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# Design and Implementation of the Concept of a Boss in the different videogame genres

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## Abstract

This research project is being developed around the core theme which is the implementation of the concept of a boss in the different genres of videogames. To accomplish this, the project will be divided into a theoretical part and a practical one which will use the data obtained from the previous part.

For the theoretical part of the project, the goal is to determine how the structure of a boss works and which are its main core elements by analysing the different parts of a boss fight . Once said elements have been determined, an analysis for each of the elements will be done, examining the different approaches that each element can have together with multiple examples for each of the approaches.

For the practical part of the research, the goal will be to develop a template by using the information obtained from the previous theoretical part of the research. This research will then be the one used to set the standards for how the different characteristics of bosses in videogames should be implemented depending on the genre the game they are found in belongs to.

## Key Words

Bosses, Video Game Design, Mechanics, Elements, Implementation, Guide, Genres, Research, Boss Design, Narrative, Gameplay, Visual

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# 1. Introduction

## 1.1 Motivation

The main motivation that has led to the development of this project related to the implementation of the concept of a boss in videogames is mainly the possibilities that this simple concept can open up for the developers to work with. This concept in fact has become one of the key elements in a multitude of videogame genres throughout the years, leading to several cases where entire videogame genres have been developed around this concept.

And having said all this, it is considerably difficult to find accurate and centralised information related to this concept talking about its implementation in videogames. It is also because of this that this project has been developed. To compile all the different sources of information into a single source that talks about all the different aspects of a boss touching multiple cases for the different videogame genres.

## 1.2 Main problem

The main problem which is also one of the main reasons that has led to the development of this research is the little information available to anyone wanting to design and implement the concept of a boss in videogames. This problem originates mainly from two different sources. The first reason originates mainly due to the fact that the little sources of information that are available tend to focus on very specific cases, which tend to be the most popular ones available in the industry. This usually ends up leading to the misunderstanding that less mainstream approaches to the implementation of this concept are badly implemented and that there are fewer options available than the ones that there really are. The other reason is that there is a lack of a general centralised guideline that englobes the different genres and sets at least some sort of standard related to the design of bosses and all the elements that it encompasses when they are being implemented in the game. And because of this, what ends up happening is that we end up with many different individual opinions from several experts that end up leading to pretty much nothing due to the lack of further development after the initial research.

## 1.3 Final proposal and objectives

For the final proposal of the project, it will mainly be a study centred around the implementation of the concept of a boss in videogames, analysing the presence that each of the main elements belonging to a boss have together with their possible implementation depending on the videogame genre the boss is found in. The project will mainly be divided in two different parts, one of them being theoretical while the other being a practical implementation of the information that has been obtained from the initial section of the project.

In this study, the main goal and objective will be to set a certain standard for the implementation of the concept of a boss in videogames together with taking into account how the different elements and characteristics that bosses have should be designed and implemented in videogames.

To accomplish this, there will be two main parameters that will have to be taken into account to determine how the research will play out, together with how it will be structured. The first of the two parameters will be the different elements that can be found in a boss fight, which will be determined in the section of the research where an analysis of the different experts in the subject will be done. For the second parameter, it will be how said elements have been implemented in different videogames throughout the years. The information related to this second parameter will come from analysing the implementation of the elements in different examples.

Finally, for the practical part of the research, the goal will be to develop a template containing all the information related to boss design that should be known before implementing any kind of boss in a videogame. By using this template, any user will be able to have a clear understanding of all the things that have to be taken into account when designing a boss, making it much easier to then implement bosses in the later stages of the development.

Out of all the goals and objectives that this project wants to accomplish, the main ones that the later stages of the development will mainly take into account are the following.

- a. Analysing and determining what does the concept of a boss really mean in videogames.
- b. Analysing all the different elements and characteristics that a boss has and determining the most relevant ones depending on the type of game.
- c. Classifying each of the elements
- d. Determine how each of the elements can be properly implemented depending on the type of game that the boss belongs to.
- e. Create a template setting the initial stages of the development related to boss design and implementation in videogames stating all the different elements that should be taken into account.
- f. Validation of the developed template by experts in the subject.

## 1.4 Project Scope

As the final objective of the research is to develop a template with the guidelines on how the different elements of a boss should be implemented depending on the type of boss and the genre said boss is found in, it will be essential to determine which are these different elements that will be used for the study which will end up determining the general scope of the project. These elements will be determined by researching information related to the opinion about boss fights from several experts in the industry, where they state which are in their opinion the most relevant elements.

Once said elements have been determined, the other thing to be taken into account that will determine the scope of the project will be related to the different ways in which each element can be implemented which will be obtained from analysing multiple examples of each of the different elements.

At the same time, the length of the template which will be the main focus of the practical part of the project will also be determined by the amount of elements and approaches that each element can have, together with how in depth each of the elements is analysed.

The main idea of the template is to give any user the possibility to design a boss by introducing all the different elements that have to be taken into account. It is because of this that the focus will be on explaining every single thing that has to be taken into account together with its possible implementations, without going in too deep into any of the aforementioned elements.

## **2. Theoretical framework**

## 2.1 Introduction to the historical concepts

The concept of a Boss is pretty much one of the first things that comes to mind when we think of video games. And their evolution throughout the years has been one of the main reasons for having the huge amount of different videogames available nowadays.

But, different to the concept, its origin is not that well known. This is mainly because of 2 different reasons. The first one is that its origin can come from multiple sources, and we don't have a clear date to determine when the concept appeared and where it was first implemented.

Now, which are these different origins? Well, as I said there are different origins for the concept of a boss, and it will vary depending on who you ask and which sources you look into.

One of the most accepted theories about its origin is that it was initially implemented in Role Playing tabletop games such as D&D. Then, using D&D as a base for a dungeon crawler a videogame was released for the PLATO SYSTEM which introduced the first boss in the history of videogames.



Figure 2.1- Plato System Empire Game (1973)

At the same time, the other main reason and probably the most interesting one is that the concept of boss has evolved quite a lot since the beginning.

Initially, bosses were only used as final enemies of videogames which represented the final challenge that the player had to overcome to beat the game. Later on, some games started to introduce bosses throughout the game, making appearances at different points in the game, not

only as of the final challenge. From this point onwards, many different implementations of the concept of a boss have appeared, such as Punch-Out! creating the Boss Rush genre.

In the end, what we can know for certain is that this concept opens the door to an immeasurable amount of different possibilities as it has been evolving throughout the years since its first implementation.



Figure 2.2 - Punch Out (Nintendo, 1994)

## 2.2 Transmedia analysis

Designing a game is not easy, there are many things that have to be taken into account not only mechanically, but also visually and narratively. And what is even harder is to make it so that all of the elements of the game blend together properly.

The same happens when designing a boss. What is really hard to accomplish is not to make one of the elements work properly in the fight, but to make sure that all of the elements that may or may not be related in any way can work in tandem with one another to obtain the best possible result for what we wanted to achieve in said fight.

Interestingly, this concept of the different elements of a boss fight can also be applied to other kinds of media. Let's say for example movies, how many times have you felt that although the movie introduced and developed in an excellent way the main antagonist, which can be represented as the “final boss”, in the end, the conclusion together with the final challenge that the protagonist has to overcome feels lacklustre?

Or the other way around, how many movies have you watched where although the final conclusion to the story is properly done and has that “cool” feeling, you don't really care because the build-up to that specific moment hasn't been properly done and felt uninteresting?

And the same can be said about books, the only difference being that said problems are even more extreme which can lead to the reader stop reading said book. Because it doesn't really matter if the finale in a book is excellent or not, if getting to that point just feels like a chore and it's just not worth the reader's time, it will never get to that point.

So what can we learn from these different media? Well, the most important part that we have to always keep in mind is that these elements in the fight are like the different parts of a story, it doesn't matter if all but one of these elements is executed perfectly, if one of them doesn't satisfy the player, it will affect the overall feeling that the player receives from that fight, and it won't lead to the design goal that we wanted to achieve.

## 2.3 Description of important theories and ideas

- Boss: A boss, in the end, is an enemy or an encounter in the game with certain characteristics that are different from the rest of the elements in the game. These characteristics can be many different things depending on the type of game the boss is being designed for, and the type of boss that we want it to be inside that game.  
What is important to note is that in the end, these changes that we make are so that the boss we are designing feels the way we want it, which then translates said feeling to the player in the fight.
- Integration into the worldbuilding of the game: In the end, a boss should also fit into the game narratively. And, although there may be some cases where the narrative has a very small role in the overall design of the game, we should still try to design the bosses with a certain amount of coherency to the overall story of the game.
- Integration with its surroundings: Together with the boss, one of the most important parts of a good boss fight is to have them placed in a space where they fit properly. This is not only from a narrative point of view but also from the visual department.
- Consistency between mechanics: Bosses can be used to challenge the player, because of this it is also important to make them fulfil the rules that have previously been throughout the game. And in case this special encounter modifies some of it, the player should be notified in some sort of way.

- Challenge and reward: After defeating a boss, the player should feel satisfied, this satisfaction can come in many different ways, such as receiving a tangible reward, the feeling of accomplishment or the satisfaction that the boss has been finally defeated. What is important to remember is that its reward should depend on the challenge that defeating said boss implies. Not doing so will lead to the player being unsatisfied with the game and may even stop playing due to the feeling of not being recognized in any way for what it just did.

## 3. Methodology

### 3.1 Literature

The methodology that the research will follow is based around the following structure. The study will be divided into different scopes, starting on a global scale and decreasing the scale down to a more focused scope centred around analysing a specific case.

The initial focus will encompass the entire research from a general scope, reading several articles and talks in conventions that talk about boss design in general, without focusing on any of the cases of study specifically. This is mainly because it is important to have a general overview of the different concepts related to this subject and how they are implemented in videogames in general. It will be in this initial section where the different boss fight elements that will be used in the research will be determined, using the different sources of information previously said.

Then, the focus will be based around the different elements that have been selected for the study and will be analysed. Information will be obtained from articles from multiple experts that talk about each of the elements individually, looking at their characteristics and classifying them. It will be in this part of the development where the different approaches for each of the elements will be determined, exploring the different possibilities available belonging to the most complex part of the research.

Later on, the study will be focused around the different examples of bosses pertaining to the different elements and all the different approaches to each of them. The information from this part of the research will be obtained directly from analysing different games that fit the criteria for each of the different cases. This is done to obtain practical information related to the different cases of study present in the research, analysing the different examples available.

By following this methodology, it will be possible to analyse each of the different elements found in a boss fight. And by using the metrics obtained from the different selected genres, it will also be possible to expand the analysis of the elements to any available videogame genre, obtaining the initial guidelines to how the concept of a boss can be implemented in videogames.

## 3.2 Cases of study

To determine which cases are going to be analysed for the study, it is important to take into account the goals and objectives of the project. In this case, as the goal is to set a standard for the implementation of bosses in videogames, it is essential to look at each of the cases from different perspectives where the designers of said encounters had different goals in mind.

To accomplish this, as it has been stated in the methodology section, the study will be based around the different elements that can be found in a boss fight. And more specifically, the focus will be on analysing how each of the different elements can be implemented depending on the characteristics of the boss and the game said boss is found in.

First of all it is essential to determine which will be the different elements found in a boss fight that are going to be analysed in the research. To do this, several key points will be taken into account.

- Which are the most mentioned elements when talking about bosses in the different articles, books and talks related to this subject from the experts. Especially the ones that they deem more relevant.
- Which are in my personal opinion the most important elements that can be found in a boss fight, contrasting them with the ones that have been mentioned by the experts.
- The possibility of doing an in-depth analysis of each of the elements without getting out of scope due to its size or generalised concept behind it.
- Presence of each of the elements in videogames without taking into account special cases or gimmicks found on a very small amount of samples or that pertain to very niche cases.
- How much does each of the elements overall with each other, making sure each element can be analysed individually without anything else.

Together with the different elements that are going to be analysed in the study, as it has already been stated, the different implementations for each of the elements will also be analysed. To do this, similarly to the previous cases of study, several key points have been selected.

- How niche a possible implementation for an element is, compared to other types of implementation of said element, making sure to pick cases of study that have multiple examples available.
- How each element is related to the three main pillars found in videogames, these being visuals, narrative and gameplay. And how said related can be related to the different implementations for each of the elements.
- How each possible implementation of an element feels different from other possible implementations, making sure none of them overlap with each other containing only certain small variations.

The different elements that are going to be selected will be introduced further into the research, together with each of the possible implementations previously mentioned.

Finally, related to the amount of games and bosses that will be selected as examples for each of the cases of study, the main goal is to have the necessary amount of examples required to study and explain each of the cases, without making it too long.

### 3.3 Boss implementation template

As previously stated, the practical part of the project will be based around developing a boss implementation template where all the different elements of a boss are introduced together with their possible implementations depending on the characteristics of the boss itself.

This template will basically facilitate the initial design of any type of boss, independently of the characteristics of said boss, explaining the possible ways in which each element can be implemented into the game.

Additionally, together with the template, an implementation of a boss using said template will be developed to give some sort of an example of a possible use for the template. This example

will basically be the entire design of a boss with all its different elements designed and implemented in a certain way.

At the same time, all the information required to develop this template will be obtained from the theoretical part of the project, where the different cases of study have been introduced and analysed.

## 4. State of the art

### 4.1 The elements of a boss fight and their importance

The most important thing to take into account when we are analysing a boss fight is that similar to how many things in videogames work, a boss fight in the end is a combination of many different elements that make up for what the player encounters in the game.

Having some of the said elements perfectly implemented will certainly make your boss fight better and more enjoyable for the players overall. But it is as important to make sure that none of the remaining elements are missing or have a poor implementation, this is because in general the things that are wrong tend to affect the overall experience of the player in a harsher way than what the properly implemented elements do.

It is because of this that a proper research on each of the different elements is necessary, to ensure that none of them get neglected and end up affecting the results of the study. In the end, we can see that a boss fight is an excellent example of “The Whole being Bigger than the Sum of its Parts”.

It is also important to note that these elements can and will pertain to different parts of the boss fight itself, with some of them not even belonging to the fight between the boss and the player. For example, some of them may be related to the behaviour of the boss in the fight, or in other cases they may be related to the integration of the boss into the world itself.

At the same time, all these elements can and will pertain to different parts of the fight, for example how the boss fight itself works and which challenges the player will have to overcome, or it may be related to the integration of the boss in the world. Others may not even be related to the fight itself and will be related to what happens before or after said fight happens. These elements may also be related and pertain to the same part of the fight, or be completely unrelated and have no real correlation between them looking at them individually. Finally, it is important to remember that all these elements are linked to the core design of the boss, so in the end all these elements will influence not only the parts that said element is related to, but also the other elements found in the boss.

As it has already been mentioned, several sources of information from different experts about boss design have been analysed to determine which are the most elements in a boss, making its interaction with the player as satisfactory as possible and obtaining the best possible result out of its implementation into the game.

Although the majority of the elements that are going to be analysed in the study are generally used when we talk about bosses in videogames, some of them have been added due to their relevance in videogame design in general, without being explicitly related to bosses.

## 4.2 Integration of the boss into the game

### 4.2.1 Introduction

The element of integration of a boss can be seen more as a concept or idea than an element per-se. This concept refers to the idea of implementing the boss into the game together with all its different parts, these belonging to both outside and inside the fight itself between the boss and the player.

It is also important to understand that it is not only important to integrate the boss into the game gameplay-wise.

When we talk about what does integration of the boss into the game actually mean, it is better to see it as a concept or idea, rather than an element per-se.

For this case, the concept refers to the idea of integrating all the different parts that compose what we can understand as a boss inside the game itself. When talking about the different parts, it is not only referring to the different elements of a boss gameplay-wise, but also to all the narrative and visual parts of the boss. And at the same time, they are not referring only to the ones found in the fight itself, but also outside of the boss with the narrative relevance that the boss has in the story or fitting the overall theme and aesthetic of the game from a visual point of view.

### 4.2.2 Sources of information

*“An easy way to create anticipation is by dropping subtle clues into the dialogue of your game. If every character your player encounters in a village expresses fear about a creature living in a nearby cave, your player will start to wonder about what’s in store for them and what they might need in order to prepare.” (Design Lounge, 2020)*

As we can see in this short quote, one of the ways in which we can anticipate to the player new elements that will appear in the future is by setting small narrative cues that start commenting on the subject we want the player to be aware of.

*“However, you should also avoid having major bosses placed too close to one another. As mentioned in the previous section, one of the rewards for defeating a challenging boss is the break that players receive afterward. By placing bosses one after the other, players never have the chance to relax and regroup before diving into the next challenge.”* (Design Lounge, 2020)

The most important thing to note about this article is that as mentioned, having too much of something in a short period of time can lead to a loss of importance and impact that should be directed to the player. In this case, having important bosses close to one another can lead to a negative experience for the player.

## 4.3 Role of the boss and what does it add to the experience of the player

### 4.3.1 Introduction

When talking about what does the role of a boss as an element mean, and why is it so important for its overall design, the best way to understand it is to see it as giving the boss a “raison d’être” for it to exist inside the game. Another way to see it is to understand it as making the boss add value to the overall experience of the game.

At the same time, similar to what it has been stated in the previous element of the integration of the boss into the game, this element can not only be related to the boss gameplay-wise. The role of the boss can also be related to the overall narrative of the story, making it relevant to the general narrative or it can at the same time exist simply to be a visual spectacle for the player, with cinematics and high quality visuals instead of focusing on the fight between the boss and the player.

### 4.3.2 Sources of information

*“The word “Why” is a question that I’ve come to expect as a game developer. Games often take a long time to develop, and I chronically encounter the issue of my games being too ambitious for the time frame I have been allotted. Because of this, I was taught that everything in a game, especially in a small one, should serve the purpose of providing an enjoyable or at the very least interesting experience for the player.”*

*“This is why if I’m going to take the time to draw a rig for a boss character, program its attack patterns, and balance the fight accordingly, I better make sure it is serving a vital role in the game. Pushing past my highly biased affinity for boss battles, I have a lot of options to choose from when fitting my boss into a role to justify its inclusion.”* (Agriogianis, 2018)

It’s interesting to see that the author of this article has a similar opinion related to what is the reason for a boss to exist in a game. And it is as the author says, there are many ways to make something be meaningful, especially in videogames where realistically, the biggest limitation related to what can be done is pretty much the imagination of the people that are developing it.

*“As a game designer, it’s vital to learn how to make bosses that are fun and challenging to the player. The purpose of a boss is simple: it’s a single battle designed to challenge the player’s mastery of the game or test a specific element found in it. Boss battles are distinct from normal battles, which are typically designed as either learning tools for the player; endurance challenges where the player must win while attempting to conserve resources or wastes of time.”* (Locke, 2011)

Related to this article where the author explains the idea of a boss fight as simply a way to make sure that the player understands and knows how to implement certain concepts or mechanics, giving it basically the role of an “exam” for the player. Although I can understand the point that it is trying to make, I don’t really believe that this is the only thing that a boss fight can do. In a way, what the author described is simply one of the many roles that a boss can fulfil in a game, and not the only one.

*“In opposition to Western, maximalist sensibilities, the Taoist ancients cherished blankness. In the above landscape painting by Fang Congi, the canvas is dominated by a lack of ink that swallows the mountains and lake into obscurity. This technique brings the brush strokes all the more meaning, as their fight against the haze of the clouds makes them simultaneously more esoteric and mighty. In the Taoist conception of balance, void is as necessary as form, a notion coined as xushi (emptiness-substance).”*

*“For Lao Tzu and Fang Conyi, the space in-between substance is what gives it function. The possibility that absence implies is its value. Blankness is meaningful because it is malleable, while form is fixed.”* (Wright, 2021)

What I find most interesting about this article is that this is a concept that is usually overlooked in videogames in general, not only for boss fights. Not having something doesn't necessarily mean that you should have it simply for the sake of having it. This concept pretty much leads to the same opinion that I have related to the roles of bosses in videogames. Don't implement something that will require lots of time from the developers, just for the sake of implementing it, instead focus on upgrading and making better what has already been done.

*“Scott Rogers, a veteran developer on games like God of War, put it best during a GDC talk on the topic, where he stated that he believes the final boss of a game should be easy, in order to give players a sense of power and escalation in their abilities.”* (Rogers, 2018)

Although I think that the argument that is given in this talk is completely valid and to a certain extent I agree with it, I believe that in the end, the difficulty itself depends on what we want the final boss to be. It can very well have the role of being the ultimate challenge for the player or the culmination of the player's experience where it can basically steamroll every enemy as a reward for beating the game.

*“One of the broader definitions of the role of boss fights states that the encounters act as a test of the player’s abilities. Player’s abilities have been honed against the fodder and now they are facing off against a much more dangerous foe, one that takes more time to kill and could end the player character’s life within a few devastating attacks. Usually, this role encompasses a specific subset of the player’s skills, sometimes as granular as a single weapon or attack. In another section detailing a different role, we will find bosses that test a player’s overall skill.”* (Agriogianis, 2018)

From this article, the author is basically explaining that although a boss can fulfil many different roles, a boss can also be designed to test a certain part of the player's skill, instead of its overall proficiency in the game. What we can basically obtain from this source is that there are different ways to approach the same role, similar to having sub-roles inside the general ones.

## 4.4 Boss location

### 4.4.1 Introduction

Boss location can also be understood as the arena where the fight between the boss and the player actually happens. This element is much more than simply having a place for the fight to happen, it can also be an integral part of the mechanics that the boss has for the player to overcome, or even be more relevant for the entire narrative of the story than the character the player is fighting against.

At the same time, the arena doesn't have to always be relevant for the fight itself, sometimes it is enough to simply have a visually interesting area where the boss and the player fight without having any mechanical or narrative implications with the fight itself. Other times, the arena itself doesn't even need to be visually interesting and pretty much be a simple background just to not disturb what is actually relevant, which is the boss and the fight itself.

## 4.5 Mechanics of the boss

### 4.5.1 Introduction

Mechanics is an element that is pretty much essential to any boss fight in any game, no matter the genre. This is because in the end, how the fight against the boss actually plays will depend on the type of mechanics that the boss has.

Having said this, mechanics in a boss fight are much more than the different attacks the boss is throwing at the player. Mechanics can also be the patterns and sequences that the boss follows, the interactions between the boss and the environment the fight happens in or even gimmick mechanics that force players to approach the fight in a special way that would usually be used. Mechanics can even be linked to the narrative of the game overall, giving the boss the characteristics that appear throughout the story.

### 4.5.2 Sources of information

*“Boss fights are meant to be big events, so if a player is brushing them off and forgetting about them within a few minutes, something isn’t being done right. Then of course there is the matter of the fight itself, managing the balance between difficulty and ease to create an experience that is engaging yet also fair; even with a fight that is meant to be the peak difficulty spike.”*  
(Agriogianis, 2018)

Although this article does indeed talk about the difficulty in boss fights, I added this article here because what I think the author wants to explain is that mechanics related to a certain boss can also vary in difficulty. As the player progresses throughout the game, the different mechanics should also progress in one way or another. And not only through different bosses, but also inside the same boss fight with the boss having several phases with different mechanics or variations of the same.

*“When I talk about patterns in relation to enemies, I’m talking about what the enemy will do and when it will do it, in terms of attacking the player.*

*There are a ton of different things enemies might do, of course: ranging from simply walking toward the player, to elaborate multi-hit combos and special attacks. What’s important to understand is that every attack pattern is built on a fixed design/framework created by the developers. As advanced as bosses have become, we’re yet to see artificial intelligence in games reach the point where bosses can create their own completely original attacks.”*

(Keren,Rogers, 2018)

As the author in this article explains, mechanics can not only be seen as the different attacks and abilities of a boss, they are also related to how the boss actually behaves inside the fight itself and which actions does it do, and in which order. As it is also mentioned, this can be defined as patterns and I will be analysing them when I talk about the mechanical element later on in the research.

*“Interactivity” and “activity” are two key concepts underlying the former definition of gameplay. But, how do players interact with the game? In order to undertake any activity at all, players have to interact with toys. Any ludic activity involves the interaction with concrete or abstract objects.”*

*“Such objects are also commonly referred to as “toys”, and their manipulation requires a level of proficiency achieved through a learning process.” (Crawford, 1984)*

If we analyse this quote related to the design of regular “physical” toys, and we implement the concept that the author explains to work with videogames, we can basically see that these toys are basically the different mechanics and elements that a player can interact within a boss fight.

This, funny enough, shows us that in the end, what we are doing when designing videogames and boss fights is pretty much the same as the designers from the olden days when designing interactive elements. The only difference is that the possibilities have expanded considerably and the way in which the toys and the users interact with each other has also changed.

*“The starting point of the process is the exploration of the characteristics of the toys, which are used in the game only when the player feels to have understood their properties.”*

(Hutt, 1966)

Following the idea of the toys as the elements that we can find in a boss fight and that the player can interact with, we can also see from this quote that in the end, the mechanics that the boss should have should be related to the mechanics that have been implemented throughout the game. And that we should make sure that the player understands said mechanics, before increasing their complexity by implementing them in boss fights.

## 4.6 Challenge and Reward

### 4.6.1 Introduction

The element of challenge and reward can be seen as the idea of an equivalent exchange between what the player has to accomplish as a challenge, together with what the player obtains once the challenge has been completed. Although the challenge part of the element is usually seen as the difficulty that the challenge supposes for the player, for the reward part, although it is usually seen as a physical reward such as special items, or currencies found in the game, it can also be rewarding from a narrative or visual point of view, where the action of actually beating the boss is more important for the player than the actual reward received from defeating it.

In many cases, this element is probably the last one to appear of all the different elements when talking about a boss. But at the same time, it is probably one of the most important because it is one or one of the main reasons a player would want to keep playing the game, and if said balance between challenge and reward is broken, players may think it is not worth it to keep playing the game which will end up meaning they stop playing.

### 4.6.2 Sources of information

*“Scott Rogers, a veteran developer on games like God of War, put it best during a GDC talk on the topic, where he stated that he believes the final boss of a game should be easy, in order to give players a sense of power and escalation in their abilities.”* (Rogers, 2018)

I have used quotes from this talk again because I think that it can also be used to explain the challenge-reward relation. This is because the expert is saying, we can see the final boss of God of War in this case, as the final reward after defeating all the challenges that the game has given to the player.

*“Good boss strategies all have one thing in common. They keep the player from getting comfortable. They prevent the player from using their optimal strategy the same way they've been doing so before and force them to think about how to adapt their tactics and their understanding of the game to a new situation. Since you don't really want to add brand new concepts out of the blue in boss battles, typically this involves combinations of things the player has previously seen: the player knows how elemental weaknesses work, and knows how elemental reflect buffs work, but this boss uses both and now the player has to figure out how to handle them at the same time, which is likely to be a lot more challenging than handling just one.”* (Locke, 2011)

What the author in this article is talking about is the progression and increase in difficulty that the player finds when fighting against different bosses in the game. What it is important to understand is that the mechanics that can be found when fighting bosses should always follow the rules that have already been introduced to the player. At the same time, increasing the complexity of the mechanic without changing its core rules is how you properly implement the progression of the difficulty that can be found in the different boss fights.

*“If you wish to make the players succeed in their goals (which is generally a good idea, as most people don't want to see their character fail and feel they did everything in the game for nothing) you must be sure to include a plot point, dialogue snippet, cutscene, piece of music or similar that really push the significance of the event to the player. Beating a game or boss with an ending cutscene less than 15 seconds long and without showing the player the results of their hard work feels really underwhelming and unrewarding.”* (Wood, 2012)

Talking about rewards that a player should receive when defeating a boss, the author of this post explains that not only should a player be rewarded after defeating the final boss or an important milestone in the overall progression of the game, but that the progression of the player should be displayed in some sort of way. By doing this, we make sure that the player feels proud of its accomplishments which will then make it want to keep progressing in the case of a boss, and to play again if the game has been completed.

*“These are examples where the game starts out a lot harder than the rest of the game; this could be due to a lack of resources or events that are beyond the scope of the rest of the game. Resident Evil Village’s opening Lycan attack is something that is never repeated at that level of ferocity, and the player literally doesn’t have the health, resources, or weapons to be able to adequately protect themselves. If you’re playing the game on hardcore and up, it’s damn near impossible to do it safely without exploiting something in the area. To build off that, the entire first quarter of RE8 is far harder than the rest of it due to the lack of ammo and weapons, with the bulk of your gear and upgrade systems locked until after you beat the castle.”*

*“Another aspect is having a frustrating start, or pain points right out of the gate that frustrates people. Hollow Knight may be one of the best metroidvanias released last decade, but it had a huge churn rate and lost 32.3% of its player base (at the time of writing this) within the first hour of playing and not beating the first boss. The lack of an easy map system could have been the culprit, but without talking to players, it’s hard to tell what drove them away.”*

(Bycer & Cardwell, 2021)

The author of this post explains how many modern games tend to make the mistake of scaling the difficulty way too fast in the early stages of the progression. This can lead to several problems, one of them being that the player is placed in a situation where it has to basically abuse some elements of the game to beat these harder sections of the game if the difficulty setting is set to the higher levels. The other problem that the game may have is that as the difficulty scales so fast, there's a point in the progression where it basically can't increase more, which ends up leading to the player having an easier time as the game progresses.

## 4.7 Polish and juiciness

### 4.7.1 Introduction

Finally, for the last major element that will be analysed in this study about boss design and a special case because it is not directly related to boss design we have the attention to detail that we can find in the different cases of study. This element is a bit different from the others because it is one that belongs more to the overall design of the videogame, rather than only the boss. The polish in a game can be found everywhere, and in bosses is pretty much the same where it is clearly possible to differentiate between whether there's polish or not in the game. For juiciness it is also an essential part of a boss. This is related to the details that the developers have added to the boss, to make the overall experience of the game even better.

As an important note related to this element, we have the fact that this element can also affect all the different elements that have been previously mentioned and it can belong to many of the different parts of a boss fight, and not only the mechanics which would be the first element that would come to mind.

## 5. Analysis Structure

### 5.1 Structure of the Analysis

When each of the different cases of study is going to be analysed, the procedure that will be followed in the research is the following, which in this case will be the different elements that can be found in a boss fight. This structure will, at the same time, be also followed in the template developed for the practical part of the project.

1. The initial section for each of the analyses will be where the case of study is introduced, together with the introduction to the different characteristics and metrics that can be found on each of the cases. The different approaches to the possible implementation for each of the elements will also be introduced in this section of the analysis.
2. Once the specific case of study has been introduced, stating the characteristics to this specific boss element, the different approaches to possible implementations , the following step is to expand on each of the possible implementations for each specific element. To do this, several examples for each of the implementations will be analysed, stating how they have been implemented, together with why said implementation works and with which goal in mind has it been implemented.
3. Finally, by using the information obtained from the different examples for each of the elements in each of the cases of study, a sort of a collection of information related to the implementation of bosses will be obtained . It will be this information the one to be used for the development of the template for the practical part of the research.

## 6. Analysis

### 6.1 Integration of the boss into the game

#### 6.1.1 Concept and definition

The first element that will be analysed for each of the cases is at the same time, the one that englobes the biggest section of the game and in a way being the most extensive of all the elements in the research. This is due to the fact that this element is related to all the other elements in a way or another, and being extremely relevant when we talk about the overall design of the boss this element is related to. At the same time, it is usually the one that the player first encounters in the game and introduces the boss. In many cases it even starts being relevant before the fight between the player and the bass has even started.

*We can refer to this element as making the boss fit the overall setting of the game in the best possible way so that it makes sense to be in the location where it is found and make it so that it doesn't look out of place narratively, artistically and mechanically with the rest of the game. Basically, justifying the way in which the boss exists and behaves inside the game, this being either narratively, visually or mechanically.*

To implement this element properly into the game, it is important to take into account which are the characteristics that a boss should have. From this characteristics we can basically, determine It is also important to note that these areas don't have to necessarily be related to each other and can pertain to completely different parts of the game and it is even more important to remember that although they should be present as much as possible, they can also be omitted if a specific case requires it.

The main areas in which this element is present when we talk about bosses in videogames, and the ones that will be mainly analysed in this study are the following.

Narrative Coherency: In this part of the game, the role of the element is to make the boss fit the overall narrative of the game and its worldbuilding. It can basically be understood as giving the boss a good reason to fight the player and to make the place where the fight happens make sense narratively.

**Art Style:** This element is also essential when we talk about the integration of the boss into the world visually. In this case, it is possible to approach the element from mainly two different approaches, both being equally important and non-exclusive.

The first way is to make the boss have the same art style as the rest of the world that it is placed in, without standing out due to its irregularity. This englobes the environment and the entities that can be found in the world.

The second approach is to make the boss fit the rest of the game when we talk about the overall visual theme of the game, being the entire world of the game or the place where the boss is found in. This visual theme is usually related to the narrative theme of the game together with the overall approach that the game has.

**Mechanics:** As the last area in which we can find this element refers to the way in which the boss behaves once the boss fight starts against the player. We can understand this as the way in which the boss brings over the mechanics that the player has been interacting with, being related to the overall gameplay loop of the game or the way in which a certain section of the area behaves. As an important note, many times this is also related to the overall narrative of the game, in a way giving a reason for the boss to be that way when fighting against the player.

Finally, it is also important to note that this element is also the one that creates the anticipation factor for the player. This anticipation is the one that makes the player be willing to keep playing the game, creating expectation for the player to meet the boss that is being anticipated.

This anticipation is usually used on bosses that have an important role in the overall narrative of the game, or with a big mechanical relevance. And the way this anticipation is usually created in videogames is by introducing said bosses into the story of the game, or by being related to the way in which the environment tells a story about the boss.

## 6.1.2 Example analysis

### 1. Narrative Integration

When a game wants to integrate a boss from a narrative standpoint, there are multiple characteristics that should be determined about the boss to decide which type of narrative integration it will have in the game.

The first of the characteristics is to determine whether the boss will have an enmity with the character, or if the boss will directly be in conflict with the player.

An obvious example of a boss being in conflict with the character itself is Bowser. At the start of pretty much any Mario game, Bowser kidnaps Princess Peach. By doing this, it makes Mario enter into conflict with him, because one wants to kidnap her, the other one wants to protect her.



Figure 6.1- Bowser and Peach (Mario Odyssey, Nintendo, 2017)

On the other hand, we can look at a game like XCOM2, where the final boss of the game is in conflict with the player more than with the characters that actually appear in the story itself. This is because in XCOM2, contrary to a Mario game, the player is not controlling a single character, but rather multiple characters while managing the base of operations. What this creates is a conflict between the boss (and final enemy in this case) and the player, because in the end, although the boss is in fact killing the different characters and destroying the players base, the final goal is to actually defeat the player.

As it has previously been said, in the end this characteristic depends on the game it is found in, and what determines how this characteristic will appear is the relevance that the characters that the player that is controlling have in the story rather than to which genre or theme the game belongs to. This has been displayed in the previous examples, where Mario is the main protagonist of the game, which leads to having the boss be in conflict with him. On the other hand, as in XCOM2 the different characters that the player controls are not relevant to the story because in the end they are designed to be prescindible.



Figure 6.2 - Loadout Screen (Xcom2, Firaxis, 2016)

As the second characteristic, it has to be decided as to the reason why the boss is in conflict with the character or the player. Contrary to what people may think, the most important thing is not to create the most complex and convoluted reason for the boss to have an enmity with the player, what really matters is that the game is consistent with the reason it gives and that the reason is properly justified, even if it's the most simple and dumbest reason.

As a clear example of simplicity done properly can be seen in any game where the player encounters monsters or semi-sentient beings, such as in Monster Hunter games. In Monster Hunter games, the goal of the player is to hunt monsters to obtain resources, which allow the player to upgrade its equipment to hunt even stronger monsters. As the player is hunting monsters, the monsters will start attacking the player, there's no complex reasoning behind it, simply the correlation between hunt or be hunted. The monster attacks the player because the player hunts the monster, that's it.



Figure 6.3 - Monster Hunter Boss (Monster Hunter: World, Capcom, 2018)

Then we can go to the other side of the spectrum, where we have games such as Bioshock: Infinite where for example the main villain and the player have a conflict due to a reason that is not explained in the early stages of the game. It is then, in the final section of the story where finally it is revealed that the main villain and the protagonist are the same character, simply pertaining to different timelines where the character made different choices. In this case, what it is important to understand is that the story of the game was based around this idea of having the antagonist and the protagonist be the same character, and the game sticks to this idea throughout the entire storyline, giving clues and making the outcome make sense in the end.

Obviously, it is essential to remember that inside this spectrum there are limitless possibilities, the reason of conflict between the player and the boss doesn't have to necessarily be as simple or as complex as the previous examples, what it is important as previously said is to give a justification and follow said justification throughout the entire game. As a side note, this doesn't mean that the relation between the boss and the character can't evolve throughout the game, what it means is that if the reason changes, justify why it changed, which will basically work as the reason for conflict, even if it was different initially.



Figure 6.4 - Comstock (Bioshock: Infinite, Irrational Games, 2013)

For the third and last important characteristic, although it is quite simple, it is still as important as the previously stated characteristics. This characteristic is to make sure the relation between the overall theme of the game and the overall reasoning behind the enmity between boss and character makes sense.

It may seem a bit complex, but in the end what it means to simply make sure that if the overall theme is quite dark, talking about the hardships of a human being in an apocalypse, the justification that you give to the player about why the villain wants to kill the protagonist can't be something that makes no sense. A badly done example would be saying that the villain wants to kill the girl because he doesn't like the colour of her trousers.

Having said this, as previously stated, it is essential to properly justify why this conflict exists. If instead of simply saying that he doesn't like her trousers, the game states that he doesn't like her trousers because he is a psychopath, or that those trousers are identical to the ones his daughter was wearing when she died and because of this he has psychopathic behaviours, we have a completely valid reasoning behind the conflict, making the conflict and story actually meaningful.

A properly implemented example would be the main villain found in *The Last of Us 2* a considerably dark themed game placed in a zombie apocalypse, where she wants to kill the people that killed her father, which ends up being the protagonist that the player controls in the first game of the saga. As the game has an overall negative and dark theme, the game gives the villain a dark and negative justification, which in this case is vengeance.



Figure 6.5 - Abby (*The Last of Us 2*, Naughty Dog, 2020)

## 2. Visual Integration

Integrating a boss into a game from a visual or graphical approach is probably the easiest of the three types of integration. This is because in the end, the best way to integrate a boss visually, is to make sure it fits the overall theme of the game.

Having said this, there are two different scopes in which we have to integrate the boss visually in a videogame.

The first of the scopes is the general theme of the game. This refers to making sure the boss fits thematically with the game. When talking about fitting the theme of the game, it is not about if the graphics of the game are low-poly, pixel art or high quality. What fitting the overall theme of the game means is to make sure that the boss doesn't look out of place with the aesthetic that the game is trying to achieve.

An obvious example would be for example Bloodborne, where the theme of the game itself is quite visceral and bloody (the name itself has the word blood in it). In the game it can be seen that pretty much any boss you can find fits the aesthetic of being bloody and visceral, having many of said bosses be inspired by lovecraftian horror or other similar books and movies.

Now, if for example one of the designs of the bosses found in the game came from a more child-ish aesthetic such as pokemon, we would clearly see that it would not fit the game, no matter how you look at it. On the other hand, it is also possible to adapt said pokemon to the world of Bloodborne. This is because what it is important to understand about visual integration of bosses into a videogame is that what matters is not the thing that the design of the boss is trying to represent, what matters is how said design is implemented to fit the aesthetic of the game.

Although both the first and second scope of visual integration for bosses has the same goal in mind. Which is to make the boss fit the aesthetics of the game, there is a clear difference between both of them. While the first scope talks about how a bot should fit the general aesthetics, the second scope is about making the boss fit the theme of the place in which the battle against the player will actually happen.

What this refers to is to the idea of making sure that visually, the boss doesn't stand out due to looking like it's out of place. The simplest way to understand it is for example to have an area of the game be located inside an erupting volcano, with lava and falling rocks everywhere. The boss found in said area can't be a magician that controls water or a forest spirit that protects nature. The boss should be a lava elemental, a fire mage, a machine that can resist high temperatures from a mad scientist that has been doing experiments inside the volcano that has finally led to making the volcano erupt.

This will usually be seen in videogames that have clearly differentiated levels, one of them for example being Dark Souls 3 and High Lord Wolnir. For the player to reach the boss of the area, the area being named Catacombs of Carthus, a considerable amount of skeleton-like enemies

will be encountered throughout the entire layout of the level, this being decorated with a crypt-like aesthetic. Once the player reaches the end of said area, which is the boss that is waiting in the last room? A huge skeleton with a huge sword.

It is important to understand that this second scope is tightly linked with the last section of boss integration, which is the integration of boss mechanics in videogames, but doesn't really have to be completely linked to one another.



Figure 6.6 - High Lord Wolnir (Dark Souls 3, Fromsoftware, 2016)

### 3. Mechanic Relevance

Finally, related to the gameplay-wise integration of bosses into videogames, there are several characteristics that should be taken into account, similar to the narrative and visual integration sections of the analysis. The different characteristics in this final section related to integration are quite linked to the other sections or elements that can be found in a boss fight.

When talking about how a boss should be integrated into a game gameplay-wise, the most essential thing to do is to make sure that the different mechanics that are present in the fight are known to the player in one way or another.

One of the ways to teach the player, and usually the most common one, is to set certain features in the game that will work as contracts. By using these contracts, no matter which type of

mechanic the boss is doing, the player will know what it means, and at least give initial clues on how to act against this said mechanic.

The way in which these contracts can be taught to the player is by using said contracts in elements that are not bosses, such as regular enemies or environmental elements or if needed UI prompts with text explaining how said mechanic related to the contract works. It is also important to have said contracts displayed in a way that is useful for the player, but doesn't really damage the overall experience of the boss itself, either by making said mechanic too easy or by simply overloading the player with information on the screen.

There are several ways in which these contracts can be displayed, one of them being colours on the environment, an obvious example being Mirror's Edge using red to guide the player and show what can be interacted with. Another option is to have a certain particle effect or aura around the boss or the element that is doing the mechanic, for example in Dead Cells with The Concierge, where when the boss is going to protect itself with a shield that damages the player upon contact, it creates a white sphere around itself pushing the player away. There are other options such as using some sort of a symbol or sign on top of the boss for when the boss is going to use the mechanic, with an obvious choice being Sekiro: Shadows Die Twice and any boss that uses unparryable thrust attacks, where a red symbol appears on top of the boss, making sure the player knows what will happen next and how it can be countered. This example is probably one of the most well known and best designed boss mechanic contracts in videogames. For other alternatives, using sound is also quite a good option, making sure that even if the player is not looking straight at the boss, it will still get notified that said mechanic will happen. An example for sound contracts being Behemoth's Meteor Attack in Monster Hunter: World, where the boss will start growling and standing on two legs while not doing any other sound or movement. And as a final option, it is also to use the mechanics themselves as the contracts, by making sure that they always work the same and are always countered in the same way no matter the circumstances. A clear example would be found in several of the lighting attacks from multiple bosses in Sekiro: Shadows Die Twice, where said boss will throw lightning at the player, and said player will be able to counter it by jumping and countering the lightning attack sending it back to the boss.



Figure 6.7 - Genichiro Ashina (Sekiro: Shadows Die Twice, Fromsoftware, 2019)

As a side note about boss mechanics and integrating them into the game, not every single mechanic should exist in the game previous to the fight with the boss itself. In many cases, said mechanics are designed in a way where the player will most likely fail it and get killed by it, and that's perfectly fine. What it should never be done is use the contracts that have been previously introduced to the player in a way that changes its behaviour without actually telling the player about it. This is because this will end up leading to frustration due to having the player counteract the mechanic the usual way and failing over and over without knowing why.

The other important characteristic about integrating mechanics of a boss into the game is related to making the actual mechanics of the boss be related to the area in which the boss is found. At the same time, this characteristic can be related to the previous point about contracts, but it is not mandatory.

This characteristic refers to making sure the player will know how the general behaviour of the boss works, and which will be its main mechanics without actually seeing said boss. If for example we had a level where the player has been moving underwater, using some sort of diving mechanic with an oxygen counter or something related, the boss should at least be water related, and contain some sort of diving mechanic even if it is not completely identical.

We can find this type of integration in for example Dark Souls 2 with Mytha, The Baneful Queen, where the entire area previous to the boss is full of toxic gases, poisonous enemies and poisonous floor, all of them damaging the player over time. Once the player reaches the boss,

the entire arena will be full of toxic liquid that will damage the player overtime, and the boss itself will have poisonous attacks that will also apply damage overtime.



Figure 6.8 - Mytha, The Baneful Queen (Dark Souls 2, Fromsoftware, 2014)

## 6.2 Role of the boss

### 6.2.1 Concept and definition

When we talk about videogame development, there is a very important rule that every designer should keep in mind. This rule is making sure that every element that can be found in the game, these being entities, objects in the environment, mechanics or even UI elements, must have a reason to exist.

Bosses are no exception to this rule, and it is because of this that this element exists and will be analysed in the research.

*We can refer to this element as making sure that the boss has a “raison d’être”, making its inclusion into the game as meaningful as possible for the overall experience of the player. This reason of existence when we talk about bosses is usually related to in which way does the boss interact with the player in its boss fight or what does its presence imply in the overall narrative of the story.*

Overall, there are many different roles that a boss can have in a game. These roles can be divided into two different categories, the narrative part of the game, or the mechanical part.

From a narrative approach, the boss will have a role belonging to the story of the game, or other narrative elements that the player will find throughout the game. The other possible approach would be related to giving the boss a role related to the experience that the player has gameplay-wise.

## 6.2.2 Example analysis

There are two common ways to classify the role that a boss has in a videogame, and each of them is related to a different part of the game. It is not mandatory to give a role to the boss for both of the classifications, but there should always be at least a reason for it to be included in the game as it has been previously mentioned in the concept and definition section of this element.

### 1. Narrative Role

In case the role of the boss is being classified from a narrative point of view, it is important to determine what does the boss add to the overall quality of the story that the player will experience. It is quite important to give the boss a narrative role if the game it is found in has some sort of story progression or worldbuilding. This is true even if the boss doesn't fulfil a special role in the story and has little to no relation with the story that is being told.

Obviously, the different cases that will be analysed are only some of the possible options and in the end what matters the most is to give the boss a role depending on what the designer wants to accomplish. This will obviously depend on the type of genre the game belongs to, the type of narrative experience that is being designed and how the story progresses. It is also important to note that a boss can fulfil multiple narrative roles at the same time and it won't be a problem at all as long as said roles are properly introduced.

Some of the possible narrative roles that a boss can have in videogames are as follows.

The first role that a boss can fulfil narratively is that of the main villain of the story. This can be seen as the equivalent of the antagonist that can be found in any narratively driven media.

When looking at the weight that the main villain has narratively in the game, most of the time its role is as important as the one from the protagonist with some of the cases having the final boss as the main focus of the story. This is because in the end, the existence of the hero comes

from a situation that will be created by the main villain of the story, which basically means that if there is no villain to create the problem, there won't be a hero to solve it. Obviously this idea in the end will always depend on which type of story it is together with how the game tells said story.

When developing the story, the villain of the story should have an essential part in it. It is because of this that the main villain is usually introduced at the start of the game together with the introduction of the protagonist. The way it is introduced can be many things, from a direct confrontation with the protagonist which then creates the problem to a small teaser introducing it. At the same time, it is also important to remember the player of the presence of the final villain setting the final goal.

Due to the large amount of exposure and relevance that the boss has in the narrative, it is possible to also develop said character throughout the story from changing how it behaves to straight up allying with the protagonist.

A clear example of a main villain that accompanies the player throughout the entire game is Glados from Portal and Portal 2. At the start of the first game, Glados starts as the main villain because she is the robot managing the installation the protagonist is trying to escape from. She accompanies the player through each of the different levels by talking with the character. As the protagonist is the same in both of the games, Glados starts to communicate with the playable character and evolves from a distant voice in the background to a companion after defeating her in the second game.

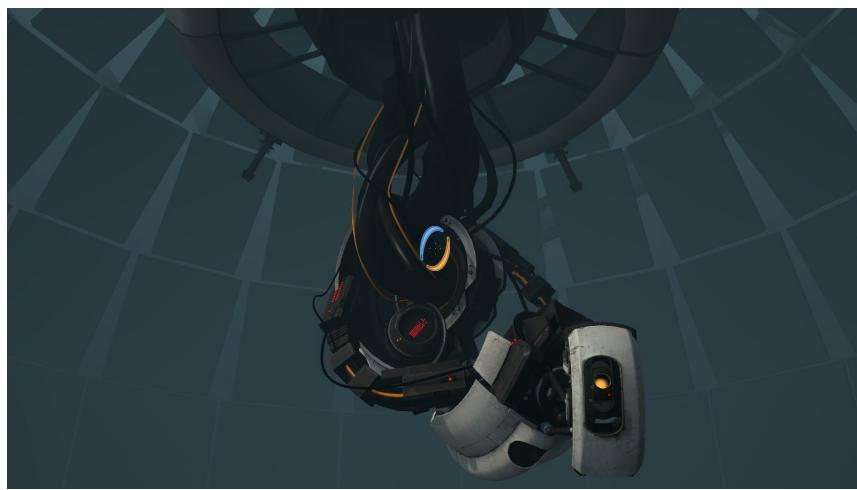


Figure 6.9 - Glados (Portal 1 & 2, Valve, 2007)

Another example can be found in The Witcher 3 with the Wild Hunt where right at the start of the game the main group of villains and its leader get introduced. Throughout the story the player will defeat one by one all the different leaders of the group until the main villain at the

end of the game. In this case, the problem originates when the villains start chasing and trying to capture the adoptive daughter (Ciri) of the protagonist (Gerald of Rivia).

From the main villain of a story, the most important thing that should always be present is that a main villain should be a recurring villain, making sure the player does not forget which is the final goal of the game.



Figure 6.10 - The Wild Hunt (The Witcher 3, CD Projekt Red, 2015)

Another role that a boss can fulfil from a narrative point of view is that of an area villain. Depending on the size of the game, there are places in the story where the main villain should appear over and over again. It is because of this that the idea of an area villain exists, creating a short term villain for a section of the game, which usually tends to be an entire area of the game, in a way it can be seen with the idea that they “rule” the area due to them usually having the same theme as the area they are placed in. The main difference between an area villain and the main villain is that the area villain acts more as a blockade for the protagonist to overcome than the end goal of the narrative. It is also important to note that area villains can be optional or mandatory depending on the game they are placed in and the goals of the design team.

Many different types of videogame genres have implemented this idea and there are many clear examples.

One of the examples would be Bowser Jr, found in many different Mario games as an area villain blocking the progress of the player until it is defeated. Bowser Jr. is related to the main villain which is Bowser, but it has nothing to do with the final goal of the game which is to

rescue Princess Peach. Bowser Jr. appears throughout the Super Mario games in different levels, acting as the boss of the area multiple times in the game.

Another clear example can be found in Resident Evil 3 with Nemesis. Nemesis is an unkillable enemy that will chase the player across different levels. The goal of the game is not to defeat Nemesis, but as it is designed in a way that will make it appear when you least expect it it always blocks the player and applies pressure acting pretty much as an ever-watching presence.



Figure 6.11 - Nemesis (Resident Evil 3: Remastered, Capcom, 2020)

The role of a mastermind can also be seen in several videogame bosses. The mastermind refers to the idea of a villain that acts as the real threat to the protagonist while being hidden behind a more public figure. In a way a mastermind is a type of main villain where instead of interacting with the protagonist through the story, it uses another character to do all the public appearances.

A clear example can be found in Bioshock with Frank Fontaine where he makes the player defeat its main enemy Andrew Ryan to take over the entire city of Rapture. The mastermind in this example seems friendly until the final section of the game where it is revealed that the main protagonist has been genetically engineered to follow every order that ends with “would you kindly”.

It is also possible to see this type of villain in Call of Duty: Modern Warfare 2 where General Shepherd acts as a good guy until it betrays one of the main playable characters and kills it, revealing that it has been directing all the attention towards Makarov, the main recurrent villain of the Modern Warfare Series to act behind your back.

In both of the examples it can be seen that what truly makes a mastermind great is when it is also able to trick the player into not expecting the betrayal at the end of the game.



Figure 6.12 - General Shepherd (Modern Warfare 2, Infinity Ward, 2009)

Contrary to that of a mastermind, a boss can be designed to be the publicly known evil. This figure can be seen as the public side of the mastermind. While the true boss is operating behind the shadows, it is this public figure that confronts the player directly throughout the story, usually acting as the main villain until the truth is revealed.

We can find an example of this role in Star Wars: Fallen Order where the Second Sister acts as the main villain throughout the entire game, until the later stages where she gets killed by falling at her task by Darth Vader which is then revealed to be the main antagonist of the game. Interestingly, this example can also be found in the Star Wars Movies where Palpatine is the mastermind behind the shadows while Darth Vader is the public image of the antagonist.

Another possible role that the boss can have is that of a mentor or a rival, acting pretty similar to their classical counterparts in books or other narrative works where this character in this case being the boss will act either as a short term objective for the protagonist, where the mentor will teach everything that it knows to the main character or as a constant challenge that appears throughout the story in the form of a rival. In the end both of the roles perform a similar task which is to challenge the player without the animosity towards the player that can be found on regular villains, having more of a positive rivalry.

A clear example can be found in any of the Pokemon games, where the protagonist will always have at least one rival that challenges the player throughout the game multiple times, specially every time that there is a certain amount of development in the story. By doing this, it is possible to add new challenges for the player without the need to create new characters just for that role,

instead creating some sort of rivalry that can also be used to show how much the player has progressed from the start of the game.

Finally, for a narrative role it is also possible to make the boss itself be a hyped-up encounter. This role is usually seen when the game introduces a character that will act as a boss later on in the game. It will usually be seen together with the role of being the main antagonist, or a side-villain with a considerable amount of relevance in the story, but it can also be used in enemies that are not very relevant to the story, but still want to have a big impact on the expectations that the player has to progress throughout the game.

A clear example of this type of bosses can be found for example in Monster Hunter: World with Nergigante, where when the player is fighting against the main boss of the first half of the game, this new enemy will appear and attack the player. The fight against this new enemy is shorter than what the final fight against it will be, but it's enough to show to the player how the boss acts and at the same time, how “cool” it looks. By doing this, the game creates expectations for the player, making them want to progress through the game and reach the point where the fight against this new enemy happens.



Figure 6.13 - Nergigante (Monster Hunter: World, Capcom, 2018)

## 2. Gameplay Role

On the other side of the spectrum, a boss can also fulfil a role inside the gameplay loop of the game. Contrary to their narrative role, the gameplay role of a boss is tightly tied to how they behave inside the fight and their difficulty together with the moment that the player fights against them in the game. It is important to note that also contrary to the narrative role, the gameplay role tends to be more strict on that every boss should be designed only around a single role, maybe a pair at maximum so that the boss can fulfil its job properly.

The type of role the boss will have in the game will depend on the type of game genre, the total length of the game, the amount of mechanics that the player has available and the place of the game in which the player will fight against the boss.

The gameplay roles that a boss can have in videogames is the following.

The most common role that a boss can have in a videogame is one of a gatekeeper, where its sole purpose is to make sure that the player will not be able to progress forward until it doesn't master the different mechanics of the game or isn't ready yet for the next areas of the game due to not having enough equipment or stats.

Bosses with this type of role tend to be considerably hard to beat if the player hasn't mastered the mechanic that the boss is testing, or if the player is behind in the overall progression curve of the game taking into account where it is at that moment in the game.

This role can be seen perfectly in Dark Souls 3 with The Abyss Watchers which act as the truly first decently hard boss in the game. When players reach this boss, there are usually two types of outcomes. One is the outcome where as the first challenging boss in the game, the player will most likely die due to its mechanics, multiple enemy and multiple phase characteristics while being quite fast. This outcome will force players to learn patterns and get better at the game overall if they want to beat the boss. The second outcome happens when players have progressed a bit too much in the game and are overleveled for the area they are found in. Because the boss has low health stats overall, players that haven't mastered the mechanics can still brute-force the boss by simply being way stronger than they really should be. With both outcomes, the boss has done its job of forcing players to learn the general mechanics or get better gear for them to be stronger overall.



Figure 6.14 - Abyss Watchers (Dark Souls 3, Fromsoftware, 2016)

There are cases where players are better at the game than what the designers expected, which leads to them beating all the bosses of the game in the first try. It is because of this that the role of shutting down the player exists where its sole job is to act as a difficulty spike in the game. By doing this, they force players that have been steamrolling the game to upgrade their equipment because skill alone won't do it. At the same time, as less mechanically proficient players will have followed the expected progression curve, the difficulty spike won't be as noticeable as it happens for better players.

An example for this role can be seen in Destiny: House of Wolves with Skolas. This boss doesn't really have any complex mechanics, but the damage output and the amount of health that it has forces players to get better equipment because in the majority of cases a single landed hit means getting killed with low power level.



Figure 6.15 - Skolas (Destiny, Bungie, 2014)

In the end, the goal of this type of boss is to slow down the progress of the player and incentivise exploration and horizontal progression and to limit players rushing to the end of the game while skipping content involuntarily.

Taking the player out of the comfort zone is also one of the roles that a boss can have in a game. In this case, the general idea is to give the boss certain mechanics or characteristics that take the player out of place because it is unexpected. In many cases, they are usually seen as gimmick bosses that have a certain mechanic that the player has to interact with while using the tools that the player has available with its equipment.

Sometimes, what matters the most is to make sure that the player feels like there has been an evolution throughout the game, this being related to in-game progression where things like stats, equipment and skills from a skill tree are developed, or from a player perspective where it is the overall skill of the player and its knowledge that change as the game progresses. It is exactly because of this feeling of progression that this role for some bosses exists.

This type of role is usually found on games that are of a considerable length or contain a high amount of bosses. This is because the typical way in which said progression is shown, is by making the player challenge an identical version of a boss that the player has already fought against, or an upgraded version of a defeated boss. By doing this, it is possible to show the player how much it has progressed in the game from an in-game point of view, together with allowing the player to show off how much better it has gotten at the game compared to when it started playing. At the same time, bosses that fulfil this role can also be designed in this way to act as gatekeepers of a certain mechanic, where the first version of the boss introduced the mechanic to the player, and the second version of the boss makes sure that the player masters said mechanic.

An example of this can be seen in Dark Souls 3 with Ludex Gundyr and Champion Gundyr. Ludex Gundyr acts as the first boss that the player has to defeat in the game, and although it can be easily defeated, its attacks are very abusable by the player when using the parry mechanic. Later on in the game, the player will get to an area of the game that is pretty much identical to the tutorial area present at the start. The main difference being that the boss present is an upgraded version of the tutorial boss, being Champion Gundyr. In the case of this second version, the boss presents a considerable challenge to the player, and contrary to its tutorial counterpart the boss in this case the game encourages making it pretty much a requirement for the player to use the parry mechanic introduced in the initial version of the boss. This is because both bosses will pretty much have identical movesets and patterns, only that in the second

version of the game they will be much faster together with shortening the counterattack windows for the player.



Figure 6.16 - Ludex Gundyr (Dark Souls 3, Fromsoftware, 2016)



Figure 6.17 - Champion Gundyr (Dark Souls 3, Fromsoftware, 2016)

Another example can be seen in New Super Mario Bros with Bowser, where the player will fight against Bowser and Dry Bowser. In the first fight against Bowser, the player will have to defeat the boss by activating a button on the other side of the room, which will destroy the bridge where the boss is standing by making it fall into the lava. Later on in the game, the player will encounter a skeletal version of Bowser. Similarly to the first fight, the goal is to activate the button at the end of the room, the only difference being that in this case the platform makes the jump to the other side of the room much harder, together with the boss having a new attack where it starts throwing bones at the player in an arch. In this example, although the second

version of the fight is much harder, players will tend to find the first fight more challenging because as the player progresses through the game, so does its knowledge of the game and its skill using the different mechanics.

Another role that can be found in bosses from a gameplay standpoint is that of taking the player to the maximum, requiring a perfect use of the different skills, items and mechanics that the game offers to be defeated. This is because bosses of this type tend to be bosses that are a league above the other bosses in the game when talking about the challenge that the player will have to overcome when fighting against them.

It is possible to implement bosses that have a much higher skill and equipment requirement compared to other bosses in the game because these types of bosses tend to be implemented as secret or side bosses that are not mandatory to beat the game. They tend to be hidden behind optional quests that the player has to complete or be placed in certain areas that are not easily accessible by the player due to certain special requirements or simply because said area is hidden. By doing this, it is possible to give harder challenges for players that want the game to be harder, while maintaining the same overall difficulty of the game, by not making them mandatory for the game to be beaten.

For an example of a boss that can only be fought by performing certain actions the Chort in The Witcher 3 can be used. For the player to be able to fight against this boss, the player has to kill a considerable amount of cows around certain areas of the map. After enough cows are killed, the boss will appear. What is interesting about this boss is that the areas where the player can find cows tend to be low-level areas, so the player will most likely activate said encounter in the early stages of the progression, making the fight a considerable challenge for even experienced players. Something very similar can be found in Diablo 2 with the Cow King, where the player will also have to kill multiple cows in the map for it to spawn and attack the player.



Figure 6.18 - Chort (The Witcher 3, CD ProjektRed, 2015)

Another example can be found in The Elder Scrolls V with Karstaag. In this example, the player will have to go to a hidden castle in the mountains and pick up a skull hidden in the castle. If the player then places the skull in a throne found later on in the castle, a boss will appear to fight against the player. This boss will have an extremely high level, giving it a considerable amount of stats. At the same time, it will also have multiple attacks that deal AOE damage and will regenerate health together with periodically summoning different enemies into the arena. When the player activates this boss fight, the most likely outcome will tend to be getting killed. This is because this boss can be seen as an example of a boss that requires preparation for its fight, contrary to other bosses found in the same game due to its higher difficulty.



Figure 6.19 - Karstaag (Elder Scrolls V: Skyrim, Bethesda, 2011)

Allowing the player to show off is another role that bosses can have in videogames. Contrary to the previous case of study with bosses that had a higher overall difficulty compared to the other ones present in the game, in this case the boss is designed to make the player “feel” powerful allowing it to show off, which tends to be done by making the boss visually/narratively appealing together with having it be easier than the majority of other bosses found in the game. In a way this role can be understood as making the boss feel more powerful than it really is, which will make the player feel good after defeating it.

Bosses that fulfil this role tend to be final bosses or bosses that are relevant to the conclusion of a certain part of the story. This is because bosses that fulfil this role will typically have a counterpart that acts as the challenging boss while acting as the “true” final boss, while bosses with this role are designed to act a bit more as the public face towards the player, being the one that is hyped up throughout the entire game.

An example of this type of role can be seen in God of War with the final fight of the game against Baldur. In this fight, the overall challenge that the player will have to fight against is barely negligible. This is because the focus is on making the fight as cinematic as possible, with a huge enemy, multiple phases and transitioning cinematics. At the same time, the player can also fight against Sigrun found in another area of the game, with a much harder fight where the player has to fight against multiple valkyries in sequence.



Figure 6.20 - Baldur (God of War, Naughty Dog, 2018)

Finally, there are certain bosses in videogames that have more of an experimental role. They are designed in ways that don't work with or contradict the already established core gameplay mechanics of the game. By doing this, it basically forces the player to adapt and use the newly introduced mechanic for the entire fight.

The Souls Series has already implemented several of these special mechanics, for example in Dark Souls 3 with Yorm the Giant and in Elden Ring with Rykard, Lord of Blasphemy. In both of these examples, the game makes the fight pretty much impossible for the player to defeat the normal way because of dealing extremely low damage to the boss or placing the boss in an unreachable position, and instead it adds a special weapon that has special characteristics required to beat this specific fight.

This type of special encounter is something that works quite well with games that have multiple bosses and where the player is already able to beat multiple of them the regular way. Having said this, it is not a boss that should be present multiple times throughout the game because in the end what it is doing is taking away the freedom of progression that the player has been used to for the entire game.

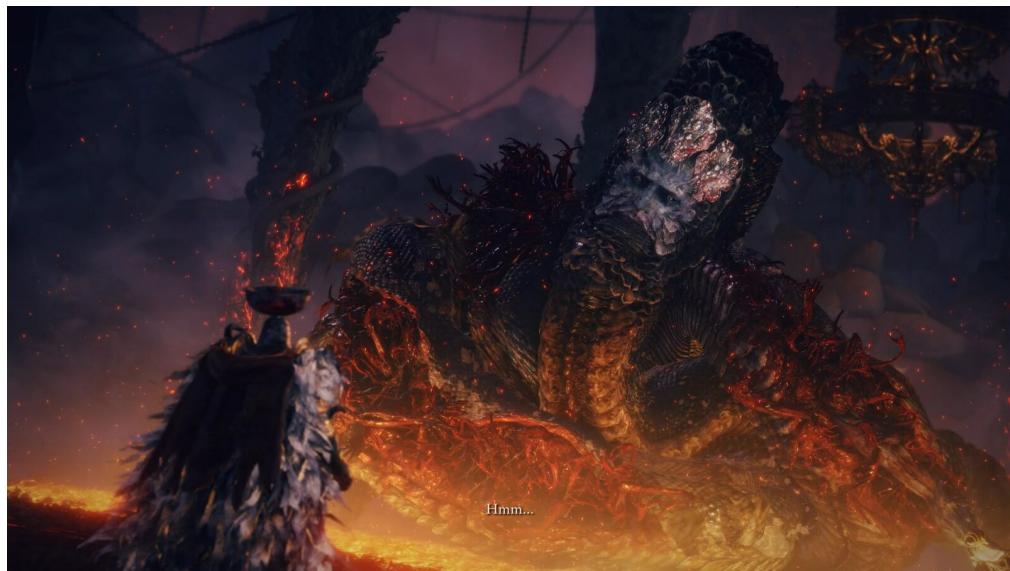


Figure 6.21 - Rykard, Lord of Blasphemy (Elden Ring, Fromsoftware, 2022)

## 6.3 Boss location

### 6.3.1 Concept and definition

If you ask someone which is the most memorable thing that they remember from different boss fights that they have played, the vast majority of the people will tell you about the cool looks of its design, the visually amazing transformation when it enters the second phase or the insane mechanics that the player has to overcome when fighting against it. And, although all these answers are certainly right because everyone can have a different experience with a boss, there is usually one element that tends to be vastly overlooked, and it plays a huge role in the overall experience that the player has.

*This “hidden” element that this study will also be analysing is the place where everything happens, the place where the “magic” is done. It can basically be understood as the location where the player encounters the boss, and fights against it.*

This element in the end is the one that sets the final setting for the boss the moment the player fights against it and in many cases it will also fulfil different roles inside the fight itself. The main roles that will be analysed and be taken into account in this project are the following.

Setting the stage visually and narratively: The role that the majority of boss locations tend to fulfil is the one of setting up the stage for the fight between the player and the boss. This stage will be introduced narratively, with the environment of the area itself, together with in some cases implementing cinematics at the start of the fight. Similarly, it can also set the stage narratively, introducing a place that is relevant in the story.

Visually pleasing: Sometimes, you don't really need a location that is relevant narratively or visually. Sometimes, you just want to make the boss look cool, which is what this role fulfils. It sets up a stage that is simply visually stunning and makes the overall fight and experience more enjoyable for the player.

Contributing to the boss mechanics: In some cases, the stages in which the player and the boss fight can do much more than just being visually pleasing or being visually pleasing. In this case, the boss will have certain mechanics that interact with the environment, and where the player will have to play around it.

**Creating no interference:** Finally, there are some cases where we only want the player to focus on the boss, without having anything else to be distracted with. In these cases, locations can also fulfil the role of being as empty and dull as possible with the most standard layout possible.

As an important note, there are cases where the places that the player has to go through to reach the boss can also act as the location of the fight itself. In this study, there will be several cases that will take this into account.

### 6.3.2 Example analysis

#### 1. Setting the Stage Narratively

The first way in which the location where the fight between the boss and the player happens can be used as is as the narrative culmination of the story. What this refers to is the idea of making the arena of the boss be relevant to the overall narrative which the boss also belongs to. This can be done in several ways depending on which is the goal that we want to accomplish with said location narratively speaking.

The first and typical way in which a location fulfils a narrative role in videogames is by acting as a location that the player is already familiar with. Doing this gives a new narrative value to the fight itself, using the typical stereotype of “everything shall end where it all began”. There are several ways in which a location can be introduced previous to the fight itself.

One of the ways is by doing something similar to Sekiro: Shadows Die Twice with Isshin, The Sword Saint where the arena of the final boss in the game is also the arena in which the first boss is fought together with where the overall narrative of the story is introduced. In this example, the value is not related that much to the narrative of the game itself, it is used more as a way to make the player feel homesick and to use the longing factor where memories from when it started playing the videogame come to mind. Reminiscing all the different challenges and experiences that have been present throughout the game.

It is also possible to use the longing factor but on the character itself, to then make said character transmit this feeling to the player. A clear example of this case can be seen in God of War (2018), where the first combat in the entire game, which funnily enough is also the same character that the player will fight as the final boss happens next to the small house where

Kratos has been living peacefully with his son for the last years. And making it be destroyed in the fight against the boss gives the protagonist and indirectly the player a feeling of sadness.

In a way, making the player feel homesick is mainly done not so much related to the overall narrative of the story. The final goal is to make the player remember all the different experiences that have been present throughout the entire playthrough of the game.



Figure 6.22- Baldur (God of War, Naughty Dog, 2018)

The other way in which a location can fulfil a narrative role is by making the location have a very important role in the overall narrative of the story.

Making said location fulfil this role can be done by hyping up said location throughout the entire game, and telling the player how legendary and amazing said place is narratively or visually.

A narrative example can be found in Dark Souls in the fight against Gwyn, Lord of Cynder where the final location, known as the Kiln of the First Flame, is introduced throughout the game as the final objective of the player and explaining the meaning that said place has for the overall narrative of the story, leading to a hyped up location for the final fight of the game.

On the other hand, we also have a visual example in The Legend of Zelda: Breath of the Wild where right at the start of the game the player can already see a Castle present in the background far away. This castle will end up being the main location where the player will fight against the final boss of the game and as the location is actually found inside the world itself, it really gives a new hype factor of excitement for the player.



Figure 6.23 - Dark Beast Ganon (Zelda: Breath of the Wild, Nintendo, 2017)

For this final visual example, in a way, said visual references found throughout the world can be seen as landmarks that mark relevant locations in the game which make the player feel actually more immersed in the game together with giving some guidance.

## 2. Setting the Stage Visually

Another way in which a boss arena can be used is for visual purposes. This refers to the idea of using the arena in which the boss and the player fight to simply make said fight more appealing and make the overall experience better. There are several ways in which an arena can be designed in a way to be visually appealing.

One of the ways in which an arena can be used for visual purposes is to reinforce the theme of the boss itself. This can be understood as making the arena fit the overall theme of the boss, these being the mechanics or the visuals to reinforce the design of said boss.

An obvious example of this can be seen in Hellblade: Senua's Sacrifice in the fight against Surt, God of Fire where the player is fighting against as the name says, the god of fire which is basically a big humanoid with a huge sword while being on fire. To boost even more the overall experience of the boss, what the game does is that it places said fight in a wooden building with hanging bodies all around, while having the entire arena be also on fire. This is a clear example of an arena that although it doesn't add anything to the fight mechanically speaking, as it is themed around the same concept as the boss itself what it ends up doing is making the overall experience of the fight even more epic.

Another example of this can be also seen in Cuphead with King Dice. In this platformer 2D game, the general theme of the fight is one of a casino in which the boss is a humanoid character in the background with a dice in the head. As the different mechanics of the boss fight are based around the idea of a casino such as poker cards, dominoes or roulettes the background should be themed accordingly. It is because of this that the background throughout the entire fight and the multiple phases will be themed according to the mechanic that the boss is using at that moment. So for example when the poker cards are used, the background is themed around the card playing table with a coupierre, or when the dominoes appear, the background turns black and white with dominoes moving around.



Figure 6.24 - King Dice (Cuphead, StudioMDHR, 2017)

In the end this concept is quite similar to the element of visual integration of the boss in the area in which it is found. That's because in the end if we want to achieve the maximum amount of immersion possible, there has to be some sort of visual coherency between the place in which the boss is found, the boss itself and the arena in which the boss is fought.

Another way in which the arena can be used visually is to apply visual pressure to the player throughout the fight. This can also be seen as using lots of dynamism in the background of the fight itself to in a way make the fight itself more chaotic.

This concept can be found in Ghost of Tsushima against the Tengu Demon where the arena is divided in two different areas. The main arena has a concave looking layout while being as a typical Japanese temple with red grass in the floor to contrast with the rest of the colours that can be found. Then, there's also a secondary arena which is delimited by a flock of crows that move with the player. What this does is that it creates visual tension by having the entire

background full of crows that applies pressure to the player as the fight is pretty slow without much dynamism while all of this in the end only being psychological because the flock of crows moves with the player having the location of the fight itself as the centre for the entire fight.



Figure 6.25 - Tengu Demon (Ghost of Tsushima, Sucker Punch, 2020)

It is very important to note that this dynamism in the background should never make it so chaotic that the player doesn't actually know what is going on because this will actually lead to making the fight a mess and not enjoyable at all. The balance between dynamism and chaos is something very hard to accomplish and needs a considerable amount of playtesting.

Another way to use the location where the fight happens visually is by placing said fight in a good looking space overall by for example using environmental illumination, dynamism on the background,etc. This is done to basically boost the overall epicness of the fight to a new level and is usually seen in final bosses or narratively relevant bosses where the fight means much more to the game than the fight itself.

A clear example of this option can be seen in Sekiro: Shadows Die Twice in the fight against Isshin, The Sword Saint. In this arena, the fight itself is already epic enough because it uses the previously mentioned characteristic of reusing an arena that appears at the start of the game for later stages of said game. But additionally, the environment itself is a field full of white flowers with a storm in the background, which as the fight progresses and the boss enters different phases, the storm itself gets closer until completely enveloping the entire arena and all this, while fitting the theme of the lightning attacks done by the boss.

Basically, this option can be seen as a way to simply make a tribute to the fight itself and to set the arena on a secondary role where its only goal is to support the already existing fight by not interfering with what the designers wanted to accomplish with said fight.



Figure 6.26- Ishin, The Sword Saint (Sekiro, Fromsoftware, 2019)

The final way in which a fight can be used from a visual point of view is by placing the location in which the fight happens on top of the boss itself. This option can mostly be seen in bosses that are on a completely different scale than the rest of the game and where their size allows for the implementation of this style of arena layout. At the same time, said layout is also used for bosses that are divided in several stages where the player will usually target different parts of the body of the boss.

For this option, it is possible to also use said layout for the different mechanics of the fight, but in this section the examples will be only centred around the visual part of the fight.

An example of this option can be seen in World of Warcraft in the fight against Deathwing named Spine of Deathwing. In this example, the player will move, as the name already says, around the spine of Deathwing which is a colossal black dragon. The fight itself will require the player to destroy pieces of the armour of Deathwing to keep advancing through its body. And all this happening while you see you are on top of a dragon flying around.



Figure 6.27 - Spine of Deathwing (World of Warcraft, Blizzard Entertainment, 2004)

Another example can also be seen in Monster Hunter: World in the fight against Zorah Magdaros where the player will move all around its body while fighting against the boss itself, attacking the different parts of said body. The interesting characteristic of this example is that the layout of the level is always the same throughout the entire fight, but the accessible areas of said layout will depend on the position of the boss itself, so walking on four legs, two legs, flat on the floor, etc.



Figure 6.28 - Zorah Magdaros (Monster Hunter World, Capcom, 2018)

This final option is centred around a very specific type of videogame where there are bosses that allow this type of layout. It is certainly a very interesting type of arena but in the end it will

depend on the type of bosses that the game will contain and it is important to determine if it is worth designing such a big enemy for simply having it be used as the layout for the fight itself.

### 3. Being part of the Mechanics

For many of the different bosses in videogames, the arena the boss is found in can also be used to work with the mechanics of said boss and have a much more important role in the fight than setting the location narratively or setting the stage for a visually appealing fight.

There are several important distinctions on how an arena can be part of the mechanics of said boss which will depend on which type of approach is used.

The first of the options is related to the approach of designing the mechanics of the arena in a way that they work against the player. This can be found in many different types of games and not all the mechanics have to necessarily be related to the boss itself. In a way, these mechanics can be seen as simply an additional difficulty layer for the player to overcome by adding more elements to be taken into account when fighting.

This can be seen for example in Metroid against Mother Brain, where the player has to shoot at a static target all while dodging bullets coming from multiple turrets around the arena and freezing energy spheres to slow them down to gain more time to keep shooting at the target.

What is important to see from this option is that these types of mechanics related to the arena itself should nearly always give the player some sort of counterplay or strategy to deal with it. This is because if the mechanics present in the arena are too oppressive, it can lead to the feeling of cheap difficulty and this should never happen.

For the second option, mechanics can also be used as the main theme of the fight, and both the player and the boss will be affected positively and negatively by it. This option is usually used in games that don't have very complex mechanics in general and can have both the player and the boss use the mechanics of the fight properly. In many cases, said mechanics can modify the core gameplay of the game while inside said fight all while remaining simple for the player to understand.

An example can be found in Crash Bandicoot: The Wrath of Cortex in the fight against Crunch Bandicoot in the Earth Chamber. In this boss, both the player and the boss are placed inside glass spheres together with three or four other rock spheres depending on the phase of the level. The goal of the mechanic is to capture all rock spheres to defeat the adversary by touching said rock spheres. It is also important to note that all the spheres present should be captured by one of the sides to win and in case the adversary touches one of the captured spheres, the rock turns neutral which means that it can be captured again.

What is important to see from this example is that the location of the boss fight can not only be used as a part of the mechanics of the boss. It can also be used as the core pillar of the boss fight and making the boss also be dependent on the arena itself and not the other way around.

The last of the options related to the implementation of mechanics in the arena of the boss is mostly seen in platformer or adventure games where there's a big emphasis on player movement and where it is possible to display what is happening in the fight easily for the player to understand even if there's a lot going on in said fight. This mechanic is based around the idea of turning the entire fight or sections of the fight into an escape sequence where the player is running away from the boss.

A clear example can be found in Ori and the Will of the Wisps when fighting against Kwolok. In this boss fight, the player will be escaping from the boss throughout the vast majority of the fight where the boss moves laterally or vertically destroying everything in front of it chasing the player without giving the player any options other than fleeing and trying to gain distance from the boss while the layout of the level is being destroyed.

Another example can also be seen in Uncharted 4 during the escape sequence in the market. In this case, the player is controlling a car and has to flee from an armoured truck that shoots at the player. Although the truck doesn't destroy the layout of the level per-se, it does break several sections of the environment to appear when the player is not expecting it.

This type of approach is usually used to make the player feel powerless in front of the boss as it can be seen in both of these cases where the game doesn't give any options to the player for countering its attacks, only having the option to run.

This option is one of the possible ways in which a boss fight can test the player from a platformer point of view, requiring the player to react fast and use the different movement mechanics at its disposal to survive.

#### 4. Creating no interference

Finally, the last role that the location can have in the overall experience of the fight is to simply have no role other than setting the stage for where the encounter is taking place, and be as un-intrusive as possible.

There are several examples with this sort of approach in different videogames.

One of the examples can be found in Dark Souls 3 in the fight against the Nameless King where all the focus of the player should be on the boss and not on the environment. Because of this, the arena found in this fight is basically an empty sky with some buildings in the far background with a grey fog covering the floor and sides of the arena. The only moment when the fog has a bit of movement is when the boss makes some of the slam attacks onto the floor, summoning lightning and wrapping the weapon with fog. What this basically does is that it allows the boss to be the main focus of the fight, but at the same time it adds a layer of mystery and epicness to the background to make the fight even better.



Figure 6.29 - Nameless King (Dark Souls 3, Fromsoftware, 2016)

Another example can be found in Nier: Automata against Adam 2 where the player will be teleported right at the start of the fight to some sort of a circular plaza with all white buildings all around it. As the buildings are all painted white, the vast majority of the fight is filled with tones of grey all around, giving the location and environment a very unique look without actually taking any relevance away from the boss itself.



Figure 6.30 - Adam 2 (Nier Automata, Platinum Games, 2016)

This final way to implement an arena is something that is rarely seen in videogames, but some of them have indeed explored the possibilities with great success. In the end, adding more stuff doesn't necessarily mean that the final result will be "bigger". In some cases, badly implementing an arena can completely destroy the experience that the player has with the boss, so if the boss is good enough on its own a simplistic arena is all it needs.

## 6.4 Mechanics of the boss

### 6.4.1 Concept and definition

Boss mechanics, probably the most well-known element that can be found in a boss fight. When we talk about the different elements that can be found in a boss fight, none of the other elements comes close to this one when we talk about which is the main reason that makes a boss fight good or bad. No matter how many times you introduce the boss throughout the game, or how visually pleasing the boss is if in the end the fight itself is not that good and the overall experience of the player feels lacklustre.

*We can define this element as the one that is related the most to the interaction between the boss and the player gameplay-wise. In a way, mechanics can also be seen as the place where the other elements that can be found in a boss fight are implemented in a way that they can affect the overall experience of the player from an interaction standpoint, and not only visually or narratively as they would on their own.*

Having said this, these are the main sub-elements that will be taken into account when we analyse this element for each of the cases, making each of them an essential part of the mechanics that can be found in a boss fight.

**General Characteristics and Behaviour:** We can understand this sub-element as the general way in which the boss will behave. This behaviour tends to be based around the special characteristics that the boss has and determining how the overall fight will play out.

**Evolution:** Throughout the fight the player will fight the different attacks and patterns of the player, but at the same time, bosses can also evolve inside the fight. This is mainly used to take the player out of place as it is already used to the boss and its behaviour.

**Patterns:** Being related to the general behaviour and special characteristics that bosses have, this sub-element is the one related to making the life easier for the player in a way. This is done by giving the player the chance to understand the order in which the boss moves and attacks, allowing it to counter attack.

**Special Characteristics:** This sub-element refers to the characteristics that a boss can have, which will be quite different from what the player will typically find in the game the boss is found in. This can be understood as the special elements that players should take into account, only when fighting against a specific boss.

## 6.4.2 Example analysis

### 1. General Characteristics and Behaviour

The best way to understand what the general behaviour of a boss refers to is to see it as the ways in which a boss can be described using as few words as possible. It can also be seen as a way to describe the theme of the fight or how the overall fight will play out depending on how the boss acts.

One of the main ways in which a boss fight can be described is by stating which is the overall pace of the fight. For example, by saying that a boss has lots of big choreographed attacks, the player will most likely understand that the general gameplay theme of the fight will be based around dodging heavy attacks with big areas of effect that are relatively slow but can deal huge amounts of damage to the player if they land. At the same time, a boss can also be described as

giving the player no time to rest, which is usually related to bosses that have been designed around using lots of fast attacks against the player with barely any breaks between sequences, killing the player by landing multiple hits and racking up damage instead of having an all or nothing type of attack.

For example, saying that a boss has lots of choreographed attacks, you will probably understand that the boss uses very slow attacks that deal lots of damage. On the other hand, if you say that the boss doesn't allow the player to rest, you will most likely think of a boss that doesn't really have a huge "final" move dealing the entire health pool of the player in a single hit, but it instead uses lots of small attacks without pause that end up killing the player by racking up damage.

This comparison can be seen in Elden Ring with the Fire Giant and Malenia, The Blade of Miquella, where the giant has extremely slow and choreographed attacks that have huge areas of effect with rest sections between each of the attacks compared to Malenia that gives the player no chance to take a break by chasing the player around the arena at high speed with multiple attacks that don't have much range overall.



Figure 6.31 - Malenia, The Blade of Miquella (Elden Ring, Fromsoftware, 2022)

Another way to describe a boss fight is to state if the boss uses long range attacks with projectiles and area of effects attacks, or if it is focused around melee attacks in close combat. Depending on the type of attacks that the boss has, the player will act accordingly. Usually for bosses that use ranged attacks, the player tends to be the one that has to get to the boss and attack it, this at the same time leads to having clear patterns for the different attacks of the boss with clear moments for the player to act, as it is the player the one that has to commit to the engagement. One the other hand, for bosses that are centred around melee attacks, it tends to

force the player into a more reactive position, where the player has to react to the engagement of the boss, and attack once the attack sequence has been completed.

Both options are based around the idea of giving the player a certain moment to act against the boss, but as in the ranged option it is the player the one that has to look for those moments, on the melee option, the player will usually be relegated to a more passive role, where the boss will create those opportunities on its own.

A clear comparison can be seen in Furi between The Strap and The Edge where in the case of The Strap, the boss will run away from the player and will use many different types of projectile based attacks and it will be up to the player to chase it around the arena and deal damage. On the other hand we have The Edge, which is a melee based boss that uses a sword that pressures the player with several fast close combat attacks which once completed in a sequence will create opportunities for the player to react and counterattack.



Figure 6.32 - The Strap (Furi, The Game Bakers, 2016)

Another important characteristic of the boss is how many enemies the player will be fighting against throughout the fight and which types of enemies.

In this case there are two obvious examples which are to place the boss in a one vs one fight against the player, where the entirety of the mechanic will be performed by said boss allowing the player to be focused on the only enemy present, or it is also possible to design the fight in a way that it contains multiple enemies for the player to take into account adding a new layer of difficulty to the fight because the player won't be able to abuse every single counterattack window that gets presented due to also having to take into account the counterattack windows from the other enemies in the fight.

For the second option, it is also important to determine if the additional enemies present will only be regular enemies which in the end have a role centred around bothering the player throughout the fight and generally simply increasing the difficulty or if there will be multiple entities at the level of the boss at the same time in the fight, each with their own characteristics and mechanics.

We can see these distinctions for example in Dark Souls 2 with the Fume Knight, the Ruin Sentinels and the Royal Rat Authority. All 3 of them are bosses that the player will have to fight against throughout the game, but as the Fume Knight is designed to be the only enemy that the player has to be focused on during the entire fight allowing for harder attack patterns and mechanics, the Ruin Sentinels and the Royal Rat Authority fights contain multiple simultaneous enemies, having a clear difference between the two examples. The Ruin Sentinels fight contains multiple copies of the same boss that attack the player at the same time, each of them having an individual health pool and acting on their own without clear coordination between its other copies and being a challenge for the player on their own. On the other hand, the Royal Rat Authority contains a main boss and several regular enemies having more of a role of creating pressure for the player that is focused on the main boss, instead of being a menace on their own.



Figure 6.33 - Royal Rat Authority (Dark Souls 2, Fromsoftware, 2014)

## 2. Evolution

When we talk about mechanics in a boss fight, the most important thing to take into account when designing a boss is that not all of its mechanics have to be introduced right at the start of the fight. This rule can be seen in pretty much any boss fight independently of which type of boss it is and in which type of game said boss is found in.

This is because a boss should always evolve throughout the fight and have a certain amount of development with clearly differentiated sections that will be present, similar to what can be found in the development of any narrative document with an introduction, a body and its conclusion.

In general, the different sections that form a complete boss fight can be catalogued in four different types, each of them being present in a certain moment of the fight. It is also important to note that four is usually what can be found in a boss fight, but it is possible to have more or less sections depending on the type of boss, the type of game and at which point of the entire progression of the game the player will encounter said boss.

The main sections catalogued following the order of appearance are the following.

The initial section of a boss is where the player is introduced to the general patterns that the boss will have, together with an initial approach to the unique mechanics of the boss and its weaknesses. It is always the first part of the fight and usually tends to be the easiest because in a way it acts a bit as a tutorial of the fight itself, teaching the player how the fight works.

The goal of this section is mainly to make sure that the player understands the basics of how this boss works and making sure that the player is not placed in a situation where it got killed later on in the fight having no clue on how this happened and why it died.

It is also usually this section where the player will have a clear idea of which is the overall theme of the fight and which are its main characteristics, these being for example if the boss is ranged or melee or if its attacks tend to be a group of fast attacks that follow a sequence or if its attacks are based around charging up a huge attack and then dealing massive damage in an area.

This section usually tends to last for a fourth of the entire fight, stating that the player at least has a minimal knowledge about the boss.

The following section is the one that expands and complicates the different attacks that the player has previously been introduced to. It is usually also where the boss starts to show its true strength momentarily, this can be seen for example where the boss uses an attack sequence from the initial part of the fight, let's say for example dashing to the player with the sword to then slash with a sword horizontally in front of the boss to end with a jump. In this second section of the fight, the boss will create an explosion around itself after landing on the final jump of the sequence.

It is also here where the different mechanics related to the arena or elements that are not directly related to the boss itself will start being presented to the player and will set the dynamics on how the fight will work for the rest of its duration.

Basically the goal of this section of the fight is to tell the player that knowing only the basic mechanics of the fight will not work and that it will be getting harder from here on out.

The duration of this section tends to be from the end of the introduction section when the boss is around 75% health down to having half of its health remaining when this expansion section ends.

It is in this third section of the fight where the player will start getting “serious” with the player, using all its mechanics to its maximum potential by transforming and showing its true strength to the player. Said transformation tends to also be used to give a bit of a break for the player allowing it to get ready for the rest of the fight because it is here where things start getting real hard.

This section is usually the hardest one because it tends to be the longest of all the different sections due to making said phase last longer or simply because as the fight has gotten significantly harder, the player has less chances to counterattack which ends up reducing the overall progression of the fight.

Contrary to the two initial sections where the player and the boss are both on what can be seen as “even” ground, reacting to what the other does, in this phase the boss tends to have the upper hand in the fight, placing the player in a more defensive position and requiring a perfect understanding of its mechanics and attack patterns and specially the weaknesses of the boss which may or may not have changed from the previous sections of the fight.

The duration tends to be around 30% of the entire boss fight, being the longest section of the four..

It is when the boss has been defeated by the player even while using its true strength that it will overcome its own limits and start the final section of the fight, using multiple attacks and mechanics simultaneously and requiring a near perfect understanding of everything that happens on the screen from the player to be defeated.

Basically acting as the conclusion of everything that has happened in the fight up to this point, overwhelming the player and creating a very short but tense final section of the fight where a single mistake will mean getting killed and starting all over from the beginning.

This section tends to be the shortest section of all, usually around 10% of the fight, because the goal is not to make it extremely challenging, but to require as much as possible from the player in a very short period of time.

As it has previously been stated, what matters the most when talking about the evolution of a boss throughout the fight, is not how many sections or phases the boss has and how long each of them are. What really matters is that the boss does indeed evolve during the fight and making sure that the way in which the boss acts when the fight starts has clear differences with how it behaves on its last breath.

### 3. Patterns

Inside what can be understood as mechanics of the boss, there exists an element that tends to be more or less relevant on any type of boss which are the patterns that the boss has with its attacks.

The first thing that has to be stated is that the patterns that a boss has should not always be seen as an equivalent of the behaviour that a boss has in the fight from a general scope where it reacts to what the player does and ends up having more of a reactive feeling. What a pattern can really be seen as is the way in which a certain action that a boss has started will play out during its entire duration once it has already started. In easier words, basically any pattern that will be found in the boss will not or barely vary depending on what the player is actually doing.

When talking about patterns, nearly every single pattern has certain elements, it is these characteristics that will be used by the player to determine how the pattern will play out, knowing what will happen right after and having the chance to act accordingly.

The first element is how the pattern actually starts. This is usually the one that determines which type of attacks will be found in the pattern from a general scope. For example if the boss is some sort of magician with a sword in one hand and a magic orb on the other hand, if the pattern starts by having the orb turn a red colour, the player will be able to know that the following pattern will have magic attacks with the orb. Instead, if it is the sword that gets thrusted into the ground, the player will know that the following pattern will be mainly composed of melee attacks with the sword

The follow-up of the pattern is the second element and it is the one that tends to dictate which version of the initially determined pattern will be used by the boss. Following the previous

example, this can be understood as the way in which the game tells the player that the next attack will not be the horizontal slash with the sword, rather it will be the vertical slash with the boss jumping forward towards the player right after.

For the final element of a pattern we have the final attack. This final attack is usually the one that has no real previous indication to know how it will behave and tends to be random. This is because it is this final attack the one that creates the opportunity for the player to attack back which means that it has to be less predictable for the player, or it will end up leading to an extremely easy boss to punish.

Once the different elements that can be found in a pattern have been introduced, it is also important to explain that there are two main different types of patterns in boss design. Each of them has its advantages and disadvantages and tend to be present in certain types of videogame genres.

The first type of pattern is the fixed pattern. This type of pattern can be seen as a constant behaviour of the boss, where no matter what happens in the fight and how many times the fight happens, it will always follow the same order with the same actions. This sort of pattern tends to be present in puzzle or turn based games, where the game is not centred around pure-skill and reaction, but rather on adaptability and thinking.

The main advantage of this type of pattern is that it allows designers to implement unique mechanics that make the player behave in a certain way and react to said mechanics in the way that the designer intends to. On the other hand, having fixed patterns tends to make the fight predictable, which ends up making it quite easier than it should really be due to the player always knowing what will exactly happen at every moment.

The second type of pattern is the random pattern. The main difference from the fixed pattern is that the random pattern although it is still constant, there are several versions of it, and not all of them will happen at predetermined moments of the fight. Instead, they are determined by certain parameters that depend on the actions that the player does throughout the fight, the main parameters being health and time. This type of pattern tends to be present in games that are more centred around the mechanical-skill of the player requiring fast reactions and decision making.

The main advantage of this type of patterns is that as they are random, the player won't be able to abuse them as easily as if they were fixed, which tends to make them harder. On the other hand, random patterns require additional balancing for the different situations in which the player will interact with the pattern.

In the end, patterns are a very interesting and powerful mechanic that can be implemented in many types of videogames, but they should always have at least certain characteristics and elements that allow the player to identify them after several attempts and basically rewarding the player.

#### 4. Special Characteristics

The last final sub-element that can be found in a boss related to the different mechanics is in fact how a boss can change the contracts and mechanics that the player already understands how they work into something new, only for that specific fight.

There are many things that can be changed inside a fight against the boss, and they can pertain to the different elements that can be found in the bossfight itself, even changing how the character that the player is playing as. What matters in this sort of changes is that they are properly introduced at the start of the fight, or on their first appearance in the fight itself together with making sure that the player actually understands what has changed before the fight progresses.

If the elements that change in a boss fight are related to the boss itself, there are many things that can change compared to other bosses in the game, from something simple like how the different stats in the game work, to something completely different that makes the game behave completely different than it usually does. For the stats, an easy example would be to make the boss heal overtime, or with its attacks. It can also be related for example to an armoured boss, where as the boss loses armour around its body, its speed increases making its movement speed and attack intervals faster. On the other hand, boss fights can belong to a completely different videogame genre as it can be seen in *Nier: Automata* with Engels, which is one of the bosses where instead of being a hack n' slash type of game, the game turns into an isometric & lateral scrolling bullet hell game where the player will have to shoot at the boss while dodging projectiles. It is also possible to change how the fight behaves, without completely changing the genre as it can be seen in many of the Super Mario games, where the player is placed in a water level and the controls change, although it's still a platformer, while forcing the player to move laterally without touching either the top or the bottom of the screen. All this while fighting a boss.

What can also change inside a boss fight is how the character itself plays. Usually there tend to be two different approaches when talking about this type of implementation, one being where the character itself becomes way stronger than usual, making all its skills deal way more damage and with lower cooldowns, or straight up giving new skills for the player to use. This approach tends to be used in bosses that have a relevant narrative role in the game which make the playable character unlock its full potential, or in bosses that have multiple phases and give the player a reward for defeating all the previous phases of said boss. The other approach is the one where the character becomes weaker, where the game locks several of the skills that the player has available, such as allowing only regular attacks without the use of special skills, or making the player use certain types of attacks to target specific weak points in the boss which is the only way for the player to deal damage in the fight.

## 6.5 Challenge and reward

### 6.5.1 Concept and definition

When we talk about this element, in a way what we have to understand is that a videogame in the end works following the rules of cause and effect. The player performs a certain action, and this action has a consequence which affects the world the player is found in. Something happens in the world, and the player suffers its effect and its consequences. At the same time, the bigger the action, the bigger the consequence and its effect.

As bosses are a core pillar in many of the different videogames, they are not exempted from this rule. When the player defeats a boss, there has to be a consequence because of this.

*We can define this element as the correlation that exists between the challenge that the player has had to overcome and the consequence that overcoming this challenge poses for the player and the world that can be found in the game. This element is the one that makes the player want to keep playing the game and progressing through the different challenges.*

In this element, as it has already been mentioned, we can find two different sub-elements that work together. These two sub-elements can be seen as the cause (overcoming the challenge, in this case the boss) and the effect (obtaining a reward from defeating the boss).

The challenge sub-element can also be seen as the goal that the player has to achieve, in the case of this study with bosses, the goal would be to defeat them. And the way in which we can properly design a challenge, is by doing a good job when balancing the overall difficulty of the fight. It is important to understand that in this case both extremes of having the boss be too easy or too hard, negatively affect the overall experience of the player.

At the same time, we also have the reward sub-element which in this case with bosses would be the reward obtained after defeating them. These rewards as it has been previously said are related to the challenge that the player had to overcome, and making them proportional to each other is the key to making this challenge and reward element be properly implemented.

There are many ways in which we can balance the rewards that a player obtains, and they depend on several key points which will also be introduced later on into the development of the project.

## 6.5.2 Analysis

The idea of something difficult in videogames has always been quite an abstract concept, and for bosses, it may even be more. In the end, the difficulty of accomplishing something can be seen as how much of a challenge will the player have to overcome to accomplish said thing. And obviously, there are many ways to create challenges inside of a boss, each of the ways pertaining to a different characteristic of the mechanics found in said boss.

When talking about how to make a boss hard for the player to beat, the easiest way is probably the approach that many different videogames use to scale the overall difficulty of a videogame depending on the settings, which is the use of the stats that the boss has inside the fight against the player. The stats that are usually increased tend to be the overall health of the boss, which ends up making each of the different phases of the fight longer and as a result harder, or the overall damage that the boss will inflict on the player. But it is also possible to increase the difficulty of the fight by modifying other types of stats, such as shortening the counterattack window between each of the actions that the boss does, making stronger the debuffs that the boss applies to the player such as movement speed reduction or health draining or even making the boss heal throughout the fight.

This approach is not necessarily a bad one if implemented properly because it is an easy way to make the game accessible to different types of player profiles without actually using many resources that could be used to develop other parts of the game. On the other hand, it is also a

risky approach because if implemented badly it may lead to making the player feel like the boss is not hard, it's just a chore to beat due to it being unnecessarily long or restrictive. This is usually known as cheap difficulty and will usually stand out if the balancing of the stats has not been properly done.

Another way in which it is possible to make the boss hard is by modifying the core mechanics of said boss and expanding them horizontally, not vertically. This approach is usually seen in bosses that contain mechanics that can be measured in a quantitative way, for example a boss that throws fireballs to the player where instead of throwing three fireballs, in higher difficulties the boss will throw six simultaneously to the player. It can also be seen in bosses that interact with the environment, for example a boss where the player has to deactivate certain energy cores distributed throughout the room, where instead of having only two energy cores, there are four. This approach is used to increase the difficulty of the fight by modifying said mechanics, but without really implementing anything new in the fight that has to be explained to the player, because in the end, regardless of how many fireballs are thrown at the player, the core idea of dodging them will still be present.

The main strengths of this type of difficulty balancing is that it is still a relatively easy approach to implement similar to tweaking stats, but without the negative part of making the boss feel cheap and difficult simply because it has lots of health or it punishes the player way too hard. At the same time, it is also quite dangerous to implement because if not properly implemented the difficulty of the fight can snowball out of control due to overwhelming the player with way too many things to do simultaneously or by simply making the fight straight up unfair if there are too many things to take into account inside the fight.

Another approach is one that is commonly seen in videogames where the player fights against the boss multiple times throughout the same playthrough or multiple playthroughs. This approach is designed around the idea of adding new mechanics to the existing version of the boss while maintaining the core pillars.

There are usually two different ways to implement this approach, one of them being the implementation of mechanics that are not really related to any specific boss and can be used for other fights also found in the game. In a way these mechanics can be seen as modifiers that slightly modify how the fight plays out by adding additional elements without overcomplicating the fight itself or taking the focus from the original mechanics. These modifiers are also usually implemented multiple times throughout the different attempts of the fight, where layer after layer they end up increasing the overall difficulty of the fight quite a lot. A clear example of this can be seen for example in Binding of Isaac or pretty much any roguelike game where as the

player progresses in the game, the bosses will also obtain new modifiers to make the fights harder, these sort of modifiers are also present in many of the games of the mmr genre.

The second way in which this approach can be implemented is by adding additional mechanics to a specific boss, fitting the overall theme of the boss itself. These mechanics can come in many shapes or forms, from simply adding holes in the arena from where lava can come out and damage the player to adding a completely new phase in the fight where instead of dying the boss will obtain an even stronger power-up. Examples of this approach can be seen in many games that have secret true ending bosses or bosses that can not usually be fought in a standard playthrough which are commonly seen in many RPG games or similar genres that allow players to progress in multiple ways instead of being a streamlined experience where the player has to complete certain side quests or choose certain dialogue entries.

This approach is probably the best from a design point of view, because the fight truly feels harder because the fight got more complex adding true difficulty, instead of relying on simply having “more” of everything to increase the difficulty. Sadly, this approach is also the one that requires more resources for it to be implemented because in the end not everyone will be able to experience all the different mechanics that have been implemented.

Finally, another possible implementation of difficulty in bosses can be seen where the encounter with the boss contains additional enemies that the player has to take into account while fighting the boss itself. This sort of implementation has already been mentioned previously in the mechanics part of the research and it can be implemented in multiple ways.

The first way it can be implemented is by doing something similar to what it has been done in Hollow Knight with the Watcher Knights, where the player has to fight with multiple copies of the same boss with identical mechanics simultaneously and each of the copies acting individually with its own counterattack windows which tend to overlap with the attacks of the other entities present, increasing the difficulty considerably.

The second way is by doing something similar to what it has been previously mentioned, but with a key difference which is that each of the copies of the boss are synchronised with each other, making the fight feel extremely satisfying if properly implemented as it can be seen in Hollow Knight with the Mantis Lords.

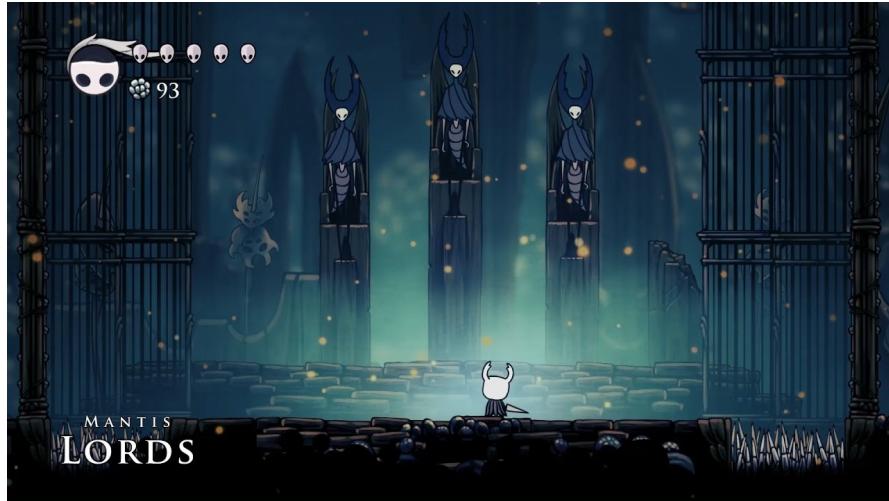


Figure 6.34 - Mantis Lords (Hollow Knight, Team Cherry, 2017)

A third way which is also similar to the previous possible implementations also exists, where multiple bosses exist simultaneously in the fight, but each of them having different mechanics which tend to complement each other. This can be seen in Dark Souls in the fight against Ornstein and Smough where each of the bosses has its own unique mechanics.

The final way this approach can be implemented is one that features additional regular enemies in the fight while the player fights against the main boss. These enemies tend to have the role of creating pressure for the player without having any additional mechanics.

This type of approach is one that requires for the boss to be designed around it, where the mechanics already take into account the existence of multiple entities fighting against the player simultaneously. If implemented poorly, it can lead to the feeling that the boss is simply hard because there are way too many entities on the screen making the fight not fun and using a cheap difficulty approach.



Figure 6.35 - Ornstein and Smough (Dark Souls , Fromsoftware, 2011)

Having introduced the main ways in which the difficulty of a boss can be designed, it is also essential to determine which type of difficulty the boss will have, depending on how the boss challenges the player. There are different ways in which a boss can challenge the player, and although it can vary depending on the boss, this is mainly related to the type of game that the boss is found in.

The first way it can challenge the player is simply acting as a mechanical skill check. This means that the main difficulty of the boss doesn't come from its complexity or the necessity of the player to make preparations for the fight. Instead it comes from fast reactions and gameplay skills required to beat. This type of challenge can usually be found in the majority of videogames with real-time combat where the real challenge is to react to what the boss is actually doing.

The second way is by requiring overall game knowledge contrary to pure mechanical skill. In this case, the difficulty comes from requiring the player to understand the different mechanics that the boss has together with properly using the tools that the game gives to the player to defeat said boss. It is in turn-based games where this sort approach is used where the player has unlimited time to determine which will be the next action to perform to counteract every action that the boss has. In some cases, this approach requires that the player prepares for the fight before even starting.

The last way to implement it is one that is typically found in puzzle games where the game-knowledge is the main requirement, but contrary to what it can be seen in turn-based games where the focus is based around preparation and previous knowledge, the main focus in

this case is the easiness that the player has to use the different game mechanics to overcome the different challenges.

Independently of which approach is taken when designing and determining the several challenges that the player will have to overcome, what matters the most is to keep two essential rules in mind. The first is that independently of the challenge that the player has to overcome, there should always be a way to overcome said challenge with the tools available to the player at that very moment or at its disposal by backtracking and progressing its character, always inside the same playthrough, without forcing the player to load a previous save or taking an external action to the game itself. The other rule is to make sure that no matter how challenging the boss is, the player should always know why and how it died. This is because there's nothing worse than dying over and over to a boss without knowing what is actually happening and how to stop it from happening. This second rule may be broken in bosses that introduce unique mechanics and it is exactly because of these sorts of cases that designers have to be sure that the player understands what is happening at all times on the screen.

Once the difficulty part of the element has been analysed which can be seen as the cause, it is also essential to look at the other side of the element which is the rewards that is also seen as the effect.

Similar to the implementation of difficulty, there are also multiple ways in which rewards can be given to the player, and they will depend on the type of challenge that the player has to overcome to obtain said reward and what said reward really means for the player at the moment it is receiver. There are many ways in which a player can be rewarded by defeating a boss, but there are usually three main ways in which the game can reward the player which are from a narrative point of view, from a progression point of view or from a player satisfaction point of view.

The first approach which is related to the narrative of the game can be usually found in final bosses in videogames, but it can be used at any time throughout the entire game. What the game does, is use the fact that the player defeated the boss, to make the conclusion of the narrative section that said boss belonged to. There's no need for a tangible reward for the player, or at least it is not the most important one. What really matters is that the player wants to see the development of the story, and how it will eventually end. It is because of this that sometimes, giving a satisfactory conclusion to the narrative that the player has been experiencing for multiple hours is much more important than giving a new item or upgrade to the player, even more so if the boss fulfils an essential role in the overall story of the game. Obviously, choosing

only a single way to reward the player is a mistake because in the end players should be rewarded in multiple ways or said rewards will feel lacklustre.

Narratively, cinematics and dialogues tend to be the main way in which a boss can reward the player with this approach and they will usually be used before or after the fight but it is still possible to have them implemented in the fight itself. An obvious case would be when the boss changes phase and a cool looking cinematic showing its transformation appears. At the same time, a narrative reward can also be something more subtle, like allowing access to a secret room that the boss was protecting, where important information related to the story is stored in secret.

Another excellent way to reward the player which is especially prevalent in games where the progression of the character is not streamlined and instead it is the player who decides how its character progresses is rewarding the player from a progression point of view. In this approach, the game rewards the player with items or elements that make its character stronger overall, unlocking additional skills, increasing stats or simply handing out better equipment. This approach is the one that focuses mainly on giving the player a tangible reward, making it feel like defeating said boss was worth it and it is used when the game wants the player to feel that it has become stronger from the start of the game.

As a side note, the elements that act as rewards for bosses tend to be related to the boss that rewards them once defeated. For example a boss that uses electricity magic will typically use some sort of electric spell or weapon. This is because in the end a reward is a way for the player to show off that it defeated the boss making it easy to identify said reward if they are theme related.

Finally, it is also possible to reward the player from a more psychological point of view. This approach is used on bosses that are exceptionally difficult to defeat, where the goal of the reward is not to progress the story or to give the player an item, instead it is simply to make the player feel proud of defeating said boss. In the end, there's no better reward than the feeling of satisfaction after defeating a boss that you have been stuck with for multiple hours.

## 6.6 Polish and juiciness

### 6.6.1 Concept and definition

Finally, for the last major element that will be analysed in this study about boss design and a special case because it is not directly related to boss design we have the attention to detail that we can find in the different cases of study. This element is a bit different from the rest because it is one that belongs more to the overall design of the videogame, rather than only the boss.

*The way in which this element can be defined is making sure that the boss doesn't give off that feeling that you have when something is missing, even though in theory all the different elements that have been previously mentioned are indeed present in the encounter. It is the elements that don't belong to any specific part of the boss itself, but are still as important as all the other elements previously stated.*

As an important note related to this element, we have the fact that this element can also affect all the different elements that have been previously mentioned and it can belong to many of the different parts of a boss fight, and not only the mechanics which would be the first element that would come to mind in this case. Some of the characteristics that can be found in this final element and the ones that are going to be analysed are sound design, player progression relevance,

### 6.6.1 Analysis

As previously stated, there are several characteristics pertaining to bosses in videogames that can be related to this element.

Probably the most important element for videogame bosses that has yet to be analysed is the audio present in the boss fight itself. An analysis of sound design in bosses can be extremely dense and extensive, because of this, the focus in this study will be to determine the characteristics of a boss that should be taken into account when implementing the audios, without doing any in depth analysis for each of the audios. When talking about audio design in videogames, there are several implementations that have to be taken into account, each of them being relevant to a certain part of the fight itself.

The first way in which audio design is relevant in videogame bosses is by designing the music soundtrack or soundtracks that will play in the background throughout the entire fight, which

the player will be in contact with. When talking about the music that will be present during the entire fight of the boss fight, it is important to take into account several characteristics.

The first characteristic is that the music should fit the overall theme of the fight. This refers to the idea of making the music be coherent with how the fight plays out mechanically, together with its relevance in the overall narrative of the story. As an example the music that will play out in the final fight of a game in a slow paced fight, where the character is finally getting vengeance for its family will be completely different from the music that will be playing when the player fights against a boss that acts as a rival for the main character in a fast paced fight.

The second characteristic that has to be taken into account when designing the music is that maybe, the music will be heard by the player a high amount of times, depending on how many times the fight is fought until the boss is defeated. Because of this, music should be designed in a way that will not get repetitive over time.

The third and final characteristic is something quite simple, which is to make sure that the music is as memorable as possible. This is because in retrospect, when looking at some of the most memorable boss fights in videogames, many people remember the music that plays during a fight as much as the boss itself.

Another way in which sound design can be implemented into boss fights is with the audios that accompany the different mechanics that the boss has. When a boss starts doing an attack, independently of the attack that it does, one of the ways in which players can identify it, in this case without even looking at the boss directly, is by knowing which audio corresponds to each of the attacks that the boss has. On the other hand, similarly to particles or other visual effects it is also important to have audios for when the attack actually happens, an example being when the huge sword of the boss splits the arena in half. This is because if there is no auditory feedback for the different attacks of the boss, the player may feel that the boss is missing something. In case of the player being hit by the boss's attack, it is also highly encouraged to add audio to the hit, to expand even further on the idea of auditory feedback.

The last possible way in which audio design can be implemented into a boss fight is by adding them to the different events that happen during the fight itself, such as transition between phases of the boss, special attacks that affect the layout of the arena or the start of a timer where the player has to perform certain actions.

Outside of audio design, there are also other characteristics that a boss should have to add that final quality touch to its implementation. The first being to modify a bit how the boss fight works depending on the progression and choices that the player has done throughout the game.

These changes can come as small details such as making the boss have different dialogue, to straight up adding an entire additional last phase to the fight. What has to be understood about this is that realistically it is not possible to design multiple versions of the same fight for each possible choice that the player has made in the game, what really matters is that the game acknowledges that the player has indeed made different choices, showing that said choices have really been relevant. In a way, it can be seen as a reward for the player. An example of this can be found in Vampyr, with the Red Queen's Avatar. In this fight, with blood being the main theme of the fight, the difficulty of it will vary depending on the amount of people that the player has killed throughout the game, adding more blood to the area which ends up making the boss stronger. Another example can be found in Enter the Gungeon with the High Dragun being the base final boss of the game. In this case, if the player collects an item found in previous levels, and brings it to the room of the boss, said item will merge with the boss making it have a harder final phase than its standard version.

Finally, another characteristic that should also be implemented in boss fights is the reaction that the boss does to the player's attacks. This is because as important as it is to make the attacks of the boss have some sort of feedback, this being auditory or visual it is also important to make sure that the player's attacks have feedback too. The feedback can be something as simple as making the boss stagger when the player attacks its weak point, or it can be something much more complex like making the fight evolve depending on which part of the boss was focused first by the player. An example can be seen in Monster Hunter: World , where the player can attack the parts of the body of the different monsters and break them, making the fight much easier because the boss won't be able to attack with the broken part of the body.

## 7. Boss Implementation Template

### 7.1 Structure

This is the template that has been developed with the information acquired from the analysis about the implementation of the concept of a boss in the different videogame genres. In this template, all the different elements that have been previously introduced in the research will be taken into account, analysing all the different possible implementations for each of the elements together with its sub-elements. In the end this template will work more as an initial introduction to how bosses should be implemented in videogames together with its different characteristics rather than developing some sort of guidelines that should be followed exactly as stated in said

document. In the end it is up to the user to determine which of the sections in this template will be useful for each specific case of boss design and implementation.

The elements that have been analysed are the following.

1. Integration of the boss into the game
2. Role of the boss
3. Boss location
4. Mechanics of the boss
5. Challenge and reward
6. Polish and Juiciness

Before analysing the different elements that can be found in bosses and as it has already been stated, it is essential to determine how relevant each of the different elements is to the type of boss that is being designed depending on certain characteristics related to said boss.

These said metrics are the following.

- a. **Genre of the game the boss is found in:** It is mandatory to determine which type of game the boss belongs to. This is because depending on the genre there are several elements that have a much more relevant role in the overall design of the boss such as the challenge and reward given to the player after defeating bosses in games with a heavy emphasis on progression. On the contrary, it is also possible that certain elements are irrelevant for a certain type of game, such as the mechanics in a narratively focused game with barely any gameplay elements.
- b. **Section of the game in which the player will fight against the boss:** Knowing when the player will fight against the player will be useful to determine how each of the elements found in bosses should be implemented. This is mainly due to two different reasons. The first reason is that several elements rise in relevance as the game progresses, so certain elements will be more relevant the later in the game the player fights against said boss. The other reason is because the different elements will also have different characteristics depending on the section of the game that they are found in. A clear example can be seen for example in the mechanics element where the overall complexity found in a tutorial boss will be much lower than the one found in late-game bosses.
- c. **What do we want the boss to feel like:** In the end, it is also important to do what you think is the best for the boss, independently of what the theory is telling you. This is

because as it happens with videogames, there are no two identical bosses, each of them having certain characteristics that define how it “exists” in the game. And because of this, there is no “correct” way to design a boss. What matters is that the elements that define a boss are properly implemented for each case in a way that allows it to be implemented in the best possible way.

Once these initial characteristics have been determined, the following step is to decide how each of the different elements will be implemented in the boss together with why it has been implemented this way.

1. **Integration of the boss into the game:** How will said boss be implemented into the game? How will said boss not stand out (in a negative way) from the rest of the game? This element can be seen as making the boss fit the overall setting of the game in the best possible way so that it makes sense to be in the location where it is found and make it so that it doesn’t look out of place narratively, artistically and mechanically with the rest of the game. Basically, justifying the way in which the boss exists and behaves inside the game, this being either narratively, visually or mechanically.
  - a. **Narrative Coherency:** If the game has a relatively important story that develops throughout the progression of the player, or the place in which the action happens has a rich worldbuilding with a properly established narrative structure it is then recommended to make the boss fit narratively inside the game while being relevant in the story of the protagonist. This can be seen as giving a good reason for which said boss will have a confrontation against the player. At the same time, it is not only important to give a reason behind the confrontation between the player and the boss, but also to make the design of the boss fit the game from a narrative point of view.
 

An example of this can be, if the boss that is being designed will act as the greatest magician in the setting while being vastly superior to everyone else, then make sure that when the fight against the player happens, the boss will use magics different from any other enemy in the game showing off how it really deserves the title of greatest magician.
  - b. **Art Style:** Artistically, there are two important things to keep in mind both approaches to the integration of the boss. The first approach is related to making sure that the boss fits the art style of the game, making sure it doesn’t stand out as an element that doesn’t fit visually with the rest of the elements

found in the game. The second approach is related to making sure that the visual theme of the boss fits the visual theme of the game together with its tone. If the game has a grim and dark aesthetic, make sure that the boss is also grim and dark.

- c. **Mechanic Relevance:** Finally, from a mechanical point of view, it is important to make sure that the boss that is being designed behaves similarly to the rest of the game gameplay-wise. This can be understood as the way in which the boss brings over the mechanics that the player has been interacting with, being related to the overall gameplay loop of the game or the way in which a certain section of the area behaves. As a side note, many times this is also related to the overall narrative of the game, in a way giving a reason for the boss to be that way when fighting against the player.
- 2. Role of the boss:** Related to this specific element, the best way to understand it is to see it as making sure that the boss has a “raison d’être”, making its inclusion into the game as meaningful as possible for the overall experience of the player. This reason of existence when we talk about bosses is usually related to in which way does the boss interact with the player in its boss fight or what does its presence imply in the overall narrative of the story. At the same time, a boss should always have at least one role, but it can also fulfil multiple roles related to different sections of the fight itself, such as acting as the final boss of the story while presenting the player with a real mechanical challenge.
- Some of the main roles that can be seen in bosses pertaining to different approaches of the role that the boss has are the following.
- There are two main ways in which a boss can fulfil a role inside a game which depends on which part of the game itself it is related to. The narrative role is related to the story of the game and all its related elements such as visual design, location, etc. The mechanical role is purely based on the interaction that will happen between the player and the boss once the fight starts.

#### From a narrative point of view:

- a. **Being the main villain of the story:** When looking at the weight that the main villain has narratively in the game, most of the time its role is as important as the one from the protagonist with some of the cases having the final boss as the main focus of the story. This is because in the end, the existence of the hero

comes from a situation that will be created by the main villain of the story, which basically means that if there is no villain to create the problem, there won't be a hero to solve it. Obviously this idea in the end will always depend on which type of story it is together with how the game tells said story.

- b. Area villain:** Depending on the size of the game, there are places in the story where the main villain should appear over and over again. It is because of this that the idea of an area villain exists, creating a short term villain for a section of the game, which usually tends to be an entire area of the game, in a way it can be seen with the idea that they “rule” the area due to them usually having the same theme as the area they are placed in. The main difference between an area villain and the main villain is that the area villain acts more as a blockade for the protagonist to overcome than the end goal of the narrative.
- c. The mastermind:** The mastermind refers to the idea of a villain that acts as the real threat to the protagonist while being hidden behind a more public figure. In a way a mastermind is a type of main villain where instead of interacting with the protagonist through the story, it uses another character to do all the public appearances.
- d. The dragon:** Contrary to that of a mastermind, a boss can be designed to be the publicly known evil. This figure can be seen as the public side of the mastermind. While the true boss is operating behind the shadows, it is this public figure that confronts the player directly throughout the story, usually acting as the main villain until the truth is revealed.
- e. The Mentor or Rival:** Another possible role that the boss can have is that of a mentor or a rival, acting pretty similar to their classical counterparts in books or other narrative works where this character in this case being the boss will act either as a short term objective for the protagonist, where the mentor will teach everything that it knows to the main character or as a constant challenge that appears throughout the story in the form of a rival. In the end both of the roles perform a similar task which is to challenge the player without the animosity

towards the player that can be found on regular villains, having more of a positive rivalry.

- f. Being a hyped up encounter:** This role is mainly related to the anticipation factor that can be found in the integration element previously introduced. After anticipating the player by introducing the boss narratively and visually, explaining its accomplishments in the world of the game, the player is finally ready to challenge it. This implies that in the end, a boss should not necessarily act as a huge challenge for the player even if it has a huge relevance in the overall story of the game.

#### From a mechanical point of view:

- a. The Gatekeeper:** This refers mainly to the idea that a boss is the one that in a way is in charge of acting as a roadblock for the player, making sure that all the different mechanics have been properly understood before progressing further into the game. A boss should nearly always test the player in some sort of way, this tends to be a specific type of mechanic such as dodging or parrying, but it can also act as a stat-check, making sure the playable character is strong enough to progress to the next area of the game.
- b. Shutting down the player:** There are cases where players are better at the game than what the designers expected, which leads to them beating all the bosses of the game in the first try. It is because of this that the role of shutting down the player exists where its sole job is to act as a difficulty spike in the game. By doing this, they force players that have been steamrolling the game to upgrade their equipment because skill alone won't do it. In a way, it can be seen as a version of the gatekeeper that requires much more commitment from the player to be overcome.
- c. Show the progression of the player:** Sometimes, what matters the most is to make sure that the player feels like there has been an evolution throughout the game, this being related to in-game progression where things like stats, equipment and skills from a skill tree are developed, or from a player perspective where it is the overall skill of the player and its knowledge that change as the game progresses. It is exactly because of this feeling of progression that this role for some bosses exists.

- d. **The real challenge, taking the player to the maximum:** It is possible to implement bosses that have a much higher skill and equipment requirement compared to other bosses in the game because these types of bosses tend to be implemented as secret or side bosses that are not mandatory to beat the game. They tend to be hidden behind optional quests that the player has to complete or be placed in certain areas that are not easily accessible by the player due to certain special requirements or simply because said area is hidden. By doing this, it is possible to give harder challenges for players that want the game to be harder, while maintaining the same overall difficulty of the game, by not making them mandatory for the game to be beaten.
  - e. **Allowing the player to show off:** Another role that we will find will be those of giving a reward to the player, similar to the previous role. But in this case, the reward is more related to the mechanics of the player itself rather than the narrative. Some of the cases that can implement this role are for example bosses that are designed to defeat the player in the early stages of the game, to then introduce it back into the game and have the player defeat it. Or in some cases, simply having an easier overall boss than what the player would encounter, just to make it feel powerful in a way. In many cases this type of bosses sacrifice gameplay quality in exchange for visual spectacle.
  - f. **Taking the player out of its comfort zone:** Similarly to the previous role of providing a difficult challenge for the player, bosses can also make the player have a hard time not only by being harder than other encounters in the game. They can also use a mechanic that the player is already used to, and change it in a way where the player will have a hard time adapting to this new variation of the already well known concepts.
  - g. **Being an experiment:** Finally, there are certain bosses in videogames that have more of an experimental role. They are designed in ways that don't work with or contradict the already established core gameplay mechanics of the game. By doing this, it basically forces the player to adapt and use the newly introduced mechanic for the entire fight.
3. **Boss location:** This next element is typically one of the most overlooked elements that can be found in any type of boss. It can be seen as the place where everything happens,

the place where the “magic” is done. It can basically be understood as the location where the player encounters the boss, and fights against it together with any interaction that happens between both of them.

- a. **Setting the stage visually and narratively:** The role that the majority of boss locations tend to fulfil is the one of setting up the stage for the fight between the player and the boss. This stage will be introduced narratively, with the environment of the area itself, together with in some cases implementing cinematics at the start of the fight. Similarly, it can also set the stage narratively, introducing a place that is relevant in the story.
  - b. **Being visually pleasing:** Sometimes, you don’t really need a location that is relevant narratively or visually. Sometimes, you just want to make the boss look cool, which is what this role fulfils. It sets up a stage that is simply visually stunning and makes the overall fight and experience more enjoyable for the player.
  - c. **Contributing to the boss mechanics:** In some cases, the stages in which the player and the boss fight can do much more than just being visually pleasing or being visually pleasing. In this case, the boss will have certain mechanics that interact with the environment, and where the player will have to play around it.
  - d. **Creating no interference:** Finally, there are some cases where we only want the player to focus on the boss, without having anything else to be distracted with. In these cases, locations can also fulfil the role of being as empty and dull as possible with the most standard layout possible.
4. **Mechanics of the boss:** The mechanics of a boss can be seen as the element that is related the most to the interaction between the boss and the player gameplay-wise. In a way, mechanics can also be seen as the place where the other elements that can be found in a boss fight are implemented in a way that they can affect the overall experience of the player from an interaction standpoint, and not only visually or narratively as they would on their own.

- a. **General characteristics and behaviour:** We can understand this sub-element as the general way in which the boss will behave. This behaviour tends to be based around the special characteristics that the boss has and determining how the overall fight will play out. A good way to know if the general characteristics of a boss have been properly implemented is to try to describe the boss with as few words as possible and, if said description can explain how the general fight will play out, you will know it has been done properly.
- b. **Evolution:** When we talk about mechanics in a boss fight, the most important thing to take into account when designing a boss is that not all of its mechanics have to be introduced right at the start of the fight. This rule can be seen in pretty much any boss fight independently of which type of boss it is and in which type of game said boss is found in.  
 This is because a boss should always evolve throughout the fight and have a certain amount of development with clearly differentiated sections that will be present, similar to what can be found in the development of any narrative document with an introduction, a body and its conclusion.  
 In general, the different sections that form a complete boss fight can be catalogued in four different types (introduction, expansion, midpoint and conclusion), each of them being present in a certain moment of the fight. It is also important to note that four is usually what can be found in a boss fight, but it is possible to have more or less sections depending on the type of boss, the type of game and at which point of the entire progression of the game the player will encounter said boss.
- c. **Patterns:** Inside what can be understood as mechanics of the boss, there exists an element that tends to be more or less relevant on any type of boss which are the patterns that the boss has with its attacks. The thing that has to be understood about patterns is that they shouldn't be seen as an equivalent of the behaviour that a boss has in the fight from a general point of view where it reacts to what the player does and ends up having more of a reactive feeling. What a pattern can really be seen as is the way in which a certain action that a boss has started will play out during its entire duration once it has already started. In easier words, basically any pattern that will be found in the boss will not or barely vary depending on what the player is actually doing.

**5. Challenge and reward:** The challenge and reward element can be seen as the correlation that exists between the challenge that the player has had to overcome and the consequence that overcoming this challenge poses for the player and the world that can be found in the game. This element is the one that makes the player want to keep playing the game and progressing through the different challenges. As the name already states, this element is divided into two different sub-elements equally important which are the challenge and the reward that the player will experience throughout the game.

The challenge sub-element can be seen as the goal that the player has to achieve, in the case of bosses, the goal would be to defeat them. And the way in which we can properly design a challenge, is by doing a good job when balancing the overall difficulty of the fight. It is important to understand that in this case both extremes of having the boss be too easy or too hard, negatively affect the overall experience of the player.

At the same time, we also have the reward sub-element which in this case with bosses would be the reward obtained after defeating them. These rewards as it has been previously said are related to the challenge that the player had to overcome, and making them proportional to each other is the key to making this challenge and reward element be properly implemented.

**6. Polish and juiciness:** The last element that has to be taken into account when designing and implementing a boss in videogames can be seen more as a set of details that should also be present when implementing bosses in videogames.

**a. Audio design:** Audio design is a very important element that can be found in every game, independently of the genre that it belongs to. This is because sounds in videogames can be used in many different ways, with bosses being the same, from the background music that is playing during the fight, to the way in which the game tells the player that a mechanic from the boss will activate.

In this case, the most common implementations that audio design has for bosses are the following, many times being as relevant as many other elements of the fight itself.

The background music that is playing in the background is an essential element that can be found in any boss fight. Having said this, there are certain

characteristics that have to be taken into account related to the background music. The first one is that the theme of the music should fit into the experience that we want the player to have in that fight, being related to the narrative context that the fight has in the storyline of the game, together with fitting the overall pacing of the fight, this being fast paced, slow paced, etc. The second characteristic that has to be taken into account is that music in videogames has to be designed in a way in which it is as less repetitive as possible, due to the fact that player will most likely attempt each of the fights multiple times, making the background music affect negatively the overall experience after listening to the same music multiple times.

At the same time, audio design can also be implemented as an indicator of what is going on during the fight. So when the boss is starting a mechanic or an attack, an audio of some sort should play, indicating that said attack has been started. This basically allows players to understand what the boss is doing at every moment of the fight without looking at the boss directly. It should also be done in a similar way to indicate that the mechanic or attack has ended, to also indicate to the player that the counterattack window has started. And the same should happen with special mechanics related to the arena, such as removing certain walls, cover or the size of the arena itself.

- b. Attack's feedback:** Similar to the audio that should play when the different mechanics of the fight come into play, it is also important to make sure that anything that happens during the fight should have a reaction to it. An example being that when the player attacks the weak point of a boss a stagger animation or some sort of feedback should be displayed to the players, being the other way around also true, where the player reacts to the attacks of the boss when being hit.
- c. Repercussion from player progression:** As the last small detail, many bosses that give the player more freedom related to the overall progression of characters tend to change a bit how the boss behaves, from having a new dialogue line at the start of the fight to straight up adding an entire new phase of the fight. Usually this is linked to the different choices that the player makes during the game (if choices are available), or if certain items or quests have been completed through the game up until this point.

## 8. Conclusions

### 8.1 Conclusion

For the conclusions of this project, the final results have been quite satisfactory overall, with some small mishaps during the different stages of development for both the theoretical part of the project with all the research that has been done and the practical part of the project with the implementation template.

For the theoretical part of the project, the main goal was to analyse what does the concept of boss really stand for in videogames, together with all the different elements that form said concept and determine which of them are the most relevant when implementing a boss depending on which type of genre the game the boss is found in belongs to.

In the end, the main elements that have been selected for an in-depth analysis have been the following ones: Integration of the boss into the game, Role of the boss and what does it add to the experience of the player, Boss location, Mechanics of the boss, Challenge and reward and Polish and juiciness.

For each of the elements, multiple possible implementations have been analysed with different examples of videogames currently on the market to determine which type of implementation and how much relevance should a specific element have in the overall design of a boss depending on the genre of the game it belongs to and which type of boss it is.

Then, for the practical part of the project, the main goal was to design an implementation template where, by using all the information obtained in the previous research it is possible to set at least the initial steps that any designer should follow when designing a boss for any kind of videogame. The main goal has also been successfully achieved, where all the elements are properly introduced together with the different possible implementations. The example of a possible real use for the template has also been developed successfully. The only part of the entire development that has not been completely achieved is the validation process which will be expanded further after the completion of the project itself by experts of the industry.

## 8.2 Accomplished objectives and goals

From the several objectives and goals that have been set at the start of the project the vast majority of them have been properly accomplished, with only some of them requiring a little bit more time to be fully fleshed out and developed.

- g. Analysing and determining what does the concept of a boss really mean in videogames.** This objective has been properly accomplished in the later stages of the development once all the different elements that form what can be understood as a boss in videogames have been properly analysed.
- h. Analysing all the different elements and characteristics that a boss has and determining the most relevant ones depending on the type of game.** This objective has been one of the first objectives to be accomplished because it is the one related to determining which will be the different cases of study that will be relevant for both the theoretical and practical parts of the project.
- i. Classifying each of the elements depending on their relevance.** Out of all the different elements that have to be taken into account, I believe that the main ones have been properly identified and analysed in the initial stages of the development together with the previous objective.
- j. Determine how each of the elements can be properly implemented depending on the type of game that the boss belongs to.** Although this objective has been properly accomplished in the end, several complications have appeared throughout the development due to the considerable amount of possible videogame genres available and possible implementations.
- k. Create a template setting the initial stages of the development related to boss design and implementation in videogames stating all the different elements that should be taken into account.** This objective has also been accomplished in the final stages of the development once all the relevant information has been obtained from the theoretical phase of the project. The template properly mentions all the different elements that have to be taken into account with its different possible implementations.

**I. Validation of the developed template by experts in the subject.** This is probably the only objective that has not been completely accomplished. Although there has been validation from a university professor and from people that are not in the industry but their videogame knowledge is ample enough, the main objective which was to obtain validation for the template from an industry expert has not been accomplished as of yet. Although at the date of the release of the document the validation from an expert will have yet to be fulfilled, it will still be done in the near future.

## 8.3 Mistakes made during the development

During the entire development of the project, there have been several mistakes that have been made which have led to several mishaps during the process.

The main mistake that has been made during the development of the project has been from the very beginning to try to analyse the concept of a boss dividing them in the different videogames genres. Because of this, the problem that appeared was that you can't really analyse each videogame genre individually with its own boss fight elements because there are too many different genres to be analysed, and trying to analyse only a few of them wouldn't really lead to any satisfactory conclusion from the study. At the same time, each type of genre has different characteristics, which means that certain elements will be less relevant than others or will at least be implemented in different ways. Due to all of this, in the end it was decided to stop analysing each possible videogame genre individually, and instead analyse the different possible implementations for each element which would then allow to determine which implementation is better for each genre.

The second mistake that has been made during the development of this research is the way in which case of study, in this case the different elements found in a boss fight were analysed at the start. Similar to what has been previously mentioned, trying to analyse the different elements with the different videogame genres won't really work because each element is implemented in a different way depending on the genre, which ends up leading to many different possible implementations that only contain small variations within each of them, making the results unnecessarily convoluted. In the end the different elements have been analysed from a more general scope, where the focus is on the different characteristics that can be found depending on the type of game that the boss belongs to.

## 9. Project Management

### 9.1 Procedure and tools for the management of the project

#### 9.1.1 GANTT

For the development of the project, there have been three different milestones related to the three different phases of the development, each of them being centred around a certain part of the project.

The first phase of the development is all about determining what the study will be about, determining the different objectives and problems that have to be resolved by the study together with defining which will be the main basic structure of the research and the ways in which the different cases of study will be selected for later phases of the development. The theoretical framework together with the methodology that will be followed for the project will also be determined in this phase of the development.

Development Phase 1	November	December	January	February	March
<b>Initial Approach to the Research</b>					
Proposal of Different Problems & Objectives					
Selection of Final Problem					
Selection of Main & Secondary Objectives					
Definition of the Final Project Proposal					
Development of Literature Section					
Development of Cases of Study Section					
Development of Marc Teoric					
Delivery of Introduction Phase					

The second phase of the development is all about doing the research related to the different cases of study that will be used for the research. It is in this phase of the development where all the information from the different experts in the industry is analysed and used to determine the

different elements that will be analysed on the different boss fights. The vast majority of examples that will be used when analysing the different elements of a boss fight has also been determined in this phase of the development. This is the final phase where the theoretical part of the research will be developed.

Development Phase 2	February	March	April	May	June
<b>Research of the different elements of the study</b>					
Research about the most important elements in a boss fight					
Research on the different elements of a boss fight					
Determining which are the most important elements					
In-depth analysis of the selected elements					
Identifying the characteristics for each of the elements					
Research on examples for each of the different elements and their possible implementations					
Classification of the different implementations for each of the elements					
Initial approach to the practical part of the project					

This last phase of the development is centred around the development of the practical part together with determining the conclusions of the project itself. The practical part of the study has been developed using the information obtained from the theoretical part of the research together with the information obtained from the different experts in the industry.

Development Phase 3	May	June
<b>Implementation of the study in the practical field</b>		
Determining the goal of the template and its utility		
Determining the structure of the template		
Selecting the information that will be used in the template		
Development of the first version of the template		
Validation of the first version of the template		
Development of the second version of the template		
Validation of the second version of the template		
Development of the final version of the template		
Development of a possible example on the use of the template		

## 9.2 Validation tools

Related to the validation of the research, there will mainly be two different validation tools that are going to be used for the research, and specially the practical part of the project.

The first source of validation will come from the same sources that the information comes from. This is because the information is obtained from the opinion of several experts in boss design from articles and talks in multiple conferences. The second source of validation will come from a university professor that has reviewed the template giving feedback together with the feedback obtained from other people coursing videogame development degrees

All the feedback that has been obtained from both validations sources has been successfully implemented in the final implementation template.

## 9.3. SWOT

	<b>Positive</b>	<b>Negative</b>
<b>Internal Origin</b>	<b>Strengths</b>  Huge amount of different options to explore, giving the research a huge range to analyse.	<b>Weaknesses</b>  Due to the huge amount of options to explore, it is possible to try to focus on too many of the options. Which will lead to only scratching the surface for each of the options, not doing actual thorough research.
<b>External Origin</b>	<b>Opportunities</b>  The subject the research looks into is very well known in the industry, but there is a lack of actual information on boss design in general.	<b>Threats</b>  There are opinions from several experts related to boss design and implementation. It is when analysing these opinions that we should be careful to understand that what someone else says is only an opinion and not necessarily the truth.

## 9.4. Risks and contingency plan

Risc	Solució
Managing the amount of time will be used in each of the different cases to analyse.	Organise properly the maximum amount of time for each of the cases.
Deciding to analyse too many different cases per genre leading to an overload in stuff to do.	Determining the optimal amount of cases per genre, to obtain optimal results without overloading in work to do.
Having some of the cases that are going to be analysed be impossible to obtain.	Having some alternatives to the selected games to make the study possible.

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