, with sharper shadows and long lines of sight.

Finally, time is also different in games than in real life, because games are storytellers. Time can be treated like any other part of place, for example, the season here is the season of place and not a function of time. It is always a crisp fall day in the Akkala region. Time can be still, circular or linear and these different types of time can be mixed together.

Norberg-Schulz discusses three types of landscapes and architectures whose characteristics could provide a way to understand the same phenomena in gameworlds. These are the romantic, the cosmic and the classical landscape.[144] He divides architecture into the same categories.[145] The romantic landscape is the northern European countryside, especially the Scandinavian countryside, with forests and water.[146] It contains a variety of different places. The typical romantic architecture is the medieval town.[147] It is characterized by a strong atmosphere and is mysterious, intimate, idyllic and has a high formal complexity.

The cosmic landscape is a desert landscape.[148] This landscape is simple and eternal, it is large and has a high sky. It offers little space for human life. Cosmic architecture is ordered according to a cosmic, higher purpose, like Islamic architecture or the Roman legionary city.[149] It is an ordered plan, but the ordering is more than a grid layout and it serves a higher purpose. The buildings turn in on themselves, the walls can be less clearly delineated but are instead broken up by lattices and images. The cosmic city is a mixture of geometry and labyrinth. In the classical landscape there is a *"meaningful order*

[144] Norberg-Schulz, *Genius Loci*, 42.

[145] Norberg-Schulz, 69.

[146] Norberg-Schulz, 42.

[147] Norberg-Schulz, 69.

[148] Norberg-Schulz, 45.

[149] Norberg-Schulz, 71–72.

*of distinctive, individual places".*[150] It is a landscape organized for human activity, each place is distinctive, and the boundaries are visible. The most important feature is that the landscape can be understood as being organized for the people who use it.

The typical classical landscape is found in ancient Greece. And classical architecture is classical Greek architecture, where each part has its own character but also contributes to the whole according to Norberg-Schulz.[151] Dwellings are organized according to sightlines and viewpoints rather than grids. He also notes that in addition to these three types, there are also complex landscapes, pointing out that landscapes never consist of only one type.[152] There's also complex architecture, e.g. Gothic cathedrals and Baroque palaces, which combine features of the three basic types.[153] Each type of architecture and landscape showcases its own kinds of things, order, character and light, these types help us to understand how the atmosphere of a place may be created.

There is something systematic in Norberg-Schulz's writing about landscape types and architecture that is present in the games I'm writing about. Each place within Breath of the Wild and Super Mario Odyssey needs to be understood visually and without delay, so it uses some distinct characteristics to create a specific sense of place.

It should be noted that Norberg-Schulz describes his understanding of places that have been built over a long periods of time. Game developers, on the other hand, construct images of places as three-dimensional computer models. In doing so, the developer draws on experiences with real places, but uses them freely to create something new. Norberg-Schulz's way of writing about experiences with landscapes and places gets to the heart of one aspect of experience: our mental ability to organize and characterize them.

The places and landscapes in both Breath of the Wild and Super Mario Odyssey are made to present a character, using sets of visual elements to set them apart. Zora's domain, Image 38, is geometric, orderly and full of pointed arches and could perhaps be associated with the Norberg-Schulz' cosmic type of architecture, while the village of Hateno, Image 39, is a somewhat medieval-looking village that fits to the romantic type that blends with the landscape and seems to have developed organically over a long period of time. It's not a

[150] Norberg-Schulz, 45.

[151] Norberg-Schulz, 73–74.

[152] Norberg-Schulz, 47.

[153] Norberg-Schulz, 76–77.

perfect match, but as close as I would expect when comparing a text about types of existing architecture with buildings in a gameworld where there are no restrictions on construction.


Image 38, Zora's domain.

Image 39, Hateno village.

In the games I have chosen, the basic visual techniques for the gameworlds are similar. They are three-dimensional spaces in which we as players follow our avatar at close range like a disembodied camera. These worlds are moving images on a screen in front of us, but they create an experience of place. In my own experience, this manifests in memories of being in that place, riding across the fields of Hyrule or jumping around the playgrounds in Marioworld, and they become connected to memories of actual places like those described in Genius Loci.

These landscapes appear in my dreams and influence my perception of real landscapes. When I walk a path through woods and fields on vacation, I hear the heroic soundtrack of Hyrule Field in my head and start humming. The experience of gameworlds sometimes seems just as powerful or real as the experience of a real place. This realism (perhaps realism effect is a better description[154]) of gameworlds depends not on the realism of the representation, but on something else.

In his introduction to *Genius Loci,*[155] Norberg-Schulz bookends his discussion of the understanding of landscape and place with his own reading of Martin Heidegger's reading of Georg Trakl's poem *Ein Winterabend*. In his reading, Norberg-Schulz treats the imagery in the poem as if it were a real place and begins to dissect it in order to understand the home that is part of the world of the poem, leading him to ideas such as home and nature. In Norberg-Schulz essay, there is a slow shift from understanding Trakl's poem to understanding the real world and he moves easily between the two, returning to Trakl at the end of the text. My intention is to stay in the worlds of play and see what I can understand about the pleasure of play by looking at my experience through some phenomenological concepts as I shift back and forth between the actual experience of play and the games as produced by developers.

[154] In both Breath of the Wild and Super Mario Odyssey, we experience realism, even though neither game is very similar to a real place. Breath of the Wild is as realistic as landscape paintings and Super Mario Odyssey is as realistic as an animated movie about toys. They are realistic images of not-so-realistic environments. So we experience everything as coherent and realistic, in its own way.

[155] Norberg-Schulz, *Genius Loci*, 8.

## The player's part

The connection between image and viewer is a topic that has long interested art historians. Some have emphasized the idea that an active viewer is a co-creator of the artwork, an idea that I think clarifies our experience of gameworlds. In *Art and Illusion* Ernst Gombrich refers to this as the beholder's share.[156] In one of his examples, he describes how a sculpture must be distorted in order to make sense once it is in its intended place, that is, above the viewer or on a façade to be viewed from a distance. The artist needs a keen imagination to create images that appear blurred and hasty up close, with sprezzatura, as he says, i.e. nonchalantly and with ease.

The viewer can then see the image with the same imagination that the artist has put into it, so that it is completed in his mind. The beholder's share is this understanding between artist and viewer, where the artist proposes something, and the viewer executes it. It takes a great deal of skill on the part of the artist to suggest in a such way that the viewer recognizes the meaning he intends. Lesser artists, according to Gombrich, instead strive for as much detail as possible, which leads to blurred and less viewable images.

Schemata play an important role in this process.[157] During his training the artist learns to paint certain things, trees or hands for example, in certain ways and the viewer learns to decode these schemata by seeing much of the artist's work. Schemes help us understand what a tree looks like in that particular painting, and the tree is better represented as a simplified, hastily drawn tree so that we can see it with ease and speed.

We do the same when we walk around in a gameworld. All the objects in the landscape are assets, reused models of trees, rocks, etc., and they do not have to be as realistic as possible, just enough for us to see them as trees in the gameworld. You might be able to see the trees in Image 39 and notice that they are all the same and quite simple.

The assets of a game function like schemas; they become almost iconic signs (in the semiotic sense) for what they represent in that context, facilitating our access to our imaginative part of worldbuilding. In a believable gameworld, these objects appear simple and natural, and they are distributed across the landscape in a way that seems natural or almost random. In Breath of the Wild and in Super Mario Odyssey, they were all placed carefully and with great skill by a designer to create the effect of casualness or sprezzatura. The intended

[156] Gombrich, *Art and Illusion*, 163.

[157] Gombrich, 136.

effect is that we feel that this is a game that is easy to understand and we know what everything is because it just is.

Wolfgang Kemp offers further elaboration on how works of art create their implicit viewer through their internal organization, which extends an offer of reception. Note that the work of art here is an active participant in the process of viewing and being viewed. In *The Work of Art and its Beholder*, he lists five ways in which a work of art addresses its viewer.[158]

The first is diegesis. The artwork creates a world that is separate from the viewer but still invites him to enter it. In games, this would be the camera/our eye in the game, which is the center of all actions around which the world unfolds.

The second is a focalizer, a figure in the image that connects with us and speaks directly to us, showing us the way. In games, this is our avatar, who assumes this position as an intermediary between us as external players and the action within the gameworld.

The third is perspective, which is understood as a forced gaze. Here, Kemp refers both to the art historian Alois Riegl and to more recent film studies. In a medium with a fixed perspective, the image decides how we are placed and demands of us to assume a specific viewer position. While Kemp points out that this is more complicated in film than in art, as film uses a long series of connecting perspectives while a painting has only one, it is also present in games. There is often a need to make us look a certain way, and an effective way to do this is to let the game take control of the camera and place it exactly where it needs to be.

The fourth way is to get the viewer to produce that which has been cropped out of the image, to see the image as a fragment of a larger world and fill it in. This is, as far as I understand it, a version of the beholder's share. In games, we can move around inside the image and see what's outside the frame, so the effect of framing is different here. There are always parts that are outside of our field of vision, but we can act on them and explore them.[159]

The fifth and final way in which a work of art speaks to us is what he calls *"the blank or the aesthetics of indeterminacy",*[160] the intentionally unfinished

---

[158] Kemp, "The Work of Art and Its Beholder. The Methodology of the Aesthetics of Reception," 188.

[159] It is also a problem to take screenshots from the games for this text, as they can never really show what we see while playing, as we can and will be looking everywhere almost all the time.

[160] Kemp, "The Work of Art and Its Beholder. The Methodology of the Aesthetics of Reception," 188.

parts of the artwork. His examples are the backs of the figures, and the parts cut off from the frame, that is, not the unpainted but the 'not visible but present' part of the painting. As viewers, we fill in these gaps and make them disappear. This is also related to the idea of the beholder's share and is just as present in gameworlds as in painting. The main part of the gameworld is always what we do not see in the present. We are striving for a goal or running away from something that we want to leave behind.

Both ways of describing the experience of play, either as an active player who co-creates the gameworld or as an immersed player who is mesmerized by the game, are reasonable ways of understanding how we experience being in a gameworld.

But is there not more to playing in gameworlds than just fulfilling the intentions of their creators and doing our part? I have a nagging feeling that there is more to understand regarding how we find ourselves not in an image, but in a large and coherent world driven by a story. Phenomenology seems to be approaching the questions in an interesting way, while still dealing with the problem of connections between player and gameworld or, more generally, between viewer and object viewed.

A phenomenological approach is a way to study how a person experiences the world, to take a step back and study the experience as it happens, and to try to make sense of it.[161] A gameworld is not strictly speaking the world, it is an object in the world. If I use phenomenology as a method to understand my experience in a gameworld, I must treat the gameworld as the real world and yet be aware that I am in a man-made world, not a natural one. This requires that I suspend disbelief in gameworlds and experience them as worlds, while at the same time being able to step back and see them as constructs. The gameworld has many things that the real world does not, and one of the more important parts concerns intentionality.

In phenomenology, every action we perform, and every experience is intentional, meaning that all thoughts are experiences of something in the world. In a gameworld, there is a game designer who has a purpose and goal for me and who directs my way of being in the gameworld. As a player, I am the cause of my own intentionality and it is caused in part by the intentions of the developer.[162] Another way to put it is that the gameworld is created by both

[161] Sokolowski, *Introduction to Phenomenology*, 47.

[162] Language makes this a bit complicated. The phenomenological term *intentionality* (that is my perceptions of something as part of that something) needs to be understood differently than the term *intentions* when it means *something someone intends to do* (the game designer has intentions for how gameplay should be).

my own perceptions and the perceptions encoded by the producers. Intentionality as a way of describing how we perceive the world is not without its complexities. It assumes that the perceiver is the sole producer of perception. When we get to the concept of atmospheres, we need to elaborate on that in more detail.

## Parts and wholes

As described in the previous chapter we make sense of a gameworld through a series of negotiations. We see parts and connect them together, and we do our part to build the world as we experience it. This works both ways: We want to make sense of what we experience, and the game wants to be understood and reaches out to us through the help of the five techniques described by Kemp.[163] Phenomenology offers a complementary view of this process, of how we as players perceive the gameworld and construct it from parts we are given.

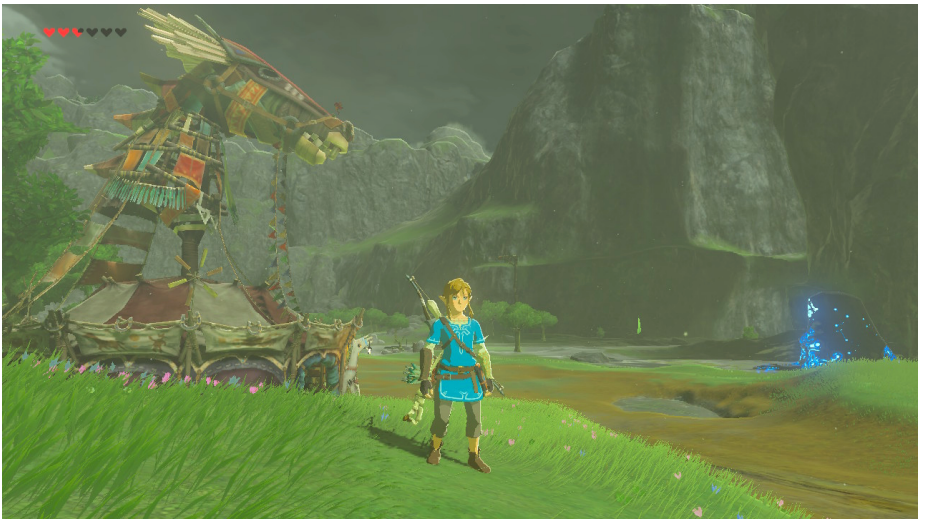


Image 40, Dueling peaks stable to the left, shrine to the right.

[163] Kemp, "The Work of Art and Its Beholder. The Methodology of the Aesthetics of Reception," 188.

In Breath of the Wild there is a place named Dueling Peaks Stable (Image 40). It is a small collection of buildings and NPCs, the road that leads through it and the name of the place, which is shown to us in a text overlay when we enter it, all contribute to creating a place. Yet the place is part of the overall gameworld, there are no transitions or cutscenes here, it is never marked as a separate part, but merely as a named area in a much larger whole. The two buildings, the stable and the shrine, can be considered types of gameworld architecture and are both examples of the strangeness of the places in this game.

Link, our avatar, the landscape, the sun that moves, and the wind that blows are all moments (dependent parts) of the gameworld, but the two buildings are pieces (independent parts).[164] A moment is a dependent part because it cannot be seen by itself but is always a part of something. A typical example is a color, which cannot be seen for itself, but as a color of something (e.g. an object or light).

If we think about the rules of gameplay, it is obvious that they are moments. We cannot interact with the rules without interacting with the objects in the gameworld. The rules, the game design, are a specific kind of part of the whole that is the game. A moment, such as the rules, can be considered on its own, in phenomenology that is referred to as abstracta, but they can't exist separately from the whole of the gameworld within that world.[165]

The gameworld of Breath of the Wild is constructed of different parts, most of which belong to the phenomenological type called pieces. Buildings, objects and NPCs, for example, are all pieces and can be seen and understood in themselves.

When the game is developed, these parts, called assets in game developer jargon, are created by a group of people, and it takes a great game designer to make sure they form a cohesive whole that seems natural and effortless to the player. This is even more true for the parts of the game that are of the phenomenological type called moments. As players, we encounter these moments as part of the gameworld. It's things like the game's physics engine making sure that rocks I throw behave as expected, or that dry grass burns when I drag a torch through it. It's the light and colors in the game that change with the time of day and the weather, and it's the complex interactions between

[164] Sokolowski, *Introduction to Phenomenology*, 22–27.

[165] We can of course formulate the rules on paper and give them an existence in our world, but they would no longer be working rules in a world, but instead words on paper. Rules in a gameworld functions similarly as natural laws in our real world.

the three-dimensionally modeled world, my avatar and my perspective as a player.

So it is not enough to say that a gameworld is made up of parts that are connected by us as players, but these parts are of a changing nature (moments and pieces) and we understand them as such.

To further complicate the understanding of this gameworld, on closer inspection we see that it is made up of world parts. For example, I have described the Dueling Stables area as part of the larger gameworld, and within this area there are several parts with different possible types of play; these include the stable itself with some possible maintenance tasks, a shrine which is a completely different part of the game (see below), and the field with horses that can be captured and tamed. Each of these parts, with their different game objectives and game mechanics, is a puzzle to be understood and mastered. However, the gameworld must also be perceived as a whole so that it can be experienced as a coherent world and not as a series of independent puzzles.

Buildings, on the other hand, can be regarded as pieces and stand out in the gameworld both through their function and their unusual architectural features.[166] As buildings in a fantasy-game landscape, they are nothing unusual; a stable that is a circus tent with a wooden sculpture of a horse's head on the roof (Image 40) is the kind of building one might expect. The horse's head and the shape of the building are distinguishing features that make the stable a readable type of building that can be recognized from a distance.[167]

This applies all the more to the shrine, with its glowing design all over its surface that ensures that we can recognize it from afar. It is helpful that it glows yellow if we have never been there and blue if we have been there before. This color change is an aid to play and otherwise has no architectural function.

What distinguishes the buildings as independent parts of the overall gameworld is their role in the game and their connections to other parts of the gameworld. There are networks of stables and shrines that have specific functions, in particular various types of fast travel between them.

The stable is also a place where some gameplay tasks can be done, such as cooking food that can later be used as power-ups, restoring life force or speeding up time to reach a desired time of day; these are all typical

[166] There is sort of a system in these visible architectonic landmarks in Breath of the Wild. There are several types from small dwellings for enemies, through stables and towns to towers that are visible from far away due to their height.

[167] This is the kind of postmodern architecture made for visual speed-reading that is described in Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*, Rev.ed. (Cambridge, Mass: MIT P, 1977).

maintenance tasks. The player performs these tasks while still in the gameworld, but it is not the same gameworld as usual. It is a separate part of the gameworld with its own rules and objectives, its own architecture, and it is repeated in many places in the world. When we play, we perceive places like the stable as something separate, but still part of the gameworld, a piece within the whole. Shrines and towers are other examples of pieces within the whole.

According to Mark Brown, who posts videos on YouTube under the name *Gamemaker's Toolkit*, this system of buildings of different types and visibility, as well as roads connecting them, was developed as a solution to a particular problem in Breath of the Wild that was discovered during early playtesting.[168]

Documentation of Nintendo's development process is rare, and this is one of the few instances where it has been made public, so to speak. Developers from Nintendo spoke at the Computer Developers Conference in Japan in 2017 about the problems of developing an open-world game that includes storytelling. However, there is no official documentation of this event, all sources about what was said there are second-hand at best and have to be pieced together from many changing sources.

The most interesting part concerns the open world problem. Originally there were highly visible towers and roads leading the way between them. In testing, most players followed the roads and experienced a linear game. To break this behavior, Nintendo developed a series of different buildings and locations that rewarded the player with items they needed in the game; fight an enemy camp and obtain weapons and the like. These would be scattered all over the map, encouraging the player to wander around and leave the roads. Only a few of them would be visible at a time.

This led to what was called the triangle rule. Most of the landscape is made up of triangles, which are hills and mountains that keep our line of sight short but constantly reveal something new as we walk over or around them. The towers are important to advance the story, so they are visible from the greatest distance and have the same blue and yellow glow mechanic as the shrines (see Image 37, p. 117), and then the rest of the possible buildings and landmarks follow at a scale that is less and less visible from a distance. This can be seen if we compare the visibility of the tower to the visibility of the shrine in Image 6, p. 44.

The result is a varied landscape full of places that provide space for a particular kind of play within the overarching game. The recollections of the talk on development of Breath of the Wild may be correct or incorrect, there is

[168] *How Nintendo Solved Zelda's Open World Problem*, accessed October 3, 2023, https://www.youtube.com/watch?v=CZzcVs8tNfE.

no way to evaluate the sources here, but the description of how these parts of the game functions to gently guide us in interesting directions and push the story forward seems like a good description of how it works when we play.

Shrines have a special place in this system as a planned brief interruption in the larger gameworld. A shrine as architecture in the landscape is a stone building with an organic appearance. There is no clear reference to real shrine types, but it has an overall exotic and ancient look, albeit with a technical and futuristic aspect, as it has a glowing design over the rough surface.[169] Beneath the visible structure are large halls, often divided into several rooms with a high ceiling and floors with bottomless pits. The exterior and interior of the shrines are shown in Image 20 and Image 21on p. 72. The underground shrine is architecturally impossible and the function of the place outside of a gameplay context is non-existent. But even though the shrines interiors are nondiegetic and impossible architecture and ought to destroy the illusion of a coherent world, it is still an important piece of the gameworld. As a player, I do not intend a world like the one I'm living in, but a gameworld, and in a gameworld there are parts that are connected as parts of gameplay, and others that are parts of the diegetic worldbuilding.

These pieces that make up the gameworld are assets for the game designer, they are building blocks in an inventory and can be placed at will during the construction of the gameworld. A tree, a stone, the sound of birds or an NPC with its lines of dialog and scripted movements are all examples of assets that are reused in many places.

If you want to create a forest with a hundred trees, you have the choice of either modeling a hundred different trees or creating just a few, placing them at different angles, changing their size and adjusting the colors a little. The latter is the more effective method, not only because it is less work, but also because it is computationally less complex and requires less memory. When the game is created by the designer, the assets are created and placed in the world.

When we play, we perceive them as pieces and can focus on those pieces as needed. Some aspects of the asset, such as size or color, can be adjusted, although it is still the same model, the same set of polygons that are stored and used to calculate the visual appearance of the object in the game. These values are meaningless if they are not applied to an asset. They act as moments in relation to the pieces that make up our perception of the gameworld.

[169] The patterns on the shrines as well as other Sheika objects are based of Japanese Jōmon pottery; Patrick Thorpe, ed., *The Legend of Zelda: Breath of The Wild - Creating a Champion*, 1st edition (Dark Horse Books, 2018), 205 & 207.

There are a few overlaps between the development process of a gameworld and the way we as players perceive it as simultaneously parts and wholes. Assets are developed individually and assembled by someone on the game map to shape distinct places. Places and surrounding landscapes become the whole of the gameworld. When we play and enter a place in the game, that piece can become a whole made up of pieces if we focus on it ("intend" it). A place in the game with its own specific type of play becomes a whole when we engage with it. And then it again reverts to a part of the whole gameworld when we leave it. We engage with these parts and wholes through perception, memory and imagination, which I will come to in a moment.

## Identity in manifolds

Another way to think about how we perceive a gameworld is to consider the different ways in which we can experience it and still be sure that it is the same world. While we focus on the parts we play, as described above, we experience the gameworld as a larger whole. However, due to its size, there is no way to see the game in its entirety at once.

In Breath of the Wild, only a small portion of the landscape around us is rendered in full detail, with the rest disappearing into a blurry distance. In this distance, some features, such as a building with a strange shape or a large, moving animal, can entice us to move on and experience the gameworld piece by piece. There are few sharp boundaries between the parts. Only when we enter a shrine does the separation between the parts become clear.

In Super Mario Odyssey, on the other hand, it is difficult to get a proper overview of a complete and coherent world. This game is played in parts called kingdoms, and each of them has its own design as well as clearly visible borders. Between these kingdoms there is only traveling in an airship, a part of the game in which we can do nothing but wait. We do not see or experience the traveling, we experience the waiting, and most experienced players would see it as thinly disguised loading time.[170]

[170] Most games need to be split into small parts so that only the visible part of the game is loaded into the computer's memory and rendered as the gameworld. Each part of the gameworld takes up a certain amount of memory, and each detail to be rendered requires a certain amount of processing power, so there are hard limits to what the console can handle. From time to time, part of the game must be discarded, and a new part must be read into memory from a storage medium. The time it takes to load this new part of the game is called load time and is an interruption to the actual gameplay. Therefore, attempts are often made to hide this time, as in this example of the travel system in Super Mario Odyssey.

When we play through these worlds, the pleasure is, among other things, epistemological: we see the different parts of the world and put them together into a more complete understanding. We can play as explorers and learn about the different landscapes that make up these gameworlds. The landscape types are similar in some ways: lush nature surrounded by mountains, a desert with ancient temples and bones of dead creatures, a landscape centered on water or on volcanoes. Nevertheless, we will not confuse the world of Breath of the Wild with that of Super Mario Odyssey. Each game has its own clear identity.

This identity is not just one thing, it is evident in the different landscapes, the visual style, the way sounds and music are used, and the way the game is controlled and played. In Breath of the Wild, the uninterrupted landscape that we wander through to explore creates its own way of experiencing it; the lone wanderer in the vast world is an epic trope. In Super Mario Odyssey, each kingdom is presented like a mini-game, or like a toy. The kingdoms are there to be played with, and you can't imagine anyone living in them. This gameworld is not epic, but playful.

The gameworlds have their identity as something we experience when we play the game and look at it from different angles. The point here is that there is indeed an identity to each gameworld, it is not a unique experience for each player. The identity of the game is not given to us by one specific thing (it's not Link or Mario) but by the manifold ways we can experience the gameworld.

If we get stuck in Super Mario Odyssey and don't get all the Power Moons we want, we will probably go online and look for clues. In this way, we can see other players' paths through the gameworld and their style of play and are made aware of aspects that we hadn't considered before. The speedrunner, the completionist, the average player and the lazy player can all help to describe the identity of the game. They all start from their own play style, but all styles are part of the game's identity.

It's possible to describe a clear identity in Breath of the Wild. Hyrule is a cohesive world, a map crisscrossed by roads, forests and towns, combining different aspects of the world onto one map. As such, it is a landscape made for the Hero's Journey, a storytelling scheme that will be familiar to most players. The audiovisual design of the gameworld mirrors this heroic story, placing us in appropriately heroic landscapes: a winding path through a deep forest, a road through cold and treacherous snow-covered mountains, or among ruined buildings in an open, overgrown and abandoned pastoral scene.

We see this kind of identity in Super Mario Odyssey too although this world is divided into small kingdoms with different looks and sounds. And we play them one by one in a specific order. It's easy to spot the differences between

places in the game, the theme of the land is reflected in some of the graphics and in the color schemes. Each kingdom has its own sounds, be it the background music (or lack thereof) or the environmental sounds. And for many of the kingdoms, there are special gameplay mechanics that come into play in its unique mazes. And yet, there are always enough similarities to keep the game visually cohesive, even with the unusual design choice of placing Mario in a more realistic representation of a city so that we get a mix of different art styles, as seen in Image 41.

The core mechanics, Mario's movements, and the predominance of platforms and enemies define the identity of the gameworld in its variations. It's Marioland, and Marioland exists in different games, designed in different ways. The original *Super Mario Bros* (Image 13, p. 58)*, Super Mario Galaxy*, and *Super Mario Odyssey* all look different. But compare them to *Mario Kart Deluxe 8, Super Smash Bros Brawl*, or the real-world theme park *Super Nintendo World* and the similarities between the first three games become more apparent, but that won't push the latter three out of the Marioland identity. It's Marioland through and through, and we know it when we see it.


Image 41, Mario in New Donk City in Super Mario Odyssey.

The elements of identity are so stylized that they sometimes seem more like symbolic signs than iconic ones. A color scheme, a general shape, or a few notes in the soundtrack are enough to identify the part, and just a few parts make up the whole that is Marioland, and Super Mario Odyssey is just one of

many games that build on this identity. The green and yellow used on the objects in Image 41 is enough to associate New Donk City with Marioland, even though the style is different from all the other kingdoms.

The identity of a gameworld is given to us through the sum of its parts; some are visual, some are audible and some are present as game mechanics. When we say it's a Zelda or Mario game, we are talking about that identity in manifolds.

## Presence and absence

According to Sokolowski, phenomenology is unique in its willingness to think about absence.[171] Along with parts and wholes and identity in manifold the idea of absence and presence gives some tools for understanding the experience of being in a gameworld.

In order to explain absence and presence, we need to use a certain phenomenological vocabulary. The vocabulary is precise and formulates some easily understood concepts, but it also uses common terms that can be easily misunderstood.

In this terminology, intentionality is key. To intend something is to experience it, to be aware of it in one way or another. An intention can be filled or empty, i.e. we can be aware of something that is present or absent.

When we play Breath of the Wild, the heroine Zelda is absent until the end of the game, as is the main antagonist Calamity Ganon. In Super Mario Odyssey, the same applies to Princess Peach and Bowser, although we do get to see them briefly in the game's opening sequence.

When we play, we are present in the gameworld, but only a small part of it is in front of us, the majority of the gameworld is always absent. When we run towards the final boss of a level in Super Mario Odyssey, we imagine the fight that awaits us, and we can speculate where and how it will happen. After a whole lot of platforming and exploring of the level, we eventually reach the end and the boss is present to fight us.

After the fight, it is gone again, but we remember it and maybe compare it to other bosses we have fought, or speculate about the next one or the final fight with Bowser at the end of the game. Playing the game and moving through the gameworld means engaging with absent objects through anticipation and planning, engaging with the present object and then picking it up again in its absence as a memory of the gameworld.

---

[171] Sokolowski, *Introduction to Phenomenology*, 33.

When we anticipate the final boss, or any other absent goal in the game, we are only aware of some parts of it, we see parts, but through the manifold of parts we begin to grasp the identity. Yet there is a change in intentionality when we are in the presence of the goal, and this change from empty to filled intentionality explains the strong change in experience that occurs.[172]

By this we mean to imply that we perceive the gameworld and the NPCs in it as existing regardless of whether we play the game or not, and that their existence and identity has a perceived stability. Playing the game means imagining the future and remembering the past as it happened. Since time is not linear in a gameworld, this can lead to some interesting confusions.

The point of this description of our existence in relation to the gameworld is to illustrate the importance of anticipation and memory as part of the experience. And this, in turn, is only true as long as we are engaged in the experience of the game as we play it. Outside the gameworld, in our lived world, the game is a text stored on a medium and made visible by the game console, lacking the stable existence I have just assigned it. Obviously, it is necessary to distinguish between the game and the experience of the gameworld.

This phenomenological dissection of our experience within a gameworld gives us some interesting ways of talking about that experience. We experience parts and construct a whole from them, even if they are of different sorts. Yet the game has an identity present through the many ways we perceive it.

We shift our focus between parts and wholes, presence and absence, and thus experience the identity of a place, what Norberg-Schulz calls character or atmosphere. [173] It is time to look at games as places in a different way.

[172] In phenomenological terms this is "intuition" – "to have the object of intentionality present" or "a thoughtful experience of it". The term intuition is not an easy one to use and is easy to misunderstand so I try to avoid it. Sokolowski, 35.

[173] Norberg-Schulz, *Genius Loci*, 14–15.

# Making sense of space

So far we have looked at how we construct a gameworld from what we perceive. The world that we imagine as a unit, the game, is experienced by us piece by piece and we form a picture of the whole. This is also the case when we think about the construction of the game. It consists of assets and rules, so there is something of a symmetry between the production and perception of the gameworld. However, the parts that make it up and the parts that we perceive are not identical.

In Breath of the Wild and Super Mario Odyssey, this whole appears as a landscape that tells us how to understand it and guides us in the way we play. We are already an active co-creator of our experiences, but there are more ways to understand how we enter the world of the game.

This means that there are different levels to understanding games and gameworlds. We need to be able to handle the controller, understand the different input options, understand the story being told and recognize the objectives. But even more fundamental than these elements is the question of understanding the space of the gameworld. Space and spatiality in games is a complex field involving two different actors: the game designer and the player, and different types of spaces. An interesting approach to this topic comes from Bernadette Flynn, a researcher in film and game studies at the College of New South Wales.

According to her presentation in the anthology *The Pleasures of Computer Gaming* she has written about spatiality in films, games, and in relation to the visualization of archeological sites.[174] Drawing from this diverse set of studies she is able to point out fundamental aspects of space as experienced in gameworlds. While Flynn writes about game spaces in general, citing a variety of examples from both games and movies, as well as various points of view from scholars, I focus on a few specific examples.

In both *The Navigator's Experience* and *Games as Inhabited Spaces,* she argues that the reduction of the experience of gameworlds to the realm of visuality needs to be expanded to include embodied spatial interaction with said gameworld. She does this by drawing on the ideas of three French theorists writing about space.[175] Firstly, Maurice Merleau-Ponty and his phenomenological understanding of how space is created by and connected to

[174] Melanie Swalwell and Jason Wilson, *The Pleasures of Computer Gaming: Essays on Cultural History, Theory and Aesthetics* (Jefferson, N.C.: McFarland & Co., 2008), 191.

[175] Flynn, "The Navigator's Experience," 121.

the body. Secondlt, Michel de Certeau, with his reflections on everyday practices and navigation as a method for accessing spaces as diverse as cities and texts. Thirdly, and most extensively, Henri Lefebvre's *The Production of Space* and its three categories: spatial practices, representation of space, and the experience of the user, often referred to as his triad.[176]

Merleau-Ponty, de Certeau and Lefebvre all focus primarily on lived spaces in the real world and a central question for me in this context is whether this is also applicable to the representation of space in gameworlds. For Flynn, this is overcome by writing about the embodied experience of gameworlds, stating that there is no separation between the player and the gameworld, and that you can only experience the gameworld through your body.

Navigating a gameworld involves an experiencing body and the player's imagination, creating responses in the player to the game space.[177] She also sees Lefebvre's triad as a way to go beyond the notion of games as narrative storytelling, and instead reconnect game space with action, mobility and history.[178]

Lefebvre describes this triad as dialectical. Spatial practice/representations of space/representational spaces are ordered as thesis/antithesis/synthesis and not as a simple duality, such as reality/representation or body/mind.[179] Lefebvre is a Marxist scholar, and his aim is to formulate a theory of the production of space that applies to all societies.

I, on the other hand, am only interested in exploring its applicability and will leave the broader implications to others. With this in mind Lefebvre's triad, as used by Flynn, can be applied as follows:

Firstly: Spatial practice is the way in which space is produced in a particular society, e.g., *"the daily life of a tenant in a government-subsidized high-rise housing projects"*.[180] For Flynn, this describes the player in a game space as someone who actively experiences that space and navigates it using their experiential body and active imagination.[181] The space has a grammar of

[176] Henri Lefebvre, *The Production of Space* (Oxford: Basil Blackwell, 1991), 38–39.

[177] Flynn, "The Navigator's Experience," 123.

[178] Flynn, "Games as Inhabited Spaces," 56.

[179] Lefebvre, *The Production of Space*, 39.

[180] Lefebvre, 38.

[181] That is; a body that feels and creates meaning in its environment

landscape, architecture, and a sonic environment that the player not only reads but engages in through kinesthetic actions and bodily memory.[182]

Secondly: Representations of space is a conceptualized space, a space like the ones created by architects and urban planners, but also *"a certain type of artist with a scientific bent".*[183] *"Conceptions of space tend [...] toward a system of verbal (and therefore intellectually worked out) signs".*[184] Flynn uses the conceptualization of space as a means of establishing a connection between the space and the player. She also uses this to discuss the connections between different ways of representing space in games: 2D, 2.5D,[185] and 3D, as well as what she calls photorealism.[186]

Thirdly: Representational space is a space lived through an overlay of images and symbols, the space for *inhabitants* and *users*. It *"tend towards a more or less coherent system of non-verbal symbols and signs".*[187] Flynn refers to this as the experiences of the actors that stimulate and evoke perception. She connects this to Michel de Certeau's description of walking as something that opens up a place for human activity and articulation.[188] She also makes a connection to Merleau-Ponty and his ideas about the self-image of a body that is oriented towards a task. These are examples of perception as active participation in space, not passive reception.[189]

In connection with these three moments, the triad, Lefebvre also mentions the body. The body is another instance of perceived space and can be understood in the same way as other spaces. Our conception of the body comes from medicine and culture, as well as experiences of relating the body to its environments. The lived body is the body as it is experienced through culture and corresponds to representational spaces. His example is the lived

[182] Flynn, "The Navigator's Experience," 123.

[183] Lefebvre, *The Production of Space*, 38.

[184] Lefebvre, 39.

[185] 2.5D is also known as axonometric perspective. This is a simplified way of drawing in perspective, using a fixed angle of 120° instead of a construction with vanishing points. It can be seen in Image 14, p. 59, where it's used in an early Zelda game.

[186] The way she uses photorealism here refers to a curious subgenre of space in games. In games like *Myst* or *Riven*, the world consists of static rendered photorealistic images that you click through. Each image has a high degree of realism, but the gameworld plays a bit like an interactive slide show.

[187] Lefebvre, *The Production of Space*, 39.

[188] Flynn, "The Navigator's Experience," 125.

[189] Flynn, 126.

experiences of the heart and sexual organs, which in a Judeo-Christian society are suppressed by morality, creating a body without organs.[190]

To me these ways of understanding perception are all more precise elaborations of a general theme: we as players are co-creators of our experiences. The gameworld is understood through our bodies, space is given to us through signs, and we are able to inhabit it as users of that system of signs.

Flynn is interested in the idea of embodiment, in the body as it is experienced in relation to the space in which it is situated. As mentioned earlier, she makes a connection between Lefebvre and Merleau-Ponty and uses the latter to extend her arguments. Humans have a self-image of their body that is not only derived from the body itself and its position in space, but also from movement in space, action, and tasks.[191]

Space is experienced through an act of bodily engagement and Flynn argues that this is also the case in videogame spaces. As I have described earlier, movement, action and tasks are central to game design and the careful restrictions and planning of these are essential, so it seems like there's a strong case for gaming creating an embodied experience.

Flynn's texts contains broader arguments than those mentioned above, and she moves between theory, games, film, and gardens in her discussion of space and navigation. She also associates different theorists with it.[192] I believe I can summarize the main points that are relevant to the spaces of gameworlds in relation to the examples I have chosen:

1. The space of the game is part of the cultural production in which it is made. My two Nintendo games reflect both the technological progress and the multinational reach of a Japanese company. They also reflect the current state of gaming technology.

2. The same computer tools are used in the development of games as are used by architects, designers and urban planners. These tools use clear and unambiguous models to describe space. There are many possible types of spatial representations to choose from. Breath of the Wild uses the same 3D space as perspective drawings, and Super Mario Odyssey is a mixture of several forms of spatial representation but mainly uses 3D space with carefully placed 2D spaces within it.

---

[190] Lefebvre, *The Production of Space*, 40.

[191] Flynn, "Games as Inhabited Spaces," 57.

[192] It should also be said that her use of Lefebvre's *The Production of Space* is limited to the part XVII and its first chapter entitled "Plan of present work" 36-46. The scope of his book goes far beyond the understanding of space outlined here.

3. Spaces should be understood both representationally and bodily. A space consists of the activities of the user moving through it, and the representative signs of the space are images and sounds, not verbal signs. The perception of a game space comes from running around, fighting and trying out everything in it. This game space is not only understood intellectually but also felt in the player's body. The action takes place simultaneously on the screen and in the player's memory as well as body.

All of this is to say that space is a key concept in understanding how our experience of gameworlds works together with us on a fundamental level. We understand space through tasks and actions such as walking, and games are built around these kinds of interactions. The distinction between game space and real space is not always as clearcut as one is tempted to believe, because all experiences of space are embodied. Games are one clear example of the representational spaces built from non-verbal signs that Lefebvre writes about.[193] We, and our bodies, do not change when we engage with gameworlds, it is the same kind of perception at work, and we are eager to dive into the world on the other side of the screen.

[193] Lefebvre, *The Production of Space*, 39.

# Immersion and experiences

The experience of embodied perception of a space, that is of being inside a game, described in the previous chapter is often referred to as immersion, a word that suggests that we as players are lowered into the gameworld. I have come across many ways of using the term immersion in the literature on games and on perception. Below I will discuss some of these that I believe contribute to our understanding of how we experience gameworlds.

In an earlier chapter on sound and music, I discussed Rod Munday's concept of cognitive immersion, where the music in the game can help us block out other sounds around us in the real world.[194] In this situation, it does not matter what music is played, it is mainly used to block out reality. He also describes another type of immersion, which he calls mythical immersion, which relies on music's ability to create epic feelings while bypassing rational thought.[195] This he exemplifies with Wagnerian leitmotifs, in which characters in an opera have their own melody and these are blended together as the story unfolds. We have already seen that music is handled in a similar way in Breath of the Wild. Both his ideas combine the use of music in games with the experience of immersion. There is an argument to be made that these two auditory aspects of gaming creates some very strong immersive effects; one takes out the world around us and the other creates emotion in a very direct way. Neither provides a complete explanation to how we become immersed, but they are part of the story.

A different perspective on immersion is offered by Oliver Grau in his book *Virtual Art, from illusion to Immersion.*[196] In it he describes an evolution of immersion from murals in antiquity (the landscape room in *Villa Livia*, 20 BC) through baroque interiors (Andrae Pozzo's *Nave of Sant'Ignazio*, 1688-94) and 19th century panoramas to virtual reality in our time. He describes the history of images that enclose the viewer on all sides and how these types of images are used in art. He gives two versions of a definition of immersion: one in the context of panoramas, where immersion is described as the feeling of being present, ready to act, and almost touching the figures in the image.[197] The second definition comes from artist Michael Naimark in relation to his VR-like installations, where immersion is *"simply [...] the feeling of being inside,*

[194] Munday, "Music in Video Games," 56–57.

[195] Munday, 58.

[196] Grau, *Virtual Art*.

[197] Grau, 126.

*rather than standing outside".*[198] Grau's version of immersion is one of spaces consisting of images, where interactivity is not so important and sound is not part of the experience. It also has a lot to do with the discussion about immersion and virtual reality that was going on at the turn of the century. Virtual reality was an important topic in the writings on computer-based media at that time, in a way it hasn't lived up to. However, it offers the most literal version of immersion by embedding it in a story of images that surround the viewer. As such, it has no relation to the games I am writing about here, but it locates immersion in art history as a topic that has been around for a long time.

Another common description of immersion can be found in the influential book *Hamlet on the Holodeck* by Janet Murray: *"The experience of being transported to an elaborately simulated place is pleasurable in itself, regardless of the fantasy content. We refer to this experience as immersion. Immersion is a metaphorical term derived from the physical experience of being submerged in water".*[199]

If Munday's definition is about keeping reality at a distance and creating epic emotions, then Murray's is about a simulated place, and Grau's is about visual spaces. All of these uses of the term have to do with being in a different place, where your actual body is not.

Murray sees games and other digital media primarily as a means of telling stories. Many of her examples come from a combination of games, film, and theater, and this shapes her understanding of immersion. Immersion means putting yourself into a story by actively creating belief, not merely suspending disbelief.[200] In an immersive gameworld, the player should be given agency. To me this demand on agency is similar to the need for tasks and actions to understand the space that we saw in the previous chapter.

She makes a useful distinction between interactivity and agency in games.[201] Interactivity is the ability to do something, agency is the ability to do something that changes the story. With agency comes gameplay qualities like the pleasure of navigation.[202] We experience this in Breath of the Wild, where the open world structure lets us shape our own journey through the game. This is also the case in Super Mario Odyssey, albeit to a lesser extent. In Marioland we have far fewer choices to make that affect the unfolding story. We can

[198] Grau, 244.

[199] Murray, *Hamlet on the Holodeck*, 124.

[200] Murray, 136.

[201] Murray, 161–62.

[202] Murray, 162.

choose how much exploration we want to do or whether we want to go straight to the end of the course. But in neither game are we completely left to chance and scripts beyond our control.

The third part of her model of game enjoyment is transformation, the possibility of being someone else within the gameworld.[203] Her focus on theater as a kind of model for immersion places emphasis on the transition from real life to fantasy. Threshold objects such as game controllers and their haptic feedback facilitate this transition.[204] Another important threshold object at the center of play are avatars which function like masks for us players.[205]

Murray is the definitive author of games as narrative, and her model of game enjoyment, with its three interconnected parts – immersion, action, and transformation – has been discussed and used repeatedly since its first publication in 1997.[206]

While I think this is a great way to understand the pleasure of play, I am not so sure about the goal of telling stories the theater way. An interactive Hamlet, whether on the Holodeck or on a Nintendo Switch, doesn't seem like a good idea. There is an inherent conflict between the need for structure in the narrative on the one hand and the open-ended nature of play on the other, which games need to reconcile. I beleive that games produce experiences rather than stories, and that this is essential to the sense of being *somewhere else* that is at the core of immersion.

So Murray's version of immersion offers some key ideas about how to facilitate it through agency and threshold objects, but it is not an explanation for why we experience immersion in games, at least not for me.

Matthew Gladden suggests yet another way to think about how we are present in a gameworld. His threefold description is based on phenomenology, particularly the writings of Roman Ingarden and Christian Norberg-Schulz. He calls this *"the gameworld as triaxial realm for psychic exploration"* and emphasizes both the exploration in the gameworld and the way it takes place in the player.[207]

---

[203] Murray, 195.

[204] Murray, 156.

[205] Murray, 139.

[206] All quotes are from the 2017 edition of the book, in which she added commentary to each chapter to bring it up to date.

[207] Gladden, *Phenomenology of the Gameworld*.

Exploration here resembles the pleasure of navigation described by Murray. Both emphasize the importance of what Murray calls *"the journey story",*[208] a common type of epic tale in which a hero embarks on a long and tortuous quest to reach a final destination. On this journey, the hero of the game is constantly faced with problems to solve, and this problem-solving is, according to Murray, another source of pleasure in gaming, as in storytelling in general.[209]

Gladden's model describes how we experience gameworlds along three axes. The first axis deals with how we perceive different senses and media, the second with how we shift our attention between different ontological strata, and the third with how we as players explore the different spaces of play.

Gladden's first axis is thus concerned with multimediality.[210] In gameworlds we make use of several different sensory modalities: vision, hearing, and haptic senses through hand controllers. These modalities all offer ways of deployment; sight can be a landscape in front of us, a maze, or text to be read, sound can be natural sounds, sound effects, or music, and haptics can include both control schemes and vibration patterns as feedback.

Gladden describes these possibilities as opportunities for game developers to place the right part of the game in the right modality to achieve a desired experience.[211] As players in the gameworld, we cannot experience it in its entirety at once, nor can we focus on several of our senses at once; we must recreate the gameworld in our minds from all the smaller parts as discussed in the chapter on Parts and wholes, p. 125. This is a description of us in the gameworld, we are experiencing a lot of small parts of a larger whole and we shift our focus between different sensory modalities while doing so.

Gladden's second axis deals with the ontological strata within the gameworld.[212] He divides these strata into six layers, from the smaller ones to the game in its entirety. The exact differences between his divisions are not important here, but the overall way in which we understand the gameworld is.

---

[208] Murray, *Hamlet on the Holodeck*, 170.

[209] Murray, 171–72.

[210] Gladden, *Phenomenology of the Gameworld*, 233.

[211] Gladden, 239.

[212] Gladden, 252.


Image 42, Is the artist Pikango a trustworthy NPC?

In Breath of the Wild, we have to move through the game and talk to a variety of NPCs. We must decide who we trust and obey and who our enemies are. These decisions are ontological in nature. We have to make decisions about what is actually going on in the game and understand the basis on which we do so. Evidence for our judgment exists at different levels of the game design, in different strata in Gladdens terms.[213]

For example, we meet a traveling artist in various places in Hyrule. His name is Pikango (Image 42) and the way he talks and behaves lets us know that he is a great artist, and when we see him working behind his easel, he shows grand and expressive brushwork and body language. He will give us quests that will take us to significant places in the game. Should we accept them? That depends on whether we make that decision based on his artistic production or on his way of talking about the quest he gives us. When we move around the camera to look at his paintings, they are the opposite of the rest of his character. He is a comically bad painter.

There's a design of the character, a role for the character, and written dialog to captivate us and make us want to participate in his quests, and then there's the small visual element of his actual artwork that we have to make a decision about. Is it a sign that he's a liar, or an in-game joke to make us like him more?

[213] Gladden, 258.

To make that decision, we need to place the detail in the context of the game as a whole and compare the value of the two pieces of evidence in several strata; is the painting sufficient in itself, how does this kind of event fit into the game as a whole?

Gladden's third axis is concerned with our ability to shift between different kinds of spaces, to shift attention between constituent spaces.[214] There are different kinds of spaces, of which the most obvious are the *real space* and *presented space*, i.e. the space in which we sit and play the game on the one hand and the gameworld on the other. The connection between these two is a mental connection that takes place within us when we play.

He also describes different types of places in play: Perceptual space, imaginary space, concrete space, natural space, built space, space of places, identifiable space, technological space, emotional space, social space, axiological space, economic space, political space, cultural space, ecological space, and possibility space. Not all of them have an impact on how we experience gameworlds, but serve as useful categories for game developers to think about.

At least five of these categories are explicitly derived from Norberg-Schulz: concrete space, natural space, built space, space of places, and identifiable place. Gladden is primarily concerned here with our ability to shift effortlessly between these different spaces in a game. We can move seamlessly from an emotional space to navigating a labyrinth. Immersion, like the perception of space, takes place within us in relation to the gameworld. But we need to consider what this "in us" means here. What is the "I" that is immersed in the gameworld? In Grau's examples, we are surrounded by a space made up of images, but we are still not in the image in a physical sense, but in some other way. Murray's agency and transformation of the player does not suggest that the player's actual body is being altered. And yet experiences of that kind are there.

One way of understanding this is through Maurice Merleau-Ponty's concept of the body schema. As a phenomenologist, he deals with the question of how we experience our body in a different way to the objects around us. A body schema is not the sum of all our body parts and experiences, but rather a second perceived body within us. One way he describes this is that we don't think of our hand as a separate object near anything, an ashtray to use his example.[215] Our hand is us, we think of the ashtray near us, and by us we mean our

[214] Constituent spaces refer to the various virtual environments or areas within a game that interact to create a cohesive gameworld, Gladden, 268.

[215] Maurice Merleau-Ponty, *Phenomenology of Perception* (Routledge, 2012), 100–101.

perception of our bodily existence, that is, our body schema. The body schema is a way of describing how our body is *"in and toward the world"*.[216]

We use this body schema to understand the things we see in the world. We do not need to analyze a gesture we see in order to imitate it, because we experience the bodily movement through the schema.[217] The notion of a body schema is thus a theory of embodied perception, a way of describing the connection between perception and our body that does not rely on intellectual analysis.[218]

Merleau-Ponty extends this perception to the perception of represented objects, at least for some readers who, when reading words that describe bodily sensations such as something hard, humid or hot, perceive a "quasi-sensation" of hardness, humidity or heat.[219]

I think this understanding of perception through a body schema describes how we seem to project ourselves into the gameworld. The gestures of our avatar in the game are understandable in this way, we feel these seen movements in ourselves.

After we have played long enough, we have learned and automated the hand control and it has become a prosthesis, a part of our body. The movement in the game is a movement caused by our body schema, not by the conscious pressing of button A.

Even before Merleau-Ponty, Heinrich Wölfflin describes architectural and artistic experiences as an embodied experience in his 1886 dissertation *Prolegomena zu einer Psychologie der Architektur*. There he describes how he feels architecture in his body: *"Forms acquire meaning for us only because we recognize in them the expression of a sentient (fühlend) soul. […] We project the image of our selves onto everything we see"*.[220]

The body he describes here is not his physical body, but a perceived body, perhaps an early version of the phenomena Merleau-Ponty calls a body schema that relates to what it experiences. Images and architecture are not only perceived with the eyes and the mind but felt within the whole body. This

[216] Merleau-Ponty, 103.

[217] Merleau-Ponty, 226.

[218] Merleau-Ponty, 213.

[219] Merleau-Ponty, 244–45.

[220] Wölfflin, *Prolegomena to a Psychology of Architecture*, 8.

happens through empathy, e.g. we know the feeling of gravity in our body and can recognize it in architecture.[221]

Immersion is more understandable to me if we look at it in the light of Merleau-Ponty's concept of the body schema or if we relate it to Wölfflin's esthetic perception that makes him feel architecture.

The idea that our self-perception can merge with or be projected into an interactive gameworld seems reasonable, as does an emphatic connection to what we see. But it is not the only reasonable explanation. Gombrich's notion of the beholder's share, which I described earlier, is another way of understanding how we interact with images.[222] So are Munday's and Murray's descriptions of our willingness to enter epic narratives. Immersion has many dimensions and works in two directions; from the game towards us and vice versa. The gameworld pulls us in, and we descend into it.

## Flow

There is one more important way to understand the experience of being in a gameworld. In writings about game design, immersion is often associated with the concept of flow. Both are desired effects in a game, but they are not interchangeable. If we think of immersion as plunging into the deep waters of the gameworld, then flow is the undercurrent that pulls us far away and keeps us in the water and below the surface.

Flow is a term coined by the psychologist Mihaly Csíkszentmihályi in his book *Flow: the psychology of optimal experience.* Flow is when we are completely absorbed in a task, it is a *"state in which people are so involved in an activity that nothing else seems to matter",*[223] and his application of the term is wide-ranging, often using examples from art and games.[224] In game design, flow is often described as the right balance between the challenges in the game and the player's abilities. If the game is too challenging, it becomes an anxiety-ridden experience and if it is not challenging enough, it leads to boredom (see Image 43).

---

[221] Wölfflin, 7.

[222] Gombrich, *Art and Illusion*, 153.

[223] Csíkszentmihályi, *Flow: The Psychology of Optimal Experience*, 4.

[224] When Csíkszentmihályi writes about games he means the kind of games that children play together in the real world, not computer games.

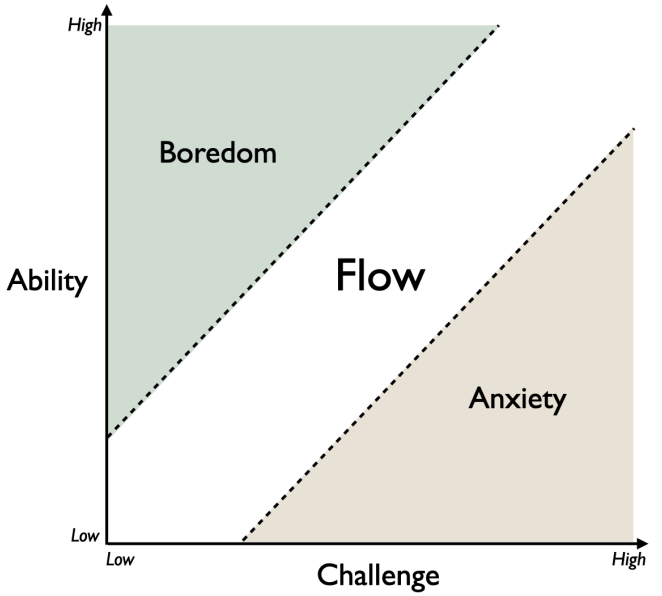



Image 43, Flow as a product of ability and challenge, after Chen.[225]

When we hit flow, we are in the zone and the hours pass without us realizing it. We are in the game, solving problems that gradually become more and more complicated and keep us on our toes. There is a lot of pleasure to be had in this kind of problem solving as it pushes us to become better.

Many, including Jenova Chen[226] and Colombo, Hansson and Nyström[227] have pointed out that there is an overlap between immersion and flow. Both describe a state of strong engagement that should be integrated into the game.

Chen, together with Nicholas Clark, developed the game *flOw*[228] (2006) to explore concrete ways to implement Csíkszentmihályi's ideas in game design.

---

[225] Jenova Chen, "Flow in Games (and Everything Else).," *Communications of the ACM* 50, no. 4 (April 2007): 224, https://doi.org/10.1145/1232743.1232769.

[226] Chen, 31–34.

[227] Simone Colombo, Patrik Hansson, and Markus Nyström, "Mining Players' Experience in Computer Games: Immersion Affects Flow but Not Presence," *Computers in Human Behavior Reports* 12 (January 1, 2023), https://doi.org/10.1016/j.chbr.2023.100334.

[228] Jenova Chen and Nicholas Clark, "flOw" (Thatgamecomapny, 2006), https://thatgamecompany.com/flow/.

Colombo et al. add presence as a third variant of this experience.[229] They also note that immersion is not a clearly defined term but is used in different ways by different authors.

Flow on the other hand is defined and its application to game design is clear. It is definitely necessary to balance challenges and abilities in the game, and to design an interesting learning curve so that we can acquire these abilities during the game.

Chen points out that the flow of the game depends on both the player and the game design. A hardcore player appreciates a game flow that offers more challenges, and a novice likes ways to develop abilities. The game design can offer multiple paths through a game to appeal to more types of players.[230]

The design of flow is a design of the gameplay experience that balances and engages with the rules we play by and largely disregards the experience of being in an environment. I argue that games engage us as players on multiple levels, that the experience of playing takes place in at least three modalities simultaneously and that none of them is inherently more important than another, even though this may be the case in some games. These are the modality of storytelling, the modality of play, and the modality of place.[231] Flow deals with the second modality, play, while immersion and presence take place in the modality of place.

When we play, we switch back and forth between these three modalities. We are driven by the urge to understand what is happening and to master every situation. These are the game modalities of storytelling and play.

I will return to these notions of modalities later, in *Part Three: Time*, because for me they are closely related to gameplay and the way we move through the game and gameworld in a not entirely straightforward way. This is related to the different ways in which time is experienced as part of story, play or place.

But that's the topic of the last part of my understanding of how we experience gameworlds and before we get to that, we need to complicate the notion of experience by bringing new phenomenology and the concept of atmospheres into the discussion.

---

[229] Colombo, Hansson, and Nyström, "Mining Players' Experience in Computer Games: Immersion Affects Flow but Not Presence," 2.

[230] Chen, "Flow in Games (and Everything Else).," 32.

[231] Modality is often used to refer to different types of media (such as text, speech, music, video, image) in storytelling, especially when we want to talk about multimodality. This is not the way I am using it here. The three levels of modality refer to different perceptions of gameworlds that the player switches back and forth between.

# Atmospheres

When we project ourselves into a gameworld, we do so by engaging with it as if it were real. In doing so, we take on our part of the perception, what Gombrich calls the beholder's share.[232]

How we achieve this becomes clearer if we use a phenomenological model in which we experience the gameworld in multiple ways, primarily through the three experiential structures described earlier (*parts & whole, identity in manifold* and *presence & absence*). Here we experience the gameworld as analog to the real world and we apply our experiences from real life to the experiences in the game.

Husserl's phenomenology creates a unique framework for the study of experience. Using the method of epoché, of bracketing, we set aside assumptions and preconceptions from the everyday world in order to examine experience as it is given in itself. This approach allows us to explore intentionality, i.e. the way in which consciousness is always directed towards or relates to its objects.[233]

The new phenomenology developed by Hermann Schmitz complicates the concept of intentionality. To simplify his critique for the sake of clarity: Husserl's concept of intentionality assumes a subject intending an object and establishes a clear distinction and directional relationship between the two. This model suggests a separation in which the subject actively directs its consciousness towards the object.[234] Drawing a parallel with Jakobson's model of communication (Image 9, on p. 46), intentionality can be seen as going in only one direction, from the receiver (the player) towards the message (the game).

Schmitz argues that there are fundamental experiences that arise in the world and surround us, such as violence and love. These experiences are not something that we actively intend, as Husserl's model of intentionality suggests. Instead, they exist independently of a subject's directedness and blur the sharp distinction between subject and object. Schmitz refers to this phenomenon as *atmospheres*, a kind of omnipresent presence that exists between or beyond the traditional subject/object distinction and continuously affects us and shaping our experiences in profound ways.[235]

---

[232] Gombrich, *Art and Illusion*, 163.

[233] Sokolowski, *Introduction to Phenomenology*, 49.

[234] Ola Sigurdson, *Atmosfärer: en introduktion* (Stockholm: Andersson Örn, 2023), 24–25.

[235] Sigurdson, 25.

The best-known author on atmospheres is Gernot Böhme, who extended the concept to the field of esthetic production, such as art, scenography and interior design. In doing so, he made the term applicable to a variety of topics and enriched its practical and theoretical relevance.[236]

According to Böhme, atmospheres are something that surrounds and affects us. They are neither purely subjective experiences nor objective features of the world but exist in the interplay between the two. Atmospheres are shared experiences; they are not tied to a single person but are felt collectively. It is important that they can be consciously created in order to make them tangible and perceptible. These atmospheres evoke emotions and appeal to our senses. In other words, they are affective by nature and can influence our emotional and physical reactions.[237]

Böhme describes atmospheres in ways that are vague but at the same time useful; they are *"perceptible in a bodily sensuous way", "atmospheres are involved wherever something is staged"* but *"the phenomenon of atmospheres is itself something extremely vague, indeterminate, intangible", "they [atmospheres] bathe everything in a certain light"*.[238] It's something that undoubtedly exists and that influences us.

Böhme states that one can only determine the conditions under which an atmosphere can appear, that we cannot create it in the same way that we can create an asset in a game or a color on a wall.[239]

I have written before about the construction of a gameworld as a technical and visual problem; about the complications of getting a coherent world to tell a story while still being a calculated technical image.[240] The making of an image is the necessary condition for us to experience it, but the main experience of a game, the one I dream about long after I have played the game and the landscape that I remember as if it were real, is the atmosphere. That's the part of the gameworld that affected me and created emotions that I retain even after the game is over.

There is not one singular atmosphere in a game such as Breath of the Wild or Super Mario Odyssey, but several local ones, made out of the many places with different characters that they contain. I adressed this character of a place at the beginning of this part of the book with the help of Norberg-Schulz to

---

[236] Sigurdson, 27–28.

[237] Sigurdson, 38.

[238] Böhme, *The Aesthetics of Atmospheres*, 29.

[239] Böhme, 31.

[240] See the chapters *Perspective* and *Generating an environment*.

connect experiences in gameworlds with experiences in the real world.[241] Böhme's notion of atmospheres is a continuation of this line of thought and a way of capturing how the experience is made possible inside a game.

This is also a point where the use of still images becomes frustrating, as they only allow me to show part of the overall experience of place that the gameworld offers. The following interpretations of the atmospheres in specific places inside the gameworld are about the gaming experience, and the referenced images are only a window into the visual impressions of a particular moment.

Image 44, A warm summer night in Breath of the Wild.

In Image 44 we stand still and look at a campfire that glows warmly in the not-so-dark summer night. We are near the entrance to the Dueling Peaks ravine, on the way down from the Great Plateau. We can see the smoke rising straight up from the fire, it is a very calm night, and the moonlight illuminates the leaves of the trees. Another traveler is sitting under a tarp near the fire.

The night music in this place is very slow; it is a piano playing only a few notes with long intervals and long reverberation, airy and calm, perhaps a little melancholic.

[241] See *Landscapes and places*.

The overall color is a dark and warm green that anchors us firmly in nature. All the signs of nature are there: green grass, a few old trees, a gentle rock face and a cheerful campfire. We can not feel the warmth of the evening, but we can see and hear it in the colors, the music and the calmness.

This is the experience of a great hiking evening, whether in real life or in the game, calm, warm, slow, under a starry sky. This place promises a relaxing summer night in the woods. I can smell the fire and the grass, as well as the moment of relaxation this place offers.

The atmosphere of this place is sensual and physical, we know what this night smells like, of smoke and forest. We are surrounded by it, even though this forest is just a small collection of trees. It is intimate and safe.

It is made of the same assets as all the other parts of the game, but here it is staged in a very special way, lit with a mixture of warm fire and white moonlight and accompanied only by sparse, soft sounds.

Image 45, Link in the cold, snowy mountains.

Image 45 is from the same gameworld, but up in the mountains and in daylight. Similar assets are used as in Image 44, there are trees, cliffs and grass, but a different tree and grass model.

Here the color scheme is white, blue and gray and the green of the fir trees is covered with snow. As before, the trees are widely spaced so that we can see each tree as an individual being. It is quiet up here and as we walk around, we hear our footsteps on the frozen snow. It’s also very cold and we can see Link’s

breath forming a small cloud in front of his face. There's a little music, but it's cold and sparse, a few hard notes played on some small wooden percussion instrument.

I am playing this game with "Pro Mode" turned on, which means I have most of the HUD turned off, including the thermometer that tells us if we're cold or warm.[242] I'm doing this because the thermometer is superfluous. The game already shows us the temperature, and a non-diegetic display is not necessary.

The atmosphere is that of a cold, open and exposed place. You can see far into the bluish landscapes in the distance. There is no cover, no protection, just snow and rocks. Maybe you long for the warm green woods like I do. You will die from the cold if you do not wear warm clothes. It's peaceful, but dangerous.

There is no need to tell us about the temperature, we can feel it when we walk around in the snow and hear it from the music. We are in a winter, and not a cozy Christmas type of winter but one that takes place in sparse nature.


Image 46, Mario in the forest of Wooded Kingdom.

My third and final example of how atmospheres are experienced in these games comes from Super Mario Odyssey. In Image 46, we see Mario standing in a very small forest right at the beginning of the Wooded Kingdom. The

[242] The only part of the HUD that remains is the row of hearts top left that displays my current health.

forest is made up of very tall trees that dwarf our avatar and the sunlight shines down through them.

There is a distinct difference between the grass as a three-dimensional model, which can be seen here and there, and the greenery which consists of a colored image on the ground. This gives the place a sense of artificiality, of videogame. There are a few non-natural objects (they are robotic watering cans that live here and are not clearly visible in the image) as well as a broken stone that signal some kind of purpose because it is so different from the rest of the area. They stand out from the ground so we can see that we can interact with them.

The color scheme is varied: browns and greens and purples and grays in the background and a few yellows (those are coins in the treetop) and bright purple/yellows indicating that something meaningful is happening near a tree.

It's not entirely clear what the weather is like. It's certainly sunny, but I cannot perceive any temperature.

The sounds are metallic and industrial, it's not music but noise, thus at odds with the nature around us, although not very loud. As we walk around, we realize that this forest is small, just a few trees, and beyond it we enter a red metal building that makes up the main structure of this kingdom.

This place does not convey an atmosphere that I find familiar, at least not one as clear as a forest or the weather ought to bring. But there is an atmosphere of joyful play, perhaps not clearly visible in the still image, but very present as you jump, roll and run around this small area. This is a nature-themed playground, not a place to go for a hike as in the Zelda game. The bodily embrace of this place has to do with movement and gymnastics, not temperature and wind.

Atmospheres in gameworlds tells us what to do, make us feel a place and be present in it in the intended way. We can wander around with Link in Hyrule or play with Mario in Marioland, but it's hard to imagine them switching places.

The landscapes and places we move between are carriers of these changing feelings and evoke a bodily response. They surround us and affects us, and they leave memories in us. When I go hiking in real nature, I remember Hyrule, I see a playground and some of the athletic joy of Mario's impossible jumping and running comes up in me.

Creating atmospheres in games is perhaps one of the most important tasks for a game developer, whatever that atmosphere is supposed to be. For us players, it is something that stays with us. Marioland offers us an embodied experience of playfulness and precision athletics, Hyrule strives for an ideal

version of nature. There are, of course, many other possibilities for other games.

# Part Three: Time

When I spoke about atmospheres in the previous chapter, I noted that movement, sound and interaction are a part of place that I cannot show, only describe. All these aspects have a duration, they cannot exist instantaneously.

I also did not consider that time passes in the gameworld, and that day comes to the warm night scene in the forest and night settles over the snow. For Mario, on the other hand, there is no such thing as time; in the Wooded Kingdom it is eternally noon.

The atmospheres I have described here are associated with these small places and short periods of time, but the games are big and long, so we need to consider how time affects us and what it means for our experience of the gameworld.

Managing time in game production requires editing and montage, techniques familiar from film. The idea that games are the next version of film and television is widespread. It forms the basis of Janet Murray's *Hamlet on the Holodeck,*[243] in which she places games in the context of imaginary interactive films such as the holodeck in Star Trek and the interactive television screens in Ray Bradbury's novel *Fahrenheit 451*. Both are reminiscent of what video games were to become in the 1990s.

Time in a video game often works like time in a movie, in that we use *story time* and *plot time* to tell a story.[244] We play through the game's plot, which may include flashbacks, ellipses and exposition, and reconstruct the story based on the clues we receive.[245]

The need to slowly piece together the story from the information we are given is one of the pleasures of movies and other narrative media, and the careful portioning of bits of plot over time is a central part of good storytelling. This exploration of plot and story takes place in story time.

---

[243] Murray, *Hamlet on the Holodeck*, 15–27.

[244] Story is the narrative that is told in the game and is usually not fully told until the end of the game. Plot is the things that happen in the game in the way and order in which they happen. We encounter a plot in the game and from it we reconstruct the story.

[245] Gillespie and Tonybee, *Analysing Media Texts*, 90–91.

So, in parts, game time works like time in movies, but we can't draw too strong a parallel here. Games can tell stories, but these are only part of the experience and the storytelling is usually interwoven with other aspects of the game.

There are other types of time in games. In film studies, the term *screen time* is used to refer to the time we spend sitting in front of a screen watching a movie.[246] In video games, our screen time is often remarkably long.

Even a short game, such as Super Mario Odyssey, has an estimated playtime of 12 hours. It's possible to play through the game in one go, but it's broken down into smaller sections, kingdoms, which encourage you to play the game in 1–2-hour chunks. With 14 regular kingdoms (and 3 unlockable extras) each lasting an hour or two, it's similar in length to a TV series and is considered a short game.

Breath of the Wild is way longer than most other media, except books, with its estimated playtime of 50+ hours.[247] There are many games with a longer playtime than this. Excessive screen time demands a lot from us players in terms of time, memory and engagement in the game.

A third type of use of time in games is *play time*,[248] which is the time created by the rules of the game. This type of time allows us to "die" and start over again and again. It also works together with narrative time to lead us to an ending. It can vary in different sections of the game. Sometimes we can explore freely without worrying about time passing, and in other sections we have to make do with short spans of time. Game time is part of both the gameworld and the set of rules that govern the game and therefore behaves in different ways.

The fourth type of time that operates in a gameworld is the time that is represented in it. A location in the gameworld contain days and nights, as in Breath of the Wild, or is set in a specific time, as in Super Mario Odyssey. There can be weather and seasons, all depicted through signs in the gameworld and building the specific atmosphere of a particular place and time. As we will see, the connection between space and time makes it possible for a gameworld

---

[246] Gillespie and Tonybee, 93.

[247] As I explained in the chapter *Ways of playing* there is no fixed playtime, it varies greatly with the player. Personally, I have spent many hundreds of hours in Breath of the Wild and over a hundred hours in Super Mario Odyssey, which is due to my way of playing and exploring gameworlds.

[248] "Play time" refers to the time incurred by the rules of the game, such as the need to run quickly through a part of the game, making the time we spend in that section short. The term "playtime," used earlier in this book refers the time we spend playing the game. In this part I refer to it as "screen time" to avoid confusion.

to switch between different atmospheres easily, shifting the experience for the player.

Of these four types of time, three take place within the game: story time, play time and place time. One is part of our normal world, screen time. The sheer amount of screen time is an interesting symptom of the deep engagement that games demand and receive from their players, but it does not involve the player in the gameworld in the same way as the other three.

They are all experienced through some aspect of the game, so I think of them as temporal modalities that we as players shift between. These three ways of experiencing time exist simultaneously in the game. At any given moment, one of them may take center stage and override the other two, and at other times they all demand our attention.

Modality here refers to the aspect of the gameworld through which we experience a type of time, hence temporal modality. These are story, play and place, and I will consider them separately before suggesting a way to understand the complexity of how time and space are conceptualized in a gameworld and what that means for our experiences in these games.

## The modality of story

The main stories in my two examples are not very extensive and can be summarized as follows: A young hero travels and rescues a princess in a castle. This story has been told in many earlier versions of the games. As already mentioned, we do not follow the story but are occupied with the plot.

The plot is the way the story is told, and therefore the aspect of storytelling that has the strongest impact on our experience. Both games have their own way of complicating the plot and turning it into something new. It is also necessary for the storytelling to interact with the gameplay, as both contribute to world-building.

In media other than games, storytelling would be more urgent. The time of the story would have a finite end and the princess would have to be rescued before we reach that end. This is not the case in these games. We are told to hurry often enough, but the end of the game does not depend on story time, it depends on play time. The way time unfolds in the game is determined by us playing it, not by its own internal logic.

In Breath of the Wild, we can, if we want, reconstruct a backstory that covers a large part of the history of Hyrule. This is done through flashbacks that we track down led by an album of pictures. We have to use clues in the pictures to find out where they were taken and go to that location to discover a glowing spot where we can call up a cutscene with a flashback. We then have to put these in the right order to understand why we are here now and have to fight Ganon.

This story of Hyrule is also told through NPCs who speak to us and through places of significance, such as ancient battlefields full of defeated Guardians. There are also seventy-six side quests that we can complete if we want to. Each of them tells its own independent story, from finding a few runaway chickens to funding a new village. Each of them leads us into a secondary story loop with its own goal and time frame.

There are also places in the game that connect this Hyrule to the Hyrule of the other Zelda games, hinting at a larger and more complicated history of Hyrule, where the different games tell their part of the story in their own way. This is often done through reimagined places from previous versions of the game. This is an example of a deeper historical time that is present in this world. We don't have to delve into it, but we can.

The reconstructed history of Hyrule, as well as the backstory of why we are where we are in the game, is irrelevant to the actual outcome of the game. We can defeat Gannon without understanding why. Instead, the story here has to

be an end in itself and the game is designed to keep us engrossed with or without the storytelling.

As Breath of the Wild is an open-world game, there is no correct order in which we encounter the parts of the plot. There is a suggested main route through which we are guided by NPCs, but as there is so much to see and do, we will lose this thread and discover parts of the plot along the way. From the disjointed parts we construct a whole of the story, and as these are spread over a large map requiring many hours of play, we develop memories of how things were earlier during our gameplay. Experiencing the entire story from all the parts is a long process in which we get involved in reconstructing it.

Super Mario Odyssey, on the other hand, is a linear game, which means that both the story and the plot are told in a linear fashion. The story is again about rescuing the princess, but this time she has been kidnapped and is not in her own castle. The plot is similarly straightforward: we follow the trail of the wedding planners who are stealing things that Bowser needs for his wedding to the princess he has kidnapped. This takes us to one kingdom after another and even if we defeat one of the wedding planners in each kingdom, we can't stop the wedding until we finally meet Bowser in his castle on the moon and interrupt the wedding ceremony.


Image 47, The Luncheon kingdom.

The fight with Bowser is the end of the story, but not of the plot. We travel back to previous kingdoms to follow Princess Peach on her trail and collect more power moons until the game changes focus to gameplay for very experienced players in the final two levels; the dark side and the darker side (both on the moon), which are much harder to beat than the previous levels.

The plot of Super Mario Odyssey doesn't have to captivate us, but it does have to hold the experience together and provide explanations for why we are progressing through the game. It also needs to provide some kind of explanation for the worlds we have to visit. Some, like the Luncheon Kingdom, are very strange places as you might infer from Marios conversation with a sentient fork in Image 47. The reason for the Luncheon Kingdom is that someone has to deliver the food for the planned wedding, and in this way the story creates the opportunity for a landscape never before seen in a Mario game. Time and the story progress from kingdom to kingdom, while standing still inside them.

With the multiple endings, we have an interesting connection between the story and the gameplay, with the two most skill-focused levels placed after what most ordinary players would consider the endings of the game.[249] In this way, the game gets four endings, one after the other. Unlike Breath of the Wild, there are no explicit side quests here, but a completionist player who wants to get every Power Moon will have plenty of additional tasks to complete in each world.[250]

The two games have a different narrative structure, which changes how time functions in both games. Breath of the Wild is an open-world game and we move through the plot in a freeform way. It's up to us to engage in the story as much or as little as we want. Super Mario Odyssey is linear, one thing comes after another in an orderly fashion and we have to play through everything in this predetermined order.

Much of what is written about games as narrative focuses on the differences between the structure of storytelling in games and the structure in literature, film and theater. In Hamlet on the Holodeck, Murray instead explores some similarities. One of these she calls the multiform story, where the plot tells the story in many ways with different outcomes, as in *Groundhog Day* where Bill Murray's character Phil Connors has to relive the same day over and over again

[249] The first ending occurs when we have defeated Bowser, the second when we have collected all power moons, the third is after *The Dark Side*, and the fourth comes after *The Darker Side*.

[250] *Understanding Mario Odyssey's Multiple Endings - YouTube*, accessed March 18, 2025, https://www.youtube.com/watch?v=0F-4jpu7y7s.

until he gets it just right.[251] This is clearly present in gameplay; we have to replay many parts in order to complete them the right way and advance in the story.

The other similarity is her take on interaction, which she calls an active audience.[252] She describes a scale of interaction, from the basic task of piecing together the story from the plot one end and interactive theater and live action roleplaying (LARP[253]) on the other.

Game environments are spatial she says, and this connects storytelling to navigation of that space.[254] And although she sees how elements of computer-based media emanate from literature and are responses to new technological forms, she doesn't seem all that convinced that video games on their own would develop beyond shoot people, solve puzzles, die.[255]

She argues throughout her book for deeper and more complex storytelling in games, by which she means games that are more akin to cinema. Wishful contemplations like these are typical for the discourse on New Media of the 1990s. Another typical example is Bolter and Grusin's *Remediation.* Their main theme is the way in which old media is remediated in new computerized forms. Some of these forms are tropes of the 1990s, such as hypermedia text, interactive cinema and virtual reality. Computer games are here seen as one such new remediating form, and games are above all a remediation of cinema.[256]

Lev Manovich shares this point of view in his at the time influential *The Language of New Media,* in which he attempts to develop a media-based understanding of New Media. There New Media is digital versions of old media with some key differences; New Media can be copied indefinitely without quality loss. New Media is interactive.[257] This focus on the essential functions of computer-based media is not particularly helpful in understanding the different types of media he writes about. His take on computer games is

---

[251] Murray, *Hamlet on the Holodeck*, 36.

[252] Murray, 44.

[253] Live action roleplaying is a sort of social game or theatre where all participants play a role in an ongoing event themed to some sort of story. Every participant has his costume, role-description and part of the plot to perform along with a lot of improvisation.

[254] Murray, *Hamlet on the Holodeck*, 96–97.

[255] Murray, 58–62.

[256] Bolter and Grusin, *Remediation*, 88–103.

[257] Manovich, *The Language of New Media*, 49.

brief and focuses on two games; Myst and Doom and one aspect of them; they are examples of navigable spaces.[258]

Manovich focuses mainly on cinema and the effects of computerization on it. While there are similar takes on storytelling in games between these authors, such as the emphasis on spatiality and navigation as part of storytelling, games were not their main focus and the concept of New Media trapped them in a discourse on media history.

Add to this Jesper Juul's highly influential idea of games as systems of rules rather than narrative, and it becomes clear that the narrative content of games at times have been overlooked. But as Hartmut Koenitz notes in the introduction to an anthology on the subject, *Games and Narrative: Theory and Practice,* that there is now a renewed interest in examining the narrative aspect of video games.[259] In this anthology Sercan Sengun writes about the ways in which gameplay and narrative interact and intersect within games.[260]

He describes how game narrative differs from traditional narration in that mysteries are not described but become actual puzzles in the game. Pacing in game narration has to do with the alternation between cutscenes and interactive parts of the game, and the temporal frame is different.[261]

This temporal frame includes the traditional story and plot time of narration, but experienced in a different way, and play time is a big part of the experience.[262] Games, according to Sengun, do not provide closure in the same way as traditional narration and they have the potential to go on indefinitely.

He also suggests that plot time in a game is connected to session time which I find interesting.[263] Games are usually not played from start to finish, but in sessions where we as players strive to achieve something, such as a side quest or getting an upgrade. In this way our experiences are not of one continuous time in the gameworld, but of many sessions. Super Mario Odyssey is divided into small chunks of gameplay, the kingdoms, and thus contains clearly divided sessions of play.

Sengun then defines six different ways in which narration and gameplay intersect within video games and looks at fifteen games and notes how these

---

[258] Manovich, 244–48.

[259] Bostan, *Games and Narrative: Theory and Practice.*, v–vii.

[260] Sengun, "Six Degrees of Videogame Narrative," 3.

[261] Sengun, 5.

[262] He calls it "discourse time" and the two terms plot time and discourse time refers to the same phenomena; the time as it is shown in the film or in the game.

[263] Sengun, "Six Degrees of Videogame Narrative," 5–6.

six categories, the *"six degrees of video game narrative"* in the title of his essay, occur in them.[264] I have no need to go into the details of these intersections, suffice to say for the sake of my argument that the modalities of story and play interact with each other and that several of the ways in which this occurs are present in all of his examples.[265]

Storytelling is a necessary part of the games I'm looking at, but at the same time it is not the main purpose. By that I mean that the stories that are told are already known or guessed by the player, and that the way they are told is that they are delivered in small parts spread out over a very long time. As it is a game, we know for sure that there is a way for us to reach the intended goal since the existence of reachable goals is part of the classic game model.[266]

Sometimes we are pushed by the game into playing it for the story. This happens at the beginning of Super Mario Odyssey, where the whole game is explained through the wedding story, and it happens when Breath of the Wild interrupts the gameplay to show us videos of memories.

In these instances, the story time breaks play time and we probably need that exposition as well as a bit of variety in the game. But games are not new media filled with old stories, and storytelling is just one of the modalities we play with. The story modality is a cerebral modality that takes place mainly in our minds as we reconstruct the story from plot given to us as texts and places in the games. It is therefore probably not as engaging as the bodily and emotionally connected modality of play.

---

[264] Sengun, 7–8.

[265] Sengun's six degrees are called "Narrative elements as tools for internalization", "narrative and gameplay sections swap", "narration blurs into gameplay sequences", "universe at pause", "non-sequential autonomy" and "experimental storytelling".

[266] Juul, *Half-Real*, 6–7.

# The modality of play

A game consists of a set of rules and one or more possible outcomes that result from these rules. A video game without rules is a story, a work of interactive fiction. A game that has rules but no story, like *Poker* or *Go*, is still a game.

Salen and Zimmerman define rules, play and culture as the primary schemata of game design. Rules are what the game is made of, play is what we as players do in the game, and culture is the connection of the game to the surrounding society.[267] While I think this is too narrow a definition of what constitutes a gaming experience, it is an interesting way of thinking about what we do when we play a game.

In the two games I'm writing about here, storytelling and gameplay are heavily intertvined. In Breath of the Wild, there is a lot of storytelling, while Super Mario Odyssey focuses more on gameplay as the main component of the game.

In both games, the overall storyline is straightforward in terms of time: we have to get to the princess and rescue her as quickly as possible. It is an emergency, and we are needed immediately. But that only applies to the story time.

Play time is something else and is not affected by this emergency. Instead, story time is repeatedly paused while we solve puzzles, fight enemies and complete side quests. Sometimes a puzzle has its own time constraints, which are communicated to you through the narrative or the environment.

Time in these puzzles often becomes circular, we fail and "die" while solving them, and that means we have to start all over again. This is a conflict between time in the main story and time in the gameplay. The story time rushes towards a final climax, while play time stops and sets up puzzles that create their own rules for time.

In a story, the hero's death is the end of a tragic tale; in play time, it's a reason to start over and do better. To complicate this further, we can add Sengun's concept of session time. We play the long game in sessions, and our experience is more connected to the session than to the game as a whole.[268] The sheer amount of time the game demands of us changes the way we perceive time in the gameworld.

The combat in these two games is also a situation where we as players are playing against rules rather than a believable story or representation of the

[267] Salen and Zimmerman, *Rules of Play: Game Design Fundamentals*, 5–6.

[268] Sengun, "Six Degrees of Videogame Narrative," 5–6.

place and situation. This means that combat takes place in a modality of play, much like solving puzzles and entering shrines. And as mentioned in relation to the use of sounds and music fights take place in a more stressful situation where our bodies and emotions get engaged.[269]

The rules must be clear, otherwise we wouldn't know how to play it. The intended outcome is obvious: we must defeat the enemy in front of us. The rules of combat are made visible in the game environment by objects such as health bars and clearly marked hitboxes such as the blue/yellow glowing eye of a Hinox, as seen in Image 48, p. 168. They indicate the underlying ruleset of combat. Behind the screen, in the underlying programming that runs the fight, these rules consist of a series of numbers that assign values to various objects and actions.

We as players have health, which is represented as a circle in Super Mario Odyssey and a row of hearts in Breath of the Wild.[270] At the beginning of Breath of the Wild, our health is low, but as we progress through the game, we can greatly increase it. In Super Mario Odyssey, we can't increase our abilities in this way but have to rely on getting better at the controls and the many special moves we learn.

So in both games we can improve our abilities, but this is done in two different ways. In both games, we can also temporarily improve our health stats before a fight that we are unsure about. Both games encourage and reward this kind of preparation for a fight.

Our opponent has a corresponding health status, in Breath of the Wild it is displayed as a health bar at the top of the screen and in Super Mario Odyssey we quickly learn that everything has to be done in threes. We have won if our health still has a value, and our opponent has reached zero.

The health bar is not diegetic, so it is a very clear sign that we are in play mode. It appears on the screen when the battle music starts. A fight is therefore framed by the graphics and music that characterize it. We see this in Image 48 where Link is fighting a Hinox and these special graphical elements appears within the HUD while the fight is going on. The health of the enemy is shown as a red and black line directly under its name.

We lower the opponent's health by hitting them, and the fight becomes a lot of addition and subtraction that needs to be visualized, preferably without showing actual numbers. Balancing these numbers and the ways to influence them are part of the rules design and determine how the battle will turn out.

---

[269] In the chapter on *Sound and music.*

[270] You can see the row of red and yellow hearts in Zelda in Image 48, and the three-part green circle of health in Super Mario Odyssey in Image 49.


Image 48, Link fighting a Hinox.

In Breath of the Wild, our attacks and defenses vary depending on our weapons and armor, which in turn encourages us to strengthen our abilities in the gameworld. In Breath of the Wild, as in many other games, enemies vary in size depending on how strong they are.

I see this as a way to implement a perspective that shows power directly as someone who dominates the visual field on the screen. The problem of making power visible is similar to the problem of organizing visual space in painting.

I described this similarity in the chapters *Perspective* (p. 64) and *Generating an environment* (p. 73) using Martin Kemp's analysis of Leonardo's *Last Supper*.[271] In short, relationships must be made visible by the size that an object or person occupies or by their position. In a static painting this can be done through the composition of the picture, but in a game where we can move freely, other ways are required. This is how we get to the very large bosses, that take up a lot of screen space from every angle.

Size solves one problem of the visual representation of power, but creates another when it comes to the rules of engagement. A big enemy is easy to hit and the bigger it gets, the weaker its defense is. To solve this problem, a hitbox is introduced, a specific spot on the enemy that must be hit to cause significant damage. The enemy needs this Achilles heel, and in battles the game can't rely

[271] Kemp, *The Science of Art*, 47–49.

on narration to tell us where this point is, so it is made visible. Markers such as the glowing eye in Image 48 which is clearly visible but not too easy to hit do this.

Large enemies displaying highly visible targets on themselves are unlikely, unless we are in play mode and interpret these as indicators of the rules for that part of the game. Once the enemy is defeated and the music announcing the battle has stopped, the gameworld returns to normal and we are back in exploration mode, where the world can function as a story, a place, or both.


Image 49, Mario in a mini-boss fight.

Super Mario Odyssey does this visualization of battle rules a little differently. In each kingdom, there are very clearly marked end bosses that announce the upcoming battle in a cutscene. The area for the fight is sealed off, so we can't run away. This is the faint blue circle around the white arena in Image 49. Our health is represented by a three-part circle, and we can often acquire a second circle with another three parts before a big fight. This means that if we get hit three or six times, we are out and must restart the fight. Something similar applies to our enemy, we have to hit it three times and then it is defeated. However, this is not shown to us, but we learn it by fighting the first end bosses, or we know it from other Mario games. Here, visualization is replaced by repetition, although not completely; the mini-boss in Image 49 wears three hats, a sign that shows us what is to be done.

The game relies on stable rules in order to be understandable. Since they are not displayed, they must be simple and the same everywhere. Specific hitboxes aren't as visually prominent as in Breath of the Wild, but they're still there. Different bosses require different types of hits, and the combat is also a puzzle in this way, we have to figure it out. Super Mario Odyssey uses a lot of cutscenes, and the game engine takes control of the camera when necessary, so problems with visualizing powers can be solved in a similar way to the static images described by Kemp, discussed earlier. If the game controls our point of view, the game developer can create compositions on our screen and show us the situation in the desired way.

It should also be noted that the gameworld of Super Mario Odyssey is mainly focused on the modality of play where we as players switch between different types of play; fighting, solving mazes, jumping in rhythm to run a course, etc. So in general, we tend to think of most game elements as parts of a set of rules and expect them to do something or be usable in some way.

Another noticeable difference in gameplay concerns abilities. In Super Mario Odyssey we gain skills mainly by getting better at the controls, whereas in Breath of the Wild we gain skills as items in the gameworld. The abilities in Super Mario Odyssey are located on our side of the screen, while in Breath of the Wild they are placed on the other side of the screen. There is a neat design in Super Mario Odyssey that shows us this (Image 50). In this game, the camera is part of the gameworld if it rains in the game, we get drops of water on the lens. This lens is of course the same object as our screen, the boundary between the gameworld, and the water drops fall on the inside of the lens and affects visibility at our side.

We see that we use time and space in different ways within the same game, depending on which modality is in the foreground. This leads to contradictions in the gameworld, where neither time nor space are completely coherent.

As players, we switch modalities and accept a gameworld that is sometimes a story and sometimes play. The many parts of playing a video game form a whole that is not a representation of a world, but of a gameworld, and this combination of story, play and place is unique to video games.

From a ludological perspective, it is the rules that make the game. This has been described in different ways. Sengun writes about a fictional universe that creates a spatial interface for the implementation of the ruleset.[272] In this way of describing a video game, the gameworld is a way of making the rules visible to the player.

[272] Sengun, “Six Degrees of Videogame Narrative,” 4.


Image 50, Visible waterdrops on the inside of the screen in Super Mario Odyssey.

For example, we have to defeat an enemy in order to progress in the story and on the path we are on. But, to defeat him, we need to get a better weapon and to get that weapon we need to do something else first. The rules for fighting the enemy and the weapons determine how the story unfolds and set limits to the spaces we can enter. Designing the rules is indirectly a part of designing the story. For Sengun, this is a way of seeing how rules and narrative interact with each other.

Juul offers further insight into how rulesets shape a gameworld.[273] Rules describe what a player can and cannot do. These rules create a system (he calls it a *state machine*) that offers the player options for action within the game. This system can be visualized in different ways.

In some games, our choice of actions influences what we can do next (i.e. the game is structured like a branching tree), in others we can choose from many possibilities in an open form. The game should be designed to provide challenges, and the challenges should become more difficult as we progress

[273] Juul, *Half-Real*, 55–56.

and get better at the game. Simple and easy to understand rules in a game can combine to create a complex system.[274]

According to Juul, both challenges and increasing levels of difficulty are central to game design and, if implemented well, create an enjoyable experience.[275]

This understanding of games is very similar to the state of flow described previously.[276] Flow occurs where ability and challenges are aligned, and flow creates a state of immersion for us as players. As mentioned, flow is an idea used in game design, not game play. As players, we cannot directly decide our abilities or the difficulty of the challenges in the game, we are at the developers mercy while playing.

Juul's texts are very often aimed at game designers, encouraging them to think differently about the choices they make in game design. This perspective focuses on the development of good gameplay. It may explain why the game works the way it does, but the experience is between the player and the game in all its modalities.

Game design refers to the construction of the rules and outcomes of the game, game development is the term for the construction of the complete game. A game designer is therefore someone who constructs the rules and ensures that they lead to an enjoyable rules system in the game. Writing for game designers usually focuses on rule systems.

This is also evident in *Rules of Play*, where Salen and Zimmerman develop the schemata of rules and play, saying that rules are the *"the most prominent feature of games, one that distinguishes them from other forms of media, art and entertainment"*.[277] Rules are described as the formal part of a game, and it is organized around them. Play, on the other hand, is an experiential scheme in which we experience things like participation, bodily sensations, something lived, they say. Here I agree with them, play is an embodied experience.

The rules are designed, but the play is in the hands of the player. As they put it: *"The challenge, of course, is that the experience of play is not something that a game designer directly creates. Instead play is an emergent property that arises from the game as the player engages with the system"*.[278] Rules of Play is a book about game design, so this perspective is to be expected. Play

[274] Juul, 56–57.

[275] Juul, 57.

[276] See *Flow*, p. 147.

[277] Salen and Zimmerman, *Rules of Play: Game Design Fundamentals*, 103.

[278] Salen and Zimmerman, 316.

can be developed through user testing or by observing players. *Narrative play*[279] is described as a specific form of the play schema and one that is difficult to design at that.

I see some complications here. From my point of view, I am concerned with the player's experience, not the developer's possibilities. Both Juul and Salen and Zimmerman come to their understanding of games from a different perspective than I do. It may be hard work to develop a game experience that combines story and gameplay, but it's not hard to play at all. That's the only option for a player, the rules are there and they are non-negotiable from a player's point of view.

Another problem lies in the reception of the experience. Certainly there are players who are primarily concerned with the rules of the game, such as speedrunners, but most of us are willing to accept what we see and hear. For the most part, we play the game the way it is shown to us and the way it should be played. We understand this way of playing through all three modalities: through the story of the game, through the rules, and through the visual design of the gameworld.

But this complication comes with its own complications; not all games are the same. Juul, Salen and Zimmerman write about games in general and use a lot of different games to make their points. I'm talking about two specific games that I think are representative of a lot of mainstream gaming.

In their preface to Rules of Play, Salen and Zimmerman say something about the making of the "typical game". They wonder why games mainly ask what we can do with an avatar moving around in a 3D environment when games could be so much more.[280] As a player I can agree that there are many more forms of interesting games. But I can also disagree, there is such a strong allure in these three-dimensional gameworlds, and I really like walking around in them. The pleasure comes from the whole experience of that world, and it's a joy to enter it.

This modality of play affects time in the gameworld in some strange ways and makes games a very special place. Overall, the idea of a game with a goal introduces an overarching timeline on which we must reach the end. In both of my examples, this is presented to us as urgent if we look at it as part of the story, but not urgent at all if we look at it through the modality of play.

The structure of fights that we repeatedly encounter in the game sets a different kind of time in motion, a loop that we have to go through again and

[279] Salen and Zimmerman, 378.

[280] Salen and Zimmerman, x [sic].

again until we have resolved it, i.e. won the battle. In this fight time is circular, for a short period of time.

Fights divide time into, among other things, session time, where we perceive parts of the game as sessions that we want to complete before we stop playing for the day. Creating session time in the game can happen in many ways: a boss to be found and fought, a quest to be completed, a region to be unlocked, for example. This affects our screen time with the game and adds another layer of time that we need to consider as part of the play modality.

The embodied experience in the modality of play is often a specific one, arising from the stress of combat moments, amplified by the music and made palpable by the tighter grip of the hand controller and its vibrating haptic feedback.

Rules and time are rarely expressed as commands in games but are instead expressed through the environment. Although I've already written a lot about the experience of place, it's now time to think about how the modality of place is part of the game experience.

## The modality of place

The forward temporal momentum of the modalities of story and play are largely self-explanatory; we want to know what comes next. In a gameworld places needs to support this forward momentum too.
As I have written previously about the experience of place, in what follows I will attempt to maintain place as a temporal modality.[281] The focus here is on how places can create signs of passing time such as seasons in ways that makes time a physical property of the gameworld and how the world pushes us to move forward with the story.

It's not enough that we are told to go to another village. There also needs to be a road we can follow, perhaps a map that offers a tantalizing shortcut, or something semi-visible that we want to explore.

Game space is strange. In Breath of the Wild, we see the castle where the final battle will take place very early on, and yet it's clear that we have to take a long detour through the gameworld to win this battle.

In Super Mario Odyssey, we are told the objective, which is the wedding between Bowser and the kidnapped Princess Peach which we must prevent, and we must take a long but clear path to get there.

Story space is pretty straightforward in both cases. But play space isn't. In Breath of the Wild, there are shrines that defy all spatial logic. They are all underground and built in a similar style and are different from anything found on the surface. The size of the shrines does not always correspond to the possible space in which they stand. And where the outside world offers a multitude of possibilities, the space within a shrine is a single puzzle to be solved.

The shrines are not the only instances of gameplay in Breath of the Wild, many other quests take place in the more coherent landscape space, so there is a variation in the way the play takes place in the game space. In Super Mario Odyssey, on the other hand, the space is very much focused on the gameplay aspect. The landscapes are organized into puzzles and can't really be understood as places where the NPCs live. It is perhaps best understood as a game space that picks up on some of the visual aspects of landscapes.

---

[281] *Part two: Place* deals with the many aspects of place that are at work inside these two gameworlds.

In Super Mario Odyssey, each kingdom belongs to a specific type of landscape and also to a specific time. They are clearly separated from each other, as we have to travel by airship to reach them, which means we get a cutscene instead of actually moving through a landscape. Most of them are set during the day, but some, such as the Cap Kingdom and the Ruined Kingdom, are night-time locations. The one exception is the Sand Kingdom which alternates between day and night when we enter a new phase of gameplay. Time in this game is largely static in relationship to place. It is also static in relationship to its story, we may take as much time as we want to save the princess. Time only exists in relation to play, i.e. the circular time created by trying to successfully go through a course over and over again, failing at it, dying and starting all over again.

Each of these kingdoms have their own specific atmospheres that place them in a specific time of the day or year. The parts that create this atmosphere are simple iconic signs such as green grass, colorful flowers, blue skies; all cartoonish signs of summer.


Image 51, Mario in the Snow Kingdom.

Summer dominates but is sometimes interrupted by a kingdom in darkness or full of ice and snow. The clear division into specific time and landscape types reinforces the experience of each kingdom as a session, as does the gameplay aspect of working through the entire course. As can be seen in Image 51, many of these locations are not architecture, but obstacle courses to

overcome. There are Goombas with Santa hats to fight, the ice on the floor reduces friction so you can easily fall off ledges, there is a yellow platform to stand on that might interfere with the door-like square in the wall, and the dark circles in our path are probably not a good thing. This place has a purpose and a direction; we need to move forward. A place like this in Super Mario Odyssey takes control of all aspects of the game and we must solve its challenges.

Seen from above or from a map, the land of Hyrule, where Breath of the Wild is set, is one continuous land. This land is divided into regions and within these regions there are specific locations. Many of the regions have their own type of landscape and some of them can be categorized into the types of landscape that Norberg-Schulz describes in Genius Loci: classical, romantic and cosmic.[282] They have different characteristics, such as orientation and varying degrees of openness. In them we find equally different villages. It is not only a difference in style, but also in organization; the classical landscape offers grand vistas like in a landscape painting, the romantic landscape is small and inhabited and the cosmic type is open and has fewer landmarks. We walk in these landscapes and as I discussed in the chapter on *Immersion and experiences* (p. 140) we project ourselves into them and experience immersion. A place here is certainly an embodied experience, but a different kind of embodied experience than what we had in the modality of play, and something quite different than the cerebral experience of reconstructing the story from clues in the game.

The landscapes in the game are compressed when compared to the real-life landscapes Norberg-Schulz writes about. We can walk from one edge of Hyrule to the other and traverse most of them in about an hour of screen time, or about two and a half day of in-game time. Similarly, in the game we can climb to the top of a cathedral tower in less than 30 seconds. Space is compressed and therefore time is compressed too. These are places that are unreal and fanciful in many ways, but that nonetheless maintains a realism effect.

[282] Norberg-Schulz, *Genius Loci*, 11–12.

Image 52, Akkala, a region in autumn.

In contrast to Super Mario Odyssey, there is day and night in Breath of the Wild. A day lasts approximately twenty-four minutes of screen time. The gameplay differs slightly between day and night; different enemies are active and some objectives in the game must be completed at certain times of day.

There is another, more subtle change in time: the changing of the seasons. There are different areas where spring, summer, fall and winter reign, even if they are very close to each other. Autumn in the Akkala region, seen in Image 52, is an atmosphere created by colors, sounds and wind, just as the snowy fields, low temperatures and bare trees in the Hebra region create winter. A season is part of the atmosphere of a region and the game creates a yearly cycle not through time, but through place and us playing in one region after another. Its time told through place, and that's what happens in Super Mario Odyssey too.

The Thundra Plateau (Image 53) is covered in constant rain, and this changes the way we play; the rain prevents us from climbing and forces us to solve problems in specific ways. Not only does the Thundra Plateau prevent climbing because it's rainy, but the constant thunderstorms render metal weapons useless, and we must rely on weaker wooden weapons. In these cases, the atmosphere of the place is directly related to the changes in gameplay, and the modalities of play and place are closely linked.

In other regions rain like this forces us to stick to a predetermined path and meet every enemy in a specific order. The weather is a mechanism to shape the movement, pacing and time in that particular place.

Image 53, Thundra plateau, in a permanent thunderstorm.

Playing in the place modality means moving in the world. But this movement is not only a change of place, but also of time and gameplay. The gameworld is a unified place, but as players our perception shifts between three equally meaningful modes.

The modality of place, as demonstrated in both Breath of the Wild and Super Mario Odyssey, offers an interwoven experience of landscape, atmosphere and interaction that goes far beyond traditional notions of space in visual art. The places in these games are not inert; they invite us to explore their complexity, challenging us through various gameplay mechanics and changing their meaning as we progress. We are simultaneously in a structured game and in a living world, where every element of place, from the strangeness of a shrine to a slow walk through Hyrule, deepens our immersion. Ultimately, our experiences become more complex through the fusion of the three modalities we encounter. Story, play and place are linked in shifting ways.

Time gets mixed up, we've been in the gameworld forever, watching rainstorms, autumn leaves and balmy summer nights pass by on our grand quest to save the world, and we've played for an hour and are done for the day.

# Games as chronotopes

So far into this part we have seen that a game has a story, which sometimes branches out into subplots, but that the story itself is rather secondary. The story gives the game a direction and drives one kind of time forward. We may think we're playing a large part of the game in the story modality as we try to understand more and more of the world we're in.

But much of our experience will be shaped by the game's play modality; it contains the rules for how we can do what we need to do. Play drives time forward towards the end of the game and changes the world in which we play.

This world presents itself to us as a series of different landscapes with their own atmospheres. The landscape can set boundaries for the game and condense time for us. It also tells us part of the game's story when we encounter ruins and enemies.

As we move through the gameworld, all three temporal modalities are constantly present, but our focus shifts between them. These interwoven modalities can be further explored as versions of chronotopes, as used by Mikhail Bakhtin to understand the structure of stories in literature. A chronotope is the way time and space are connected in a text, and different types of texts do this in different ways; this difference shapes the genre and meaning of the text.[283]

Bakhtin explores the underlying structure of the narrative in a similar way to Joseph Campbell when he uncovers the hero's journey behind folktales in *The Hero with a Thousand Faces*, but Bakhtin's chronotope is useful for me in the understanding the construction of a text.

It does not necessarily make sense to apply literary theory to games because, as I have already shown, games are not just a narrative but a complex combination of story, play and places. Bakhtin writes about time and space; these translate quite well into the modalities of story and place respectively. The story, as I have described it above, is mainly concerned with the temporal progression of the narrative and can be understood as time, although for Bakhtin the story combines time and space in itself. There is no room for play, however, because written texts are not interactive. We have to make changes to make room for play.

The genre descriptions of games reflect this, because there are two different kinds of genres. One deals with the story and the place and specifies the genre accordingly: a space game, a western game, a spy game. The other deals with

[283] Bakhtin, "Forms of Time and of the Chronotope in the Novel," 84–85.

play and describes the game mechanics: a puzzle game, a first-person shooter, an open-world role-playing game. Descriptions of games often combine both; Super Mario Odyssey is a fairytale 3D platform game and Breath of the Wild is an action-adventure game with role-playing elements set in a mythological world.

These descriptions illustrate the complexity of the interplay between different aspects of the games. And with the help of Bakhtin, perhaps we can develop them further.

The first chronotope he describes refers to classical Greek literature from the period between 100 and 500 A.D. He calls the chronotope used in these texts Greek adventure-time and describes how space and time functions in it.[284]

The places in this chronotope are numerous and varied, the heroes travel to many lands, but these lands and the journeys between them are insignificant; they are merely *"an alien world in adventure-time"*.[285]

Time is similarly strange and discontinuous; the heroes are in certain places at certain times, but there is nothing in-between these crucial moments. The heroes start young and are still the same age after many years of adventuring; time is non-existent. Time and space in the Greek adventure-time chronotope is abstract; there is no organic connection between the events that take place, they are separate and can take place in any order. It is therefore defined by reversible time and interchangeable space.[286]

The same applies to the time in Super Mario Odyssey and Breath of the Wild. The parts can be played in any order, more so in Breath of the Wild than in Super Mario Odyssey, no real time passes and there's no rush to the final battle. While Super Mario Odyssey is a linear game, the linearity concerns play not our understanding of the story.

Space is more complicated. In Breath of the Wild, space and locations tell part of the story, so they are not interchangeable. This means that if we want to follow the story through the game, we have to visit many locations, and the story is easier to understand if we do it in the order that the game suggests.

[284] Bakhtin, 86–87.

[285] Bakhtin, 89.

[286] Bakhtin, 99–100.

Image 54, Lomei Island Labyrinth.

In Super Mario Odyssey, they are interchangeable in terms of story, but not in terms of gameplay. In the story we have to try to stop the wedding planners from stealing an item in each kingdom, the order in which this happens doesn't change the story. On the other hand, there is no way to do this in any order other than the one the game dictates, so gameplay is linear.

In both games, gameplay and location are often linked. Take, for example, the three large Lomei Labyrinths, Image 54 shows one of them, which we find in locations far from the center of the game and which offer both complex three-dimensional labyrinths and some hard battles. Their placement makes them difficult to reach until we're ready for them, even if it's possible, and we are unlikely to stumble across them by accident at the start of our playthrough. Their placement in the gameworld is the factor that somehow explains and justifies their difficulty. On the other hand, nothing else in the game explains their existence, so they stand outside the game's story. They are labyrinths on the edge of the map, places that exist for their own sake.

The second major chronotope that Bakhtin describes is the adventure novel of everyday life, which is characterized by the combination of two types of time: disjointed adventure time and everyday time.[287] Metamorphosis is omnipresent here; change distinguishes two times, as in his main example,

[287] Bakhtin, 111.

Apuleius *The Golden Ass,* the protagonist Lucius is magically and accidentally transformed into an ass and has to live his life very differently. Lucius lives in everyday time, the ass in disjointed adventure time. Bakhtin notes that metamorphosis and identity can take many forms but always create a particular form of time flow that is not linear, but progresses through knots in time.[288]

We can also see this in games. A core mechanic of Super Mario Odyssey is that Mario can throw his cap at enemies, allowing him to possess their bodies and gain their abilities[289]. This allows him to reach new places, and complete difficult sections of the game. This metamorphosis affects both aspects of play and place.

Link in Breath of the Wild undergoes changes by changing his clothes, which gives him abilities he doesn't otherwise have, such as greater strength, better ability to climb, swim, withstand heat or cold. These changes to the hero's abilities are knots in the story, as they allow us to change the way we play.

It is not so easy to apply the idea of the chronotope to a gameworld, but there is a way to explore how time, place and play interact in it and how they are connected to form not a story, but an experience for us players.

In this context, it is also important to note the difference between the way Bakhtin treats literature and what we can learn about play from it. Bakhtin constantly relates the text to the reader's real world; time is the time of the story, but also historical, personal and social.

Space is present in the text, but is also understood geographically, symbolically and culturally. Games usually do not have this close connection to everyday life, but function more like fairy tales; stories that are understood as something outside of everyday life.

Different narrative chronotopes allow us to explore different possibilities of interaction, growth and change within the gameworld. As we have seen, time in games is neither linear nor straightforward, but it ultimately leads to one outcome: the end of the game.

In both Super Mario Odyssey and Breath of the Wild, time and space consist of multiple layers: from the narrative structure that the player reconstructs through their actions, to the moments of play that interrupt and redefine exploration.

---

[288] Bakhtin, 112–13.

[289] If you look closely at Image 51, p. 176 the Goomba closest to the screen, the one that stands on top of another Goomba, you'll notice that it's wearing Marios red cap. This shows us that this Goomba is possessed by Mario, and we control that stack of Goombas as our temporary, metamorphosed, avatar.

Bakhtin's concept of the chronotope, originally developed in literary studies, provides a useful framework for understanding how time and space work together to create an immersive experience. While Bakhtin's chronotope connects time and place in a story like a long, winding tunnel, video games transform this idea into something dynamic and participatory, shaped by the player's actions.

To explain this, I propose a visual metaphor: In a game, the chronotope is not a static tunnel, but a rope woven from three strands: story, play, and place. These strands move together as the player progresses, pulling and twisting the rope through the gameworld. While the game places certain limits on the extent of these strands, the player's engagement keeps them in constant motion, dynamically reshaping the narrative and spatial experience.

In the modality of play, time is determined not only by the unfolding story, but also by the player's interaction with the rules of the game and the environment. This constant interplay between time, space and play creates a living chronotope that adapts to our engagement while simultaneously moving us towards the end of the game.

Games and gameworlds are teleological: they exist with a purpose and are driven towards an inevitable end. From the beginning, players are aware of the end goal: fighting Bowser in Super Mario Odyssey or Calamity Ganon in Breath of the Wild. However, achieving this goal does not necessarily mean the end of the game world.

In Super Mario Odyssey, for example, defeating Bowser unlocks additional endings with increasingly difficult levels for those who want to continue mastering the game. In Breath of the Wild, the player also returns to their last save point before the final battle after the end credits. While these design decisions extend the game's lifespan, they also complicate the emotional impact of reaching the end.

The long, complicated journey culminates in a final destination, but the gameworld reminds us that the place we've explored still exists. The main narrative may be over, but the game offers the opportunity to replay the story or simply linger in its spaces.

In contrast to static images, games are dialogic. They require our active participation in order to come to life. Following Vilém Flusser's concept of dialogical images, we could say that games are conversations between the player and the gameworld. Players have to learn the rules, find their way around the environments and embody their avatars. Immersion in a game is not a single, unified experience. Rather, it is multi-layered and evolving, shaped by the player's decisions and interactions.

The teleological nature of games provides structure and purpose. Each world in Super Mario Odyssey and Breath of the Wild exists for a reason, with goals carefully embedded in its design. This journey gives the game direction, but it also evokes nostalgia, a longing to revisit these familiar, ordered worlds even after the story has ended. Perhaps that's part of what makes gameworlds so compelling: they offer the comfort of a clear beginning and ending, combined with the complexity of the spaces that lie in between.

Another compelling aspect of gameworlds is their persistence. Players can return again and again and the world remains the same, a constant amidst the variability of play. And when this sameness wears off, there is often a sequel: a new version of the same story, set in the same world, but offering new adventures. This continuity ensures that the connection to the gameworld is never really severed and reinforces the enduring appeal of moving through it and enjoying its sights.

# Discussion

Video games unfold as gameworlds; rich, interactive spaces where players learn the rules through cues embedded in the environment. As we play, we also participate in a story. This story has a beginning where we learn how to play, i.e. we learn the rules of the world we are in. It also has a clear ending, where we defeat the final enemy. Since we are playing a game, we know about this end and that we will reach it from the outset. This goal and the existence of rules that lead us there is a common definition of what a game is.[290]

In the game, between these two poles, lies a long and winding path through the gameworld. We can approach it like a story and try to read it from beginning to end, explore it, uncover plot details and reconstruct the story. Breath of the Wild is far too big and long and has many different plot points for this to be easy, Super Mario Odyssey has less story.

We can play it as a game instead and focus on that aspect, learning the rules and optimizing our strategies to reach the end. Speedrunners do this and leave the other aspects of the game behind in the process. It's no longer a place or a story, but a mechanism to understand. However, they are not the typical player.

Most of us are curious about the gameworld we enter and want to explore it by running around and taking in all the sights. In doing so, we experience the gameworld as a place, surrounded by its changing atmospheres. It is a pleasure to explore a well-constructed fantasy.

The game takes us through the gameworld both in time, from the beginning to the end, and on the map, from our starting location to the area for the heroic final battle. Time and place form a path through the gameworld. In Breath of the Wild we choose this path, and it will be long and winding, whereas in Super Mario Odyssey it is linear, even if it feels just as long and convoluted.

The gameworld is the expression of time and progression in the game and the expression of the rules. We see the time and we see the rules of the game because they are given to us through visual storytelling.

From a distance, when we're thinking about the game and not actually playing it, the world of Breath of the Wild is a large map on which we can

[290] Juul, *Half-Real*, 6–7.

travel in any direction, while the world of Super Mario Odyssey is a series of small islands arranged along a line.

When we play, we perceive the world differently. In single-player games like Breath of the Wild and Super Mario Odyssey, the gameworld envelops us in a dynamic bubble, a landscape that surrounds us and propels us forward. This bubble defines the boundaries of our immediate experience, actively shaping and rendering the environment in response to our presence. Beyond this immediate sphere, we instinctively expect the world to expand endlessly, and in Breath of the Wild, the design of the vast, open world successfully maintains this illusion.

However, this expansiveness is a carefully constructed perception. The game only simulates and animates the parts of the world that we interact with directly; nothing happens outside of our immediate interaction. NPCs remain inactive until we approach them, environmental systems are activated nearby, and distant locations are simplified or unloaded to conserve computational resources.

This design reveals a solipsistic core inherent in single-player games. The player is the only conscious entity in the gameworld, and all aspects of the environment exist only to react to and revolve around the player's actions. There are no autonomous agents or parallel narratives unfolding beyond the player's reach, only the illusion of a living world. This parallels philosophical solipsism, where only one's own mind is considered certain and everything else is a projection or construct.

Yet games disguise this solipsistic structure through storytelling, environmental design and dynamic systems that suggest autonomy and depth. Breath of the Wild populates its world with ancient ruins, weather systems and NPC routines that suggest a story and reality independent of the player. In Super Mario Odyssey, there are bustling kingdoms where characters seem to go about their own activities, adding to the sense of an existing world. These design decisions create a narrative that feels larger than the player, convincing us that we are merely participants in a larger, self-perpetuating universe.

This interplay between solipsistic mechanics and immersive storytelling is central to how games deliver experiences. The gameworld exists only in relation to the player, but it still feels expansive and inhabited. This duality invites players to vacillate between a sense of omnipotence, where the world seems to exist only for their engagement, and a sense of smallness within a vast, unfolding narrative. This tension deepens the player's immersion and fosters a sense of presence in the gameworld.

We experience a gameworld as full of things, places and events as any other world. We are immersed in it, even if it is just images and sounds generated by

a computer. My question about this phenomenon was: *What creates the player's experience of being inside a gameworld?* Now it's time to bring these factors together and measure how they contribute.

The gameworld is a three-dimensional model that is rendered and projected onto a two-dimensional screen and works in a similar way to realistic depictions in art, as both make use of calculated perspective. This projection creates a point of view and positions the viewer relative to the scene, with the game engine dynamically controlling this effect to create a convincing sense of depth and spatial presence.

Both Breath of the Wild and Super Mario Odyssey use a visual language reminiscent of landscape painting, guiding the player's gaze and movement through compositional elements. The avatar acts as our proxy, a modern version of the back figure, and draws us into the world. Roads, landmarks and environmental cues function like compositional lines in art. They subtly lead us further into the gameworld and make us curious about what lies beyond.

This immersive design has parallels to techniques in art that invite the viewer into the image. However, games extend this interaction by allowing control over both the proxy body (the avatar) and the proxy eye (the camera), providing an experience that is both participatory and observational. Yet no matter how far we explore the vastness of Hyrule, we remain physically outside the image, always being invited back in but never fully inside. This paradox reflects the unique phenomenology of the gameworld: we are both observers and participants in a world that exists only for and because of us.

At the same time, the use of sounds and music pushes the ordinary world aside and allows us to experience a play space that is closed off from it. Munday calls this cognitive immersion, and the effect is further enhanced by the mythical immersion created by the game music, which evokes epic feelings.[291] So we have images that invite us to immerse ourselves in the world and music that displaces the ordinary world, that's already a pretty effective perceptual situation.

But as we have seen, immersion has more causes than these two. We feel the places and experience them by moving in them. Wölfflin called this embodied empathy, where a building can be understood through its relationship to the viewer's body.[292] Norberg-Schulz writes about this

[291] Munday, "Music in Video Games," 56–58.

[292] Wölfflin, *Prolegomena to a Psychology of Architecture*, 7–8.

understanding of buildings through interaction with them, pointing to the necessity of movement and the merging of our impressions into a whole.[293]

I see no conflict between viewing the gameworld as an image and as a place. Physically, it is an image projected onto a screen, but through our avatar we act and behave as if it were a real environment. What fascinates me, however is the enduring emotional presence of gameworlds. I find myself dreaming of them and seeing echoes of their landscapes in the places I hike in the summer.

This kind of connection doesn't occur to me when it comes to art. I do recognize visual similarities between a painting I remember and a scene in the real world, but it doesn't evoke the same emotional response. Gameworlds feel different, they resemble real places and evoke feelings and expectations that persist beyond the game. Maybe this is a weakness of mine, but I see it more as a fundamental difference between looking at a picture and being in a place. These experiences leave me with very different impressions.

If we reinterpret Wölfflin's concept of embodied empathy through Merleau-Ponty's notion of the body schema, we may be able to understand how we enter the gameworld. His notion of body schema refers to the integration of the body and its environment that allows us to experience the world as an extension of ourselves.

He writes that this applies not only to the natural world, but also to the cultural world. As an example, he points out that the words "hot" and "humid" affect the reader's body schema rather than the body, creating a kind of quasi-sensation.[294] Applied to gameworlds, this concept explains how players inhabit virtual spaces as their body schema adapts to the avatar and game mechanics, creating a sense of presence and immersion.

It is not just empathy that allows us to project ourselves into a gameworld, but a function of how we experience the world through a body schema that integrates mind and body into a single entity that participates in all perceptions.

While the notion of body schema explains how we enter the gameworld, it does not explain the difference in intensity that I perceive between gameworlds and still images. If a single word can evoke quasi-sensations, then surely an image can too.

I understand the difference here as a difference in what we perceive. In a gameworld, we get a sense of place in a landscape that goes beyond what we see and hear at any given moment. Games produce agency, while art for me offers contemplation. The gameworld is large and the time we spend in it is long. All these places have an atmosphere and the gameworld is full of them.

---

[293] Norberg-Schulz, *Genius Loci*, 6–8.

[294] Merleau-Ponty, *Phenomenology of Perception*, 245.

All places have atmospheres, but in a well-crafted gameworld they are enhanced like the expressive scenography of a theatre. And we can switch from one place to another in the blink of an eye.

For Norberg-Schulz, an atmosphere is the essence of a place creating an overall phenomenon that is greater than its parts.[295] Böhme writes that an atmosphere is a sensual, physical experience, but also one that is staged.[296] When we play Breath of the Wild or Super Mario Odyssey, the game repeatedly takes us from one highly atmospheric place to another. What we perceive in the gameworlds are places that we immerse ourselves in, and that have a strong influence on us.

It seems to be designed for the embodied empathy described by Wölfflin: We become our avatar and feel his situation within us. The hand controller disappears from our mind and movement in the gameworld becomes a movement of our body, and of looking around. This effect is understandable to me through Merleau-Ponty's body schema, and the empathy in Wölfflin's text tells me what the connection feels like. For me, these are two ways of describing the same phenomenon.

This leads me to the second question of who or what is responsible for this deep connection with the gameworld: *How do the design of the game world and the player's desire to engage with it interact to create an immersive experience?*

If the first question was about how the perception of and engagement with the gameworld happens and can be understood from a phenomenological perspective, this second question is about the formal qualities that make this possible.

The gameworlds of my two examples are both designed in such a way that they captivate us and entice us to explore them further and further. As I have already described, there are three different modes that encourage us to do this. I have called them modalities of story, play and place.

The story is a version of the hero's journey: Go out into the world, gain experience and save it. That in itself is am enticing proposition, because not only do we learn about them, we become heroes ourselves.

Parts of these stories are told to us by NPCs in the game, and this is either boring exposition or a well-placed resting point, depending on how we want to play the game.[297] There are clues in the environments that tell us the story of

[295] Norberg-Schulz, *Genius Loci*, 6–8.

[296] Böhme, *The Aesthetics of Atmospheres*, 29.

[297] Speedrunners usually play Breath of the Wild in French, as this is the fastest version to click through and saves seconds. The story and immersion are not part of this style of play

the game: Ruins and abandoned battlefields in Breath of the Wild and kingdoms dedicated to specific things needed for a wedding in Super Mario Odyssey. There are the side quests, that tell their own stories. These are interruptions to the main game and at best add variety to our experience.

In both games, we also have the opportunity to revisit the long history of the game series in this particular version of the game. In Breath of the Wild, we recognize the land and the characters because there is a deep history to discover if the player wants to. In Super Mario Odyssey, the relationship is both in these recurring characters and in quotes from the gameplay of the previous games.

The conclusion is that the story of the games may be simple, but that it is told in different ways and that we as players can switch between these ways without much effort. We are offered different ways to engage with the game's story, and we can largely ignore it if we prefer to engage with play or place instead.

The play mode of a game is the modality in which we engage with the rules of the game in order to achieve a result. This is what we often think of when we talk about playing games, and the term game design refers to the design of rules and outcomes. This is another of the three modes in which we engage with a gameworld, we switch between modalities as we play. My two examples have the same, fairly typical, overarching design. You start from scratch, with an introductory level where you learn the basic game mechanics. Then there's the long game where you get better, either by collecting in-game skills like in Breath of the Wild or by practicing your skills with the hand controller like in Super Mario Odyssey. As you do this, the game has to get more and more complicated so that your increasing skills don't make the game too easy and boring. And finally, there's the final battle, where you can use everything you've learned in one last big fight.

This is the progression of the game, and it needs to be well paced, just like the storytelling. Breath of the Wild doesn't feel like it's getting harder and harder, although it is. Progression is seen more as increasing complications in the environment. Areas near the starting point are easier and then become more difficult as the story and environmental clues lead you onto a path of higher difficulty.

Super Mario Odyssey is a linear game in which you must follow a path from start to finish. This means that the game designer has much more direct control over the pace and difficulty. And yet they need to be seen as changes in the world, not just increased difficulty in the rules of the game. These two games

---

and the dialogs are just time-consuming hurdles that need to be overcome as quickly as possible.

invite us into gameworlds, not games. They are attractive as places to play, not as a set of rules.

The goal of game design is to create a game flow where the game strikes a balance between skill and difficulty so that the player progresses through the game, but also has to make an effort to do so. Flow creates its own kind of immersion. When we get into the zone, we are masters of our task and want to stay in this feeling for as long as possible. Here we are actively immersed in the game. For the developers, on the other hand, flow is a somewhat measurable design goal.

Playing is often exhausting because it requires concentration and an emotional attachment to the game. We jump and scream and swear at the game when we don't do as well as we would like. Some parts of a game are very intense, such as combat or difficult maneuvers, while others are slower and more cerebral, such as when we're solving puzzles.

We also deal with this exhaustion by changing the modality. After a successful, complicated task, the game may unleash more parts of the plot on us, or we may opt for an exploratory stroll instead of fighting. Story and place allow for less intense ways of being in the gameworld.

As I showed above, there are no sharp demarcations between modalities, they are indications of how we play, not the shape of the game. The story can be told through the environment, as can the rules.

The gameworld of Breath of the Wild is a large, shifting landscape with no clear boundaries. Much of the gameplay is dictated by the combat rules and physics engine, but we decide for ourselves where we should go. This creates a cohesive world in which we may have to fight as we travel through it.

This happens because the design of Hyrule entices us to explore what comes next. When applying the triangle rule to the design of the gameworld, this can be done explicitly. In this way, we are encouraged to explore the game's paths and to stray into various detours.

Super Mario Odyssey, on the other hand, is built in levels, the kingdoms, and these are made up of parts, assets, that are placed there to create a maze, an intricate path through the world that tests our skills. It's less of a cohesive world and more of instances of play-centric gameworlds, one after the other.

Place is a major part of the game; both my examples come from game developers who are very adept at creating atmospheres that captivate us. Everywhere in the games there is more to see and more to do. The well-designed character of a place is what brings us there and we marvel at the wonders of the worlds we can walk through. The atmosphere is something we feel in our bodies, it is so close to being there inside the computer animation. It surrounds us and creates a sense of awe.

The developer of the game, in reality a large group of people working together, creates the possibilities of a story, gameplay and a place and its atmospheres. We play in that world and by engaging with it, we fulfill our part in creating it.

# Conclusions

The two Nintendo games I have studied are both exceptionally good at creating an immersive experience that draws us in as we play. They achieve this not through a single mechanism, but by creating stories, play and environments that are connected to each other and to us as players.

The environments are part of the gameplay; they guide us in what we have to do and they are complications along the way. The stories that are told in the games are closely linked to the environments and the gameplay. In the gameworlds, we encounter these three aspects, which are closely interwoven. This is a design decision that allows us as players to focus on the aspect we enjoy and switch between them.

In these two gameworlds, stories and rules are communicated to us through the environments we find ourselves in, using visual storytelling rather than rulebooks. Buildings speak to us from a distance, and we see that they are important to the game or have certain functions. Roads lead us on, while buildings set at a distance from them lead us astray in interesting and deliberate ways.

To speak to us, these games have to solve problems that visual artists have long been aware of. There is often a contradiction between the obligation to use a coherent perspective and the need to say something through the arrangement of elements in the image. This is solved by tricks, by ways of breaking the rules that nevertheless appear visually logical, even if this creates impossible spaces or strange participants in the picture.

The games take the form of landscapes and draw us in through roads and landmarks. They offer us a proxy in the form of an avatar that acts in our place in the picture. This happens in games and landscape paintings in the same way, because the problem of creating engagement is similar.

It also reflects that games and landscape painting exist within the same visual culture where the world of the image is constructed through perspective and creates an effect of realism.

As moving images, these games are highly effective and allow us to explore their worlds in unusual ways. While my physical body remains outside the gameworld, I navigate it through a proxy, my perspective shifting freely by way of a moving camera. In the gameworld my body and my sight occupies two different positions. This unique perceptual experience is made possible by the controller in my hands, which acts like a prosthesis that connects me to the gameworld.

By actively trying to make sense of it all, I place myself in the avatar and project myself into the game. I've come across several concepts that describe

this capability; the viewers share, immersion, embodied empathy, body schema, and they all contribute to this. Immersion in a gameworld is an active choice that is supported by the way our perception works.

The playful element makes the game more engaging because it allows us to relax rational observation and instead enjoy the participation and bodily sensations while we are in the gameworld. Sometimes we get in the zone while playing and experiences flow, where we can lose ourselves completely in the game.

Breath of the Wild and Super Mario Odyssey captivate us by using the landscape as a familiar trope, giving us everything we need to immerse ourselves in the game. When I look closely at the games, I realize that they are a kind of intricate machinery that works together to create an immersive world.

Not all games are created like these two, so what we see here is not typical of all games. There can't be a general theory about how games create immersion or how a great gameworld uses atmospheres to make itself a place we want to linger in.

But I believe that examining these two games has shown that by looking at the way we play in gameworlds, we can uncover layers that explains the pleasure of participating in what is currently the world’s favorite type of visual culture: video games.

# Usability

This book aims to clarify the complexity of video games and the multifaceted meanings and perspectives that arise from interacting with them. In writing this work, I have attempted to articulate the key elements of gaming that allow for a deeper discussion of gameworlds. My intention is not only to explore this rich topic, but also to contribute to the advancement of game criticism and academic research in this field.

While there is a considerable amount of excellent game criticism, especially online and in the form of video essays, mainstream game criticism, at least in Sweden, often lacks depth. It tends to focus on the reviewer's personal feelings, which are usually shaped by their previous gaming experiences.

This is similar to the connoisseur's approach in art criticism, which refers back to the 19th century. However, game criticism has the potential to be much more than just subjective reactions. It can evolve into a more sophisticated and nuanced discussion of the player's experience. One of the main aims of this book is to propose a method for discussing games in a more complex and multi-layered way.

Games are not just "better than the last version" or "less fun than a similar game". They warrant a more detailed exploration of what makes them look, feel and work the way they do. Like literary or art criticism, games criticism needs to do justice to the complexity of its subject matter, especially given the growing cultural significance of games to a wide audience.

In contrast, academic games research offers a more structured approach, but I believe there are still gaps that need to be filled. As mentioned in the research overview chapter, critical games research has expanded considerably.

However, the dynamic nature of games and play is not fully captured in most studies. All too often games are analyzed as static objects that reproduces concepts from the lived world. This neglects the levels of interaction between narrative, gameplay, and environment. A more comprehensive understanding requires recognition of the complex processes that define the world and meaning of a game.

While working on this thesis and in conversations with colleagues, I realized that some of the concepts presented here could serve as foundational elements for a game studies methodology textbook written as part of the field of visual studies.

The goal is not to propose solutions for developing better games, changing development practices, or improving players' skills. Rather, it is to enrich the critical conversation around games and gaming.

# Glossary of gaming terms

**2D gameplay:** A game style in which the gameworld is rendered in two dimensions, typically in a side-scrolling or top-down perspective. Players navigate the game environment by moving up, down, left and right on a flat plane.

**3D platformers:** A sub-genre of platform games that are presented in three-dimensional environments. Players move around the levels by jumping between platforms, often combining exploration, puzzles and combat in a 3D space.

**AI (Artificial Intelligence):** The programming that controls non-player characters (NPCs) and other elements in a game and makes them behave in certain ways. AI is responsible for the actions and reactions of these characters based on the player's interactions. The AI in games is usually not based on a large language model like ChatGPT but is much simpler.

**Asset:** Any visual, audio or interactive element used in a game, such as characters, objects, textures, sounds and animations. Assets are created during the game development process and are essential for building the gameworld.

**Bézier curve:** A mathematical tool used in computer graphics to create smooth and scalable shapes. It allows designers to define a curve with just a few control points, with the curve smoothly adjusting between these points. In the context of video games, Bézier curves are often used to design smooth motion paths, animations, and contours in both 2D and 3D environments, making them essential for creating visually pleasing and dynamic gaming experiences.

**Boss battle:** A challenging fight against a powerful opponent that usually takes place at the end of a level or area in a game. Boss battles are designed to test the player's skills and often involve unique mechanics or strategies.

**Cutscene:** A non-interactive scene in a game that usually advances the story and is often presented in a cinematic style. Cutscenes provide a narrative context and help to immerse the player in the world of the game.

**Game design:** The process of developing the rules, mechanics and overall structure of a game. Game design includes decisions about how the game should be played, including level layout, character abilities, and the balance between challenge and reward.

**Game development:** The entire process of developing a video game, from concept to completion. This includes game design, asset creation, programming, testing and refining the game until it is ready for release.

**Game engine:** The software framework used to create and develop video games, handling everything from graphics rendering to physics calculations. A game engine provides the tools and functions that developers need to create the gameworld.

**Game mechanics:** The rules and systems that determine how a game is played, including movement, combat, interactions with the environment, and progression. Game mechanics determine the player's experience and how they achieve their goals in the game.

**Hitbox:** The invisible area around a character or object in a game that determines where collisions occur. Hitboxes are used to detect whether a character has been hit by an attack or has come into contact with an object in the environment.

**HUD (Heads-Up Display):** The on-screen interface in a game that displays important information to the player, such as health, ammunition or objectives. The HUD is important for providing real-time feedback during gameplay.

**Inventory screen:** A menu in a game where the player can manage their items, equipment and resources. The inventory screen allows the player to organize their possessions and prepare for in-game challenges.

**Level design:** The process of designing the environments, challenges and layouts of a game's stages or levels. Level design ensures that levels are engaging, balanced and provide a consistent progression of difficulty.

**Load time:** the time it takes for a video game to retrieve and prepare game data, such as levels or assets, before gameplay can continue.

**Metacritic score:** A score that aggregates reviews from various sources to provide an overall rating for a game or other media. Metacritic scores are often used as a measure of a game's critical reception. Published on the website metacritic.com.

**NPC (Non-Playable Character):** Characters in a game that are not controlled by the player, but by the game's AI. NPCs often serve as quest givers, vendors or background characters and interact with the player in various ways.

**Open-world game:** A type of game in which the player can freely explore a large environment and complete objectives in a non-linear order. Open-world

games offer the player a high degree of freedom and often feature huge, interconnected gameworlds.

**Platformer:** A type of game in which you have to navigate a character through levels by jumping between platforms and avoiding obstacles and enemies. Platformers are often characterized by precise movement and timing.

**Playthrough:** The act of playing a video game or a specific part of a game from start to finish.

**Perspective drawing:** A technique used in art and game design to depict three-dimensional objects on a two-dimensional plane to create the illusion of depth.

**Polygon:** A basic building block of 3D models in games, usually a triangle or square. Polygons are used to create the shapes and surfaces of objects in a 3D gameworld.

**Procedural generation:** A method of automatically creating game content using algorithms that often results in unique environments or levels when the game is played. Procedural generation allows for a variety of possibilities without having to manually design each element.

**Quest:** A task or series of tasks that a player must complete in order to progress in the game. These often include exploration, combat or solving puzzles. Quests are a common method of structuring gameplay and narrative progression.

**Rail shooter:** A type of shooter game where the player's movement is automatically controlled, and they must focus on aiming and shooting. Rail shooters limit player exploration and focus on accuracy and reaction time.

**Ray tracing:** A technique in computer graphics that simulates how light interacts with objects to create realistic lighting, shadows and reflections in 3D environments. It is often used in video games to achieve a detailed and lifelike representation.

**Rendering:** The process of creating the final visual output of a game scene from a 3D model or environment. Rendering includes the calculation of lighting, shading, textures and other effects to create a lifelike image on the screen.

**RPG (Role-Playing Game):** A game genre in which players take on the role of characters in a fictional setting, often involving character development, story-driven quests and strategic gameplay.

**Side quest:** An optional task or mission in a video game that is separate from the main storyline. Side quests often offer additional content, character development, world-building, or rewards such as experience points, in-game currency or unique items. They can range from simple fetch quests to complex, multi-step narratives that rival the depth of the main plot. Side quests are a staple of RPGs and open-world games and allow the player to explore the game world beyond the main objectives.

**Skybox:** A large, textured background used in 3D games to represent the sky or a distant environment. Skyboxes create the illusion of a vast environment outside the immediate game area.

**Speedrunning:** The practice of playing a game with the intention of completing it as quickly as possible, often using glitches and advanced techniques. Speedrunning is a popular challenge among experienced players.

# References


Anderson, Tim, Marc Blank, Dave Lebling, and Bruce Daniels. “Zork.” Infocom, 1977.

Aonuma, Eiji, Shigeru Miyamoto, and Takashi Tezuka. “The Legend of Zelda: The Wind Waker.” Nintendo, 2002.

Bakhtin, Mikhail. “Forms of Time and of the Chronotope in the Novel.” In *The Dialogic Imagination: Four Essays*, edited by Michael Holquist, 1981.

Bellini, Mattia. “Interactive Digital Narratives as Complex Expressive Means.” *Frontiers in Virtual Reality* 3 (May 26, 2022). https://doi.org/10.3389/frvir.2022.854960.

Belting, Hans. *Florence and Baghdad: Renaissance Art and Arab Science.* Cambridge, Mass. London: Belknap, 2011.

Bloomer, Carolyn M. *Principles of Visual Perception*. 2nd ed. New York, NY: Design Press, 1990.

Böhme, Gernot. *The Aesthetics of Atmospheres*. Edited by Jean-Paul Thibaud. Ambiances, Atmospheres and Sensory Experiences of Space. Abingdon: Routledge, 2017.

Bolter, Jay David, and Richard Grusin. *Remediation: Understanding New Media*. Cambridge, Mass.: MIT Press, 1999.

Bostan, Barbaros, ed. *Games and Narrative: Theory and Practice. Springer Nature eBook.* 1st ed. 2022. International Series on Computer, Entertainment and Media Technology. Springer International Publishing, 2022.

Bridgett, Rob. “Dynamic Range: Subtlety and Silence in Video Game Sound.” In *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, edited by Karen Collins. Ashgate Popular and Folk Music Series. Aldershot, England: Ashgate, 2008.

Caillois, Roger. *Man, Play and Games.* University of Illinois Press, 2001.

Campbell, Joseph. *The Hero with a Thousand Faces*. Bollingen Series: 17. Pantheon Books, 1949.

Chen, Jenova. “Flow in Games (and Everything Else).” *Communications of the ACM* 50, no. 4 (April 2007): 31–34. https://doi.org/10.1145/1232743.1232769.

Chen, Jenova, and Nicholas Clark. “flOw.” Thatgamecomapny, 2006. https://thatgamecompany.com/flow/.

Collins, Karen. “Introduction.” In *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, edited by Karen Collins. Ashgate Popular and Folk Music Series. Aldershot, England: Ashgate, 2008.

Colombo, Simone, Patrik Hansson, and Markus Nyström. “Mining Players’ Experience in Computer Games: Immersion Affects Flow but Not Presence.” *Computers in Human Behavior Reports* 12 (January 1, 2023). https://doi.org/10.1016/j.chbr.2023.100334.

Csíkszentmihályi, Mihály. *Flow: The Psychology of Optimal Experience*. 1st Harper Perennial Modern Classics ed. New York: Harper Perennial, 2008.

Cubitt, Sean. *Digital Aesthetics*. Theory, Culture & Society. London: Sage, 1998.

Flusser, Vilém. *En filosofi för fotografin*. Translated by Jan-Erik Lundström. Göteborg: Korpen, 1988.

———. *Into the Universe of Technical Images*. Translated by Nancy Ann Roth. Electronic Mediations 32. Minneapolis: University of Minnesota Press, 2011.

Flynn, Bernadette. “Games as Inhabited Spaces.” *Media International Australia Incorporating Culture & Policy*, no. 110 (February 2004): 52–61. https://doi.org/10.1177/1329878X0411000108.

———. “The Navigator’s Experience.” In *The Pleasuers of Computer Gaming*, edited by Melanie Swalwell and Jason Wilson. Jefferson, N.C.: McFarland & Co., 2008.

“FMOD - FMOD Studio Concepts.” Accessed October 23, 2023. https://www.fmod.com/docs/2.02/studio/fmod-studio-concepts.html.

Fritz, Björn. *Natur, Spel, Landskap*. Edited by Peter Bengtsen, Max Liljefors, and Moa Petersén, 2018. http://portal.research.lu.se/ws/files/40307535/Natur_spel_landskap.pdf.

Gates, Christopher. “Former Nintendo CEO Memorialized In The Legend Of Zelda: Breath Of The Wild.” SVG, March 13, 2017. https://www.svg.com/48672/former-nintendo-ceo-memorialized-legend-zelda-breath-wild/.

Geelen, Tim van. “Realizing Groundbreaking Adaptive Music.” In *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, edited by Karen Collins. Ashgate Popular and Folk Music Series. Aldershot, England: Ashgate, 2008.

Gillespie, Marie, and Jason Tonybee. *Analysing Media Texts*. Open University Press, 2006.

Gladden, Matthew E. *Phenomenology of the Gameworld: A Philosophical Toolbox for Video Game Developers*. Defragmenter Media, 2019.

Gombrich, E. H. *Art and Illusion: A Study in the Psychology of Pictorial Representation*. 6. ed. London: Phaidon Press, 2002.

Grau, Oliver. *Virtual Art: From Illusion to Immersion*. Rev. and Expanded. Leonardo. Cambridge, Mass.: MIT, 2003.

Gray, Kishonna L. *Race, Gender, and Deviance in Xbox Live. Theoretical Perspectives from the Virtual Margins*. Tenth anniversary edition. Taylor & Francis Complete 2024 eBooks. Routledge, Taylor & Francis Group, 2025.

*How Nintendo Solved Zelda’s Open World Problem*. Accessed October 3, 2023. https://www.youtube.com/watch?v=CZzcVs8tNfE.

Huizinga, Johan. *Homo Ludens: A Study of the Play-Element in Culture*. Kettering, OH: Angelico Press, 2016.

Juul, Jesper. *Half-Real: Video Games between Real Rules and Fictional Worlds*. Cambridge, Mass. London: MIT Press, 2011.

Kaae, Jesper. “Theoretical Approaches to Composing Dynamic Music for Video Games.” In *From Pac-Man to Pop Music: Interactive Audio in Games and New Media*, edited by Karen Collins. Ashgate Popular and Folk Music Series. Aldershot, England: Ashgate, 2008.

Kemp, Martin. *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat*. New Haven, Conn.; London: Yale University Press, 1989.

Kemp, Wolfgang. “The Work of Art and Its Beholder. The Methodology of the Aesthetics of Reception.” Book Section. Cambridge, 1998. https://doi.org/10.11588/artdok.00001916.

Koenitz, Hartmut, Lissa Holloway-Attaway, and Andrew Perkis. “Editorial: Interactive Digital Narratives Representing Complexity.” *Frontiers in Virtual Reality* 4 (February 10, 2023). https://doi.org/10.3389/frvir.2023.1132785.

Laurel, Brenda. *Computers as Theatre*. Reading: Addison-Wesley, 1991.

"Learn FMOD." Accessed October 23, 2023. https://www.fmod.com/learn#documentation.

Lefebvre, Henri. *The Production of Space*. Oxford: Basil Blackwell, 1991.

Manovich, Lev. *The Language of New Media*. Leonardo Book Series. Cambridge, Mass.; London: MIT Press, 2001.

Merleau-Ponty, Maurice. *Phenomenology of Perception*. Routledge, 2012.

Miyamoto, Shigeru. "Super Mario Bros." Nintendo, 1985.

———. "The Legend of Zelda." Nintendo, 1986.

Munday, Rod. "Music in Video Games." In *Music, Sound and Multimedia, from the Live to the Virtual*, edited by Jamie Sexton. Edinburgh: Edinburgh university press, 2007.

Murray, Janet H. *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Updated edition. Cambridge, MA: The MIT Press, 2017.

Norberg-Schulz, Christian. *Genius Loci: Towards a Phenomenology of Architecture*. New York: Rizzoli, 1980.

Play CLASSIC games online. "Zork I: The Great Underground Empire | Play Game Online!" Accessed September 5, 2024. https://playclassic.games/games/adventure-dos-games-online/play-zork-great-underground-empire-online/.

Rasmussen, Steen Eiler. *Experiencing Architecture*. M.I.T. Press Paperback Series. Cambridge, Mass.: M.I.T., 1964.

Ruberg, Bonnie, and Adreienne Shaw, eds. *Queer Game Studies*. University of Minnesota Press, 2017.

Salen, Katie, and Eric Zimmerman. *Rules of Play: Game Design Fundamentals*. Cambridge, Mass.; MIT, 2004.

Schmitz, Hermann. *New Phenomenology, a Brief Introduction*. Atmospheric Spaces 6. Sesto San Giovanni: Mimesis International, 2019.

Schreier, Jason. *Blood, Sweat, and Pixels: The Triumphant, Turbulent Stories Behind How Video Games Are Made*. New York: Harper Paperbacks, 2017.

Sengun, Sercan. “Six Degrees of Videogame Narrative.” In *Games and Narrative: Theory and Practice.*, edited by Barbaros Bostan, 1st ed. 2022. International Series on Computer, Entertainment and Media Technology. Springer International Publishing, 2022.

Sigurdson, Ola. *Atmosfärer: en introduktion*. Stockholm: Andersson Örn, 2023.

Sjölin, Jan-Gunnar. *Att Tolka Bilder: Bildtolkningens Teori Och Praktik Med Exempel På Tolkningar Av Bilder Från 1850 till i Dag*. Lund: Studentlitteratur, 1998.

Sokolowski, Robert. *Introduction to Phenomenology*. Cambridge: Cambridge University Press, 2000.

“Speedrunning.” In *Wikipedia*, March 17, 2025. https://en.wikipedia.org/wiki/Speedrunning.

Swalwell, Melanie, and Jason Wilson. *The Pleasures of Computer Gaming: Essays on Cultural History, Theory and Aesthetics*. Jefferson, N.C.: McFarland & Co., 2008.

Thorpe, Patrick, ed. *The Legend of Zelda: Breath of The Wild - Creating a Champion*. 1st edition. Dark Horse Books, 2018.

*Understanding Mario Odyssey’s Multiple Endings - YouTube*. Accessed March 18, 2025. https://www.youtube.com/watch?v=0F-4jpu7y7s.

Unity. “Unity Real-Time Development Platform | 3D, 2D, VR & AR Engine.” Accessed October 17, 2023. https://unity.com.

Venturi, Robert, Denise Scott Brown, and Steven Izenour. *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*. Rev.ed. Cambridge, Mass: MIT P, 1977.

Wölfflin, Heinrich. *Prolegomena to a Psychology of Architecture*. Translated by Michael Selzer. Colorado Springs: KeepAhead Press, 2016.

# List of illustrations

All images produced by the author unless source is given.

Image 1, Breath of the Wild, Link in front of a cathedral ruin, the Temple of Time. ..... 15
Image 2, Super Mario Odyssey, traveling between kingdoms. ..... 20
Image 3, My OLED Switch with blue and red controllers attached and my grey 8BitDo bluetooth controller. Not in the image: my TV to which the Switch usually is connected. ..... 29
Image 4, Link looking out over a landscape in Breath of the Wild. ..... 40
Image 5, Mario exploring a building in Super Mario Odyssey. ..... 42
Image 6, Link following a winding path through a landscape towards an orange glowing shrine. 44
Image 7, C D Friedrich, *Wanderer above the Sea of Fog*, ca 1818 (Wikimedia commons). ..... 45
Image 8, Claude Lorrain, *Landscape with Apollo Guarding the Herds of Admetus*, ca 1645 (Wikimedia commons). ..... 45
Image 9, Jakobson's communication model. ..... 46
Image 10, Non-diegetic elements in Breath of the Wild. ..... 52
Image 11, 2D gameplay wrapped around a 3D surface in Super Mario Odyssey. ..... 56
Image 12, *Zork,* a 1D textbased game (played in an online emulator). ..... 57
Image 13, *Super Mario Bros* a 2D sidescrolling game from 1985 (played on Nintendo's emulator on the Switch console). ..... 58
Image 14, *The Legend of Zelda* 1986, (played on Nintendo's emulator on the Switch console). 59
Image 15, *Breath of the Wild*, an open 3D world where we can look and go freely. ..... 60
Image 16, a page of the inventory screens in Breath of the Wild. ..... 61
Image 17, a model of some rooms (in blue) in the game-development tool Unity. The volcanic landscape behind it is a flat image, not a threedimensional model. ..... 67
Image 18, Link looks out at Hyrule through a cave opening. ..... 70
Image 19, *Super Mario Odyssey's* doors, we'll never see whats inside until we have passed through to another part of the gameworld. ..... 71
Image 20, a shrine in Breath of the Wild seen from the outside. ..... 72
Image 21, the same shrine seen from the inside. ..... 72
Image 22, a screenshot from the unity game development software showing the box, a grid and the lightsource. The blue structures inside the box is the gamespace. ..... 73
Image 23, The texture of the cliff-face becomes obvious when we see it up close, and Link is visibly a polygon based model, not touching the surface. ..... 76
Image 24, Leonardo, *The Last Supper*, 1495-98 (Wikimedia commons). ..... 79
Image 25, Kakariko village at night. ..... 82
Image 26, Hateno village at night. ..... 83
Image 27, Bonetton in the Cap Kingdom. ..... 84
Image 28, Tostarena Town in the Sand Kingdom. ..... 84

Image 29, two wolfs about to attack Link. ..... 86
Image 30, a group of Bokoblins in a bad mood. ..... 88
Image 31, A Guardian about to attack. ..... 88
Image 32, Link in a fight with a Hinox. ..... 89
Image 33, Necessary and optional elements of a gameworld, after Gladden. ..... 96
Image 34, Link in the Shrine of Resurrection. ..... 108
Image 35, From the cutscene where Link runs out from the cave. ..... 111
Image 36, another beginning; this is Bowser kidnapping Princess Peach. ..... 112
Image 37, Link in the atumn landscape of Akkala. ..... 117
Image 38, Zora's domain. ..... 120
Image 39, Hateno village. ..... 120
Image 40, Dueling peaks stable to the left, shrine to the right. ..... 125
Image 41, Mario in New Donk City in Super Mario Odyssey. ..... 132
Image 42, Is the artist Pikango a trustworthy NPC? ..... 144
Image 43, Flow as a product of ability and challenge, after Chen. ..... 148
Image 44, A warm summer night in Breath of the Wild. ..... 152
Image 45, Link in the cold, snowy mountains. ..... 153
Image 46, Mario in the forest of Wooded Kingdom. ..... 154
Image 47, The Luncheon kingdom. ..... 161
Image 48, Link fighting a Hinox. ..... 168
Image 49, Mario in a mini-boss fight. ..... 169
Image 50, Visible waterdrops on the inside of the screen in Super Mario Odyssey. ..... 171
Image 51, Mario in the Snow Kingdom. ..... 176
Image 52, Akkala, a region in autumn. ..... 178
Image 53, Thundra plateau, in a permanent thunderstorm. ..... 179
Image 54, Lomei Island Labyrinth. ..... 182

# What does it feel like to be in a video game?

This book invites readers on a journey through digital landscapes where art history meets gameplay and where the experience of space, movement and vision echoes centuries of artistic tradition.

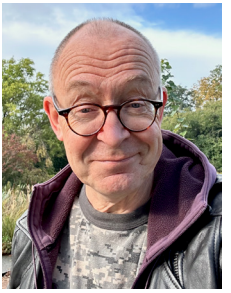
Focusing on The Legend of Zelda: Breath of the Wild and Super Mario Odyssey as examples, the author draws surprising connections between Renaissance painting, Baroque perspective and the immersive worldbuilding of 3D game worlds. What happens when we look at game spaces not just as entertainment, but as environments with esthetic meaning?

With a background in art history and an interest in phenomenology, the author explores:

- how players enter and are immersed in virtual landscapes
- how games build meaning through atmosphere, place and architecture
- how games create a feeling of having been there inside the gameworld

This engaging and thought-provoking book is for anyone curious about how video games shape our perceptions, and how art helps us understand the experiences we have while playing games.

## About the author



Björn Fritz (b. 1966) is an art historian at Lund University. He is particularly interested in technology, perception and the experience of space in historical and contemporary contexts. In his research, he combines classical art history with modern digital environments and investigates how the esthetics of video games relate to centuries-old artistic traditions. When he is not writing or teaching, he enjoys cycling long distances and hiking through the landscapes of southern Sweden.

Printed by Media-Tryck, Lund 2025 NORDIC SWAN ECOLABEL 3041 0903

LUND UNIVERSITY

Division of Art History and Visual Culture
Department of Arts and Cultural Sciences
Joint Faculties of Humanities and Theology

ISBN 978-91-8104-441-6