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The Roles, Mechanics, and Evolution

of Boss Battles in Video Games

An Honors College Thesis

by

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Digital Game Design and Development

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Abstract

The main focus of my thesis is boss battles, unique enemies in video games that are normally tougher than normal enemies. I explore their place in the gaming industry in order to formulate an idea of how the concept came to be, how they are created, how the concept has evolved, and how I can implement them into my future games. I've separated my thesis into five chapters, barring the introduction and conclusion.

The first is a timeline of boss battles that have influenced the video game market and introduced new concepts. This chapter encapsulates the first boss ever in 1975 up to the late '90s and early 2000s. The second chapter details six roles I believe most bosses occupy in a game to justify their inclusion, along with specific examples for each. The third chapter discusses various mechanics and how they impact the quality of a boss fight. I also lay out a few shortcomings that are common amongst boss battles. In the fourth chapter, I mention several games that have been released in recent years that have manipulated the formula of bosses. I discuss the impact of these changes and my overall opinion of the movement. In the final chapter I present my thesis game, Living Fortresses, including my plans for its gameplay, art, and story. This game serves as the culmination of my affinity and research of boss battles.

In the end I hope to use the information I have gathered to have a better understanding of the concept and create my own boss battles that serve vital purposes in my games and provide players with enjoyable, memorable experiences.

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The Roles, Mechanics, and Evolution of Boss Battles in Video Games

Anyone who has ever played a video game can probably recall one specific moment from their most beloved game; the moment where hours of playtime and countless deaths culminated in a grand victory. Chances are, this was marked by the defeat of the first imposing beast that they encounter, a mysterious rival that has been hounding them throughout the game, or of course, the big bad that has orchestrated the entire conflict from the start. These are boss battles. Their definition is simple: unique characters or creatures that are more complex and challenging to defeat than normal enemies. They take many forms; big or small, human or non-human, threatening or silly. In any case, their presence in marked by a defined encounter placed at significant points along the progression of a video game. Usually they cap off the individual worlds or areas into which a game is broken up, or they represent key story beats and turning points along a game's plot. Because many bosses are positioned in such important situations within games, and by definition differentiate themselves from the established gameplay loop, it's no surprise that many players emerge from the ending of a game with the memory of its boss fights ingrained in their minds. They feel good about the unlikely victory they achieved. They might even brag about it to their friends or random internet users for years to come.

It is this phenomenon that has taken hold of me many times throughout my life, and cultivated my love of boss battles. They are my favorite aspect of games as a whole, and are frequently the deciding factor in my purchasing choice when browsing available games. I love the feeling of discovering a boss, finding out how to defeat it, and viewing the bosses as a group once I am finished with the game, recalling each fight in context long after I put the game down. It is the unique situations that keep a game fresh no matter how lengthy its story, and boss battles

introduce completely new aspects to the structure and story of any game without straying far from the core gameplay. I find myself getting bored of games that only throw basic enemies at the player, no matter the variety, usually mixing things up with a scripted set piece or one-off mechanic. To me, bosses are the milestones I need to stop and reflect upon the portion of the game I just played and feel as though I'm going through the major steps of completing the experience.

However, I'm not writing this paper just to explain why I think boss battles are such a good inclusion in most games. I want to go deeper, through the far reaches of video game history and the game design profession, to dissect just what makes boss battles tick, and how they came to exist in the first place. In the recent game development scene, boss battles tend to get tossed out or relegated to nonessential filler in favor of perfecting the core gameplay loop. Many games don't even include a final boss, with the developers choosing to end their story in a less bombastic, more thematically realistic way, such as is the case with Naughty Dog's *The Last of Us*. While in a lot of cases these seem like smart moves, not exactly compromising the quality of the games in question, it muddies the water of the significance of boss battles in the game industry. As games focus more on story and unique mechanics, perhaps there is less of a home for exaggerated antagonist encounters. Perhaps boss battles have become an unnecessary hurdle to overcome when making games, included in most cases only because players have come to expect a boss battle at the end of every area.

This is a trend I've noticed in recent years. And while it breaks my heart to see my favorite game concept pushed by the wayside, I want to understand more about why this is happening, and decide for myself if it is a natural and justified change to the game industry. To

do this I need to know the concept back to front. First, I must study the birth of the classic boss fight from back in the earliest decades of the video game industry. With knowledge of this time, I can track the evolution of the themes and mechanics of bosses and how it affects public perception in modern times. Second, I will investigate the role that boss battles play in the games they appear in; why they are implemented in the first place. Using developer commentary and specific famous examples, I can decipher what the creators of certain games were trying to accomplish with each boss they designed. Third, I must study the individual mechanics of some of video game history's greatest bosses, and also some of its most mundane. If I am to make a claim that boss battles still serve a vital role in modern gaming, I must understand what makes bosses good in the first place, and what makes them a joy to fight and vanquish. Fourth, I will discuss recent games that have presented, or excluded bosses in interesting ways, to pinpoint how these encounters have evolved over the years. All this leads into one more goal, one that pertains to my own personal hopes. I can harness the information I accrue into my own design philosophy and craft boss battles of similar memorability and quality. I will present my senior project, Living Fortresses, as the culmination of all that I have learned as I explored the prevalent yet overlooked pantheon of video game boss battles. In the end I'll have a summation of what truly makes a good boss fight, and have a objective understanding of the role boss battles play in the current climate of the video game industry that I am about to become a part of.

The Early History of Bosses

The legacy of boss battles started way back in 1975 in a simple dungeon crawler called *dnd*, a game created by college professors based on the famous table-top role playing game, and released on the obscure PLATO system. The first boss battle ever created was a golden dragon, guarding a valuable orb in the heart of the dungeon (Cockshutt). It's interesting that gaming's first big bad was a dragon. These mythical beasts have always been a part of human history, representing the most deadly of beasts. This stems from our evolutionary history as primates, with our most feared predators being snakes, large felines, and raptor birds. Dragons are the amalgamation of the characteristics of these beasts; the wings of a bird, the claws and face of a lion, and the long reptilian body of a snake (VSauce2). Thus, it is easy to see how dragons have wormed their way into the human conscience, even through pure coincidence. Most major mythologies, across all of the world's continents, have some dragon or dragon-like creatures. This is true despite the fact that some of these societies lived in complete ignorance of each other. The feathered dragon god Quetzalcoatl of Aztec mythology was created completely independent of the legendary serpentine dragons of Chinese folklore. The universal beasts were also adapted into numerous classic fiction pieces in more recent centuries. Medieval stories of knights slaving dragons and saving damsels became almost cliché. Fafnir was a dwarf turned dragon who guarded his hoard of gold and was slain by the great hero, Sigurd, in Norse mythology. Smaug was a major antagonist in Tolkien's *The Hobbit* who...guarded his hoard of gold from a group of dwarves. Blatant inspiration aside, the thematic role of dragons in clearly represented in these stories. They are powerful creatures that act as a final test of a man's fortitude, preventing him from reaching a life changing goal. It's easy to see how the concept of

a dragon guarding a highly sought after treasure was a logical source for the birth of the golden dragon, both in the original pen and paper RPG and the video game. While obviously a purely fantastical situation, it is a highly relatable conflict that has proven time and again that it appeals to the human desire for victory. The dragon also serves as a reliable lens into the cultivation of boss battles as a whole, as the fearsome beasts can be seen as the boss battles of their associated medium if we study them with a modern viewpoint.

The golden dragon introduced many of the basic concepts that eventually became attached to boss battles. It was tougher than the low and high level enemies alike, way tougher in fact. From the start, the developers of the game wanted the dragon to have a massive amount of hit points (health). Around "a million" in the words of one the game's developers, but probably closer to 100,000. The dragon was also "hyped up" throughout the game, with the treasure it is guarding teased in the message the game displays at the start of each play through. Players could also fight the dragon at any point during their adventure, given the game's nonlinear progression. This emphasizes the dragon's purpose within the game, as a final hurdle/ test of the player's skills. They could fight the dragon whenever they wished, but they shouldn't. They should wait until they have received the proper experience points, gear, and skill level before taking on such a daunting challenge. Even if a player was able to make it past every other high level enemy, they were still likely to be sent back to the start by the golden dragon. The constant thematic presence of the golden dragon, and the desire to finally overcome its challenge, brought players back into the dungeon time and time again. And even after the dragon is defeated by a dedicated player, who has finally obtained the long valued orb, the presence of the dragon will live on, as the antagonistic entity that loomed over their whole experience. This boss centered structure

would be reused in the games numerous expansions, with each new dungeon packaged with a another boss guarding another treasure, such as the grim reaper in a cemetery themed area. I will go into the role that boss battles play later in this paper, but for now it's important to look back on this boss as a blueprint for video gaming's greatest foes in the decades to come.

Another notable example that frequently gets brought up when discussing the origin of boss battles is the 1980 arcade space shooter Phoenix. The game is extremely similar to its more famous equivalent Galaxian, with one notable difference. The game loops every five levels, and at the end of the fifth level, players were shocked to find a massive UFO in front of them, known as the Mothership. The boss' weak point was a small alien located in the cockpit at the top of the ship. The creature fell in only one hit, bringing the ship down with it, but it was situated at the other side of the ship's hull, which required a large amount of shots to chip away (MamePlayer). While the golden dragon from *dnd* holds the coveted title of the world's first boss battle, it is missing a few important features. The sprite for the beast is the same size as the player sprite, just like all the enemies the players have encountered throughout their journey. Phoenix gave players their first taste of how it would feel to fight a large and climactic boss battle. The shock of seeing such a large enemy contrasted amongst the fodder they had been fighting beforehand, seeing the minimal effect that each shot had on the Mothership's hull in real time, and the exhilaration of defeating such an imposing foe with a single shot to its pilot. From a thematic and visual point of view, this was gaming's first boss battle, and its influence could be seen in many epic encounters for generations to come.

Moving farther into the golden age of arcade games, the influence of boss battles slowly spread to several titles that would soon be known as classics. With ever-evolving technology,

even rudimentary looping arcade games were able to present stylized visuals and simple stories. Many distinctive characters were born from this period, such as Pac Man and Q*bert, partly because they were more than just a static, amorphous collection of pixels. Following in this trend of theming and styling were the antagonists of the games associated with these hero characters. Bosses at this point weren't the norm in the game industry, and seemed to be featured only in games where they were the main focus of the game, or naturally fit into the gameplay structure. One example is *Punch Out!!*, a third person boxing game where players face off against a lineup of unique opponents. While this does give this game the honor of being the first title to only have boss battles and no normal enemies, this mechanic makes sense as a game based on the sport of boxing. Boxing is built around singular opponents with distinctive personalities. Another interesting title is *Sinistar*, a twin stick shooter where the player is hounded by the titular monster as he builds up his body through the game. Sinistar taunts the player with terrifying voice lines and relentlessly pursues them in a difficult encounter once his body is complete.

These bosses were all certainly difficult and memorable, but one boss battle takes the cake in terms of theming and prestige in the golden age of arcades. One year after *Phoenix* was released, the world was taken by storm with the release of *Donkey Kong*. The story followed the player character Jumpman, the predecessor of Mario, as he climbs a tower to rescue his love, Paulina, from the eponymous gorilla. Donkey Kong is front and center throughout the game, throwing barrels at the player from the top of every level. The game begins with the monkey kidnapping Paulina. And while the game loops like many other arcade games, there is a cutscene where Jumpman knocks him off the tower and rescues the damsel. This simple game became a phenomenon, with an entire generation of kids pumping quarters into arcade machines to have

another go at the giant gorilla. The game's difficulty was notorious, and the clear theming of Donkey Kong as the villain further convinced players to give it their all in their quest to defeat him. Somewhat unpredictably, the character of Donkey Kong would live on in the game industry to this day, transforming from antagonist to protagonist in his own line of highly successful platforming titles. This is a testament of the likability and distinctive image of the gorilla, as well as how the technology of the time was able to fully present the villain in the game. *Donkey Kong* wouldn't be nearly as timeless if developers had not been able to accurately depict a giant gorilla stealing the protagonist's love interest, assaulting him from the top of a tower, and suffering defeat once the player reaches his or her goal.

In the mid-'80s, home consoles exploded in popularity, in particular the Nintendo Entertainment System, which brought some of the most famous franchises in video game history with it. On consoles, players were able to sit down in their own homes and play through a game for as long as they wished, and as many times as they desired. Unlike arcade games, the goal was not to force players to burn quarters with high difficulty and never-ending levels. Games could now have a definitive end with some replay value. With this new way of play, and the new technology created and popularized in the arcade age, developers were free to make their games longer and more story focused than before. This allowed the hero v.s. villain motif to flourish in the gaming medium, even more than the original games in which they first appeared. Games were now adventures, with sprawling and diverse levels, and a defined protagonist with a clear goal. And standing between them and their goal was most likely an antagonist. Thus was birthed the more modern idea of the final boss battle, perhaps even where the name "boss" came from.

The term "boss" definitely came about in this time period, but its origins are extremely murky. Some cite the original source as one of the tougher enemy types in *Galaga*, Boss Galagas, though most likely a poor translation. It makes more sense to assume that the term arose organically among players when referencing the final opponents encountered at the end of story based games. Players assumed that the main antagonist was the boss of the enemies that they had been fighting throughout their adventure, such as within the crime organization of *Double Dragon*. While the exact instance of its creation cannot be pinpointed, the term can first be seen in walkthroughs and discussions for games from this time period (GeoKoer). This itself isn't a definitive way of describing all bosses, as many games have multiple bosses that are not necessarily the leader of the normal enemy types, but it is a tidy way of referring to these climactic battles.

In 1985 the world saw the first appearance of perhaps gaming's most popular boss, Bowser of *Super Mario Bros*. fame. When anyone from avid video game players and middle aged mothers think of video game villains, they probably have this weird turtle/bull creature in their head. The reasons are clear; he's the rival of gaming's most recognizable face, he's big, spiky, and cartoonishly evil, and he's definitely in charge. His first entry didn't quite get his role in the Mario universe right. Those who haven't played the widely successful NES title might not be aware that Bowser is actually fought at the end of every single world, or rather a normal enemy pretending to be Bowser, with the ruse only revealed after the beast is hopped over and the bridge collapsed from under him. Only the Bowser in the final castle is the real thing, despite's similarity to previous battles. This certainly lessens the impact of going up against the princess' captor, but it did nothing to quell the popularity of the character itself. Bowser remains

the best representation of an arch rival to a gaming giant, as the Joker is to Batman or Darth Vader is to Luke Skywalker. With this concept, bosses started their development towards fullfledged characters alongside their heroic foils.

In the later half of the 1980s and throughout the '90s, boss battles quickly grew close to the video game staple they are today. There was no longer only a singular antagonist, even one that was fought many times throughout the game. Two years after the release of Super Mario Bros, the original Mega Man stepped up its bosses dramatically. Not only did the Blue Bomber face off against the evil Scientist Dr. Wily, but also six robot masters at the end of their own unique stages. These bosses set the playing field for bosses to be used as climaxes for individual sections of games, acting as mini arcs or checkpoints within the greater narrative. Each robot master also gifts the player with an ability based on their attacks, which can be used against their allies with varying degrees of effectiveness. This further caps off the experience of the player as they complete a level. I feel it is easier to put down the controller with a sense of accomplishment after defeating a boss and getting stronger rather than just simply reaching the end of a level. This structure would be used throughout the rest of the ongoing series, albeit with the addition of two more robot masters to each game. But this structure would also be utilized in many other games in many other genres. A lot of developers separated their action-adventure and platformer games into worlds, a collection of levels based around an aesthetic theme, capping off each world with a boss fight, often a henchman of the main antagonist. And in many games players are rewarded after each battle, possibly with a new ability. In many ways, the role that boss fights play in traditional action-adventure games has not changed much since Mega Man's first adventure back in 1987.

Throughout the '90s and early 2000s, boss battles became the norm in the popular gaming community. Any child friendly platformer had a collection of monstrous, sometimes generic bosses, to aid the game's main antagonist. Crash Bandicoot mowed through a barbershop quintet of mutant animals with whacky personalities before taking down Dr. Cortex in 1996. The repeated Bowser fights were replaced by a new breed of henchmen for Mario to take down at the end of each world in each of his many games, often a larger variation of a normal enemy. Metal Gear Solid produced a huge amount of memorable boss characters in just the first installment alone in 1998. And even if a game didn't have a suite of baddies, a lot of games still ended in a final boss encounter, such as the infamous Shao Kahn in 1995's Mortal Kombat 3 and the quite humorous inclusion of Mecha-Hitler in 1992's Wolfenstein 3D. Boss battles had found a foothold throughout the gaming industry and had become a concept that gamers accepted as an important facet of their favorite games. Young players think back fondly on the feeling of defeating Ganon's final form in The Legend of Zelda: Ocarina of Time, and taking on the space pirate pterodactyl Ridley in the ever-evolving Metroid series. The originally simple and somewhat extraneous boss battles of early gaming were now essential in the minds of some who craved these epic and memorable encounters.

With a clear understanding of the history of boss battles under my belt, I can begin a closer examination of the concrete roles and mechanics behind these encounters to formulate a design philosophy and deduce the motivations of other developers in the field when it comes to crafting these foes.

A Boss' Role Within a Game

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 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. Every level should elevate the challenge threshold. Every ability should give the player a viable option for interacting with the world of the game. 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. Overall, I've amalgamated conclusions reached by other developers (Rogers, Keren), as well as my own observations and distilled most of gaming's boss battles into six distinct categories that define their purpose. I feel that the following roles encompass the general consensus of what boss battles should aim to accomplish as they challenge the player character.

Testing the Player's Abilities

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.

With this role in mind, it's clear to see how the end-of-area bosses came to be so prevalent. With the introduction of a thematically different playable area, sometimes came along new or increasingly emphasized gameplay mechanics. Therefore, the boss of that area should carry over those fresh ideas within its own design to properly bring an end to the contained experience.

This concept is most readily apparent in the *Legend of Zelda* series, to the point where it has become a staple of the long running franchise. The series is famous for its dungeons and bosses, and for good reason. Usually Link will find a new weapon or ability in a dungeon and have the opportunity to use it to solve puzzles, access new rooms, or defeat enemies. However, in most cases, the most important use of the item is saved for the boss located in the final room of the dungeon. The item is used to damage the boss or expose its weak point so that Link can prevail over the monstrous enemy. One example is the first boss of the much adored *Ocarina of Time*, Gohma. The arachnid's eye is usually out of reach of the player's sword, so they must use the only ranged weapon they have, a simple slingshot, to hit the obvious weak point and bring the beast into slicing range (Zelda Wiki). Hopefully, by the end of this admittedly easy fight, the player will have a functional knowledge of the game's aiming and ammo management systems that they will soon have to master by the end of the adventure. The increased pace and tension of the encounter may help players learn the ropes more quickly and acclimate themselves to utilize the new tool as efficiently as possible in future situations.

Another fantastic example of a boss testing a player's specific ability is the famous Mr. Freeze fight in *Batman: Arkham City*. Rather than a singular weapon, this battle tests the player's stealth techniques, an entire subset of the game's base gameplay. The player cannot allow Mr. Freeze to spot Batman, as his attacks are too powerful, so they must use the environment to

perform sleuth takedowns to dwindle his health to zero. What elevates this boss into the universally beloved moment it instantly became is the way Mr. Freeze adapts to the player's actions throughout the fight. After a successful attack, the super villain manipulates the environment to prevent that specific action from being performed again, such as freezing over a floor grate after Batman pops out of one and smashes his face into the floor (Arkham City Wiki). This truly makes the battle feel like an exam, testing all the player's skills one by one, leaving no room for cheap tactics or "cheesing", the exploitation of a singular action that proves to be the most effective option. This fight can be very challenging to the average player who only utilized the most obvious interactions to take down previous foes. Because the player was left up to their own intuition and skill, winning this battle truly felt like they had bested an equal in single combat.

The importance of bosses that fill this role is similar to that of a teacher, making sure no player is left behind, albeit with a bit more tough love sprinkled in. Usually these battles are challenging, but do not end up creating a bleak road block in the player's progression, only taking a few tries to defeat and leaving the player with a better understanding of the base gameplay. They are just there to make sure the player knows how to shoot an enemy to defeat it before facing off against the final boss. The player should be thanking these bosses as they are getting flattened by yet another blow they should probably have learned to avoid by then. Providing a True Challenge

A somewhat related role for bosses, yet often placed into its own category by players, is providing an intense challenge to those who seek it out. These fights are still a test of the player's skill, but because they are usually found in the later levels of the games they belong to, they are

elevated to encompass the entirety of what the player has learned throughout their play through. They certainly do feel like tests; tests worth chewing the end of a pencil to sawdust over at that. The goal of serving as a road block that can be overcome in a few attempts is thrown out the window. These fights unapologetically hamper unexperienced players from continuing further, a gate separating those who are willing to master the game from the casual player. Although since developers in most instances want players to finish the game, these extreme baddies are often optional, not required to technically finish the game. But any avid player of the game will probably see these optional encounters as the true climax of the game. No matter where they are placed in the structure of a game, they are easily identifiable because they simply are not easy to beat.

If Gohma was the first open book quiz, then Mike Tyson of the aptly named *Mike Tyson's Punch-Out* NES title is the AP Astrophysics Final Exam. It's a fight that requires absolute precision and patience, as much as can possibly be wrought from a high strung player. Tyson can knock out poor Little Mac in a single punch, and rarely leaves himself open for any blows. Not to mention the fact that he refuses to stay down after every knock-out. Tyson was as cheap as he could be, but players ate it up. The fictional counterpart of the real life boxer became synonymous with insanely difficult final boss fights, a connotation that persists even to this day. And some players are still struggling to beat the decades old game, using complex strategies propagated by a generation of fans. Some even go so far as to play the game on period accurate televisions to remove the slight input lag that newer displays exhibit. Thousands of gamers young and old know that when Tyson stands back and blinks during round two he is open for a punch (Punch Out!! Wiki). It's the final boss' pixel perfect speed and difficulty that has allowed

his fame to persist for so long, and why the fight was still relevant enough in 2014 to warrant Jimmy Fallon bringing the real Mike Tyson up on stage to face himself in the game, and get knocked out in seconds by the pixelated version of himself.

However, crafting this challenging encounters is not quite as simple as giving the boss a few split second attacks or increasing its health into the octuple digits. Often times the challenge arises from a unique mechanic, that may be intimidating to players once they first learn of it, but is not insurmountable. Such is the case of Ornstein and Smough, the mid-point boss fight of Dark Souls, the most popular entry of a series famous for its difficulty. The mechanic is simple. It's a fight against two wildly different opponents at the same time. Ornstein is lighting fast (fitting since he does have lighting related attacks), with a long reaching spear. Smough is a lumbering giant with a hammer that can obliterate the health points of an unaware player. This is not the first double fight ever, or even in the series, but it has become synonymous with the concept, due to the basic functionality of its design and the strategy that must arise from it. The simplest way to beat the duo is to lure Ornstein away from his slower companion and kill him first, at which point Smough will absorb the lightning powers of the fallen knight and continue the fight. This is still by no means easy, and managing the hectic battle is something that many new players dreaded back in 2011. Some even challenged themselves to defeat Smough first, inevitably leading to a face off between all three participants in a ten foot section of the room, and the birth of Giant Ornstein, as he is named affectionately by fans. This version proves to be even tougher than Lightning Smough, and should only be attempted by Dark Souls veterans. Overall this is a very well made fight that has become legend and has led to numerous copy cat

attempts, even in later games by the same developer. But none can match the lighting in a bottle that was Ornstein and Smough.

The reason for the inclusion of these boss battles, aside from making players feel a profound sense of inferiority, is to add to the playtime and longevity of the game. Any player that is currently enjoying a game will often be more than willing to spend another two dozen hours grinding and honing their skills if they are promised a new and imposing villain to defeat. These bosses are often seen as the true indicator of a player's skill, the ultimate bragging right. And brag they do, on internet forums and private conversations, about the infamous boss that they had slain easily on their forty-fifth try. In the case of Mike Tyson, Ornstein and Smough, and many other legendary fights, ultra challenging boss battles become legends in the gaming community, with thousands of players sharing strategies and stories of their experience for years to come. And if a player so vividly remembers one of the boss fights in a game you made, chances are they still remember at least a good chunk of the rest of the game.

Switching Things Up Entirely

Sometimes the mechanics of a boss battle can make a point to differentiate themselves from all the gameplay that came before it. In many games, there is a boss battle that serves the role of switching things up later in the game. It can often be subtle changes, or drastic ones, which run the risk of hampering a player's enjoyment of the game. This can also entail bosses that exist in games that belong to genres that don't normally have bosses, such as puzzle or rhythm games. It makes sense because by their very nature, bosses differentiate themselves from the established gameplay loop, or how the moment to moment interaction of a game plays out. A normal gameplay loop may entail the player going around a level collecting keys and killing

enemies before unlocking a door at the end and moving onto the next level. But if in the next room, instead of being met with floating platforms, glowing keys, and puny enemies, players are met with a single platform populated by a giant, angry creature, that breaks the gameplay loop. This is a good thing, as it paints the battle in an intimidating and memorable scope that keeps players on their toes. The following examples serve a similar role, but more in relation to their fellow bosses and the conventions set by the games that came before.

A popular example of a boss fight in a game that many players would not expect to have a boss fight is GlaDOS, the sadistic A.I. villain in the platforming puzzle game *Portal*. The game does not have any combat mechanics, nor does it have many other mechanical creatures that can be considered enemies, so even though GlaDOS was presented throughout the game as the main villain, this fight came as quite a surprise. The fight still does build off of the game's core mechanics, with the player grabbing the robot's personality core with a tractor beam and creating portals to reach an incinerator and destroy them. This is coupled with the more traditional boss mechanic of GlaDOS manipulating the environment to protect herself and firing missiles at the player, which only serve to help dislodge the personality cores (Portal Wiki). This fight is very much a puzzle, but so are a lot of boss battles, even in more traditional action games. They all require the player to discover specific strategies and use certain abilities to defeat the enemy. This game is notable because it allowed players to use the same abilities they used for puzzle solving as an offensive measure.

Sometimes, even in a game with a lot of diverse boss fights, there can be one fight that surprises players with wildly different mechanics or theming. Such is the case in *Shovel Knight*, a recent indie game made to replicate NES era platformers. After facing many tough but fairly

simple members of the Order of No Quarter, players need to defeat the uncharacteristically easy Tinker Knight. Then they were besieged by a collapsed floor and introduced to the Knight's new mount, a giant machine fitted with tank treads, a drill, and missile launchers. This is the largest boss in the game, and the only one besides the final boss to have a second phase. Even after the boss and the arena in transformed, the boss remains fairly easy, but these new developments are enough to make the fight stand out amongst the rest.

Similarly a lot of games will swap out the established gameplay style entirely for a boss fight, sometimes even with the game's final boss. *Sly Cooper and the Theivius Racoonus*, the original entry of the mascot platforming series, has a fight against a voodoo crocodile named Mz. Ruby that plays like a rhythm game, with Sly dodging button commands to the beat of a song. Numerous games, such as *The Wonderful 101*, a squad based pseudo RTS and *Ms. Splosion Man*, a 2.5D platformer, transform some bosses into *Punch-Out* style boxing matches. Even in a mainstream series such as *Uncharted*, this trope is highly prevalent. The fourth game ends with Drake facing off against a rival treasure hunter in a sword fight sequence with completely new mechanics. These fights may fit more into the final role I will discuss later in this paper, as they tend to be highly divisive in the gaming community and don't serve the purpose of what is usually expected of most bosses.

It's simple to see why many developers apply this role to at least one of their bosses. It is important for a game to continually generate interest within a player. As enjoyable as a basic boss fight can be, after facing half a dozen of them, the player may grow complacent, not really looking forward to the next encounter. While some players may find these tactics strange and unnecessary, potentially robbing them of the type of fight that they desired, they can't deny the

impact they have on their memory of the game, and the fun they could potentially have with something completely different.

Creating Epic Encounters

Now we are going to start moving away from concrete mechanics towards theming and presentation. The term "epic boss battle" gets thrown around a lot in back-of-the box blurbs and reviews, and usually it is something automatically associated with boss fights in most games. These encounters should feel epic, either due to the design and scale of the boss itself, the grand location of the fight, or the actual difficulty the player expects (Rogers). These tend to be the boss fights that get the most recognition, even if they are mechanically simple, because it's what players expect when they think of boss battles; colossal monsters or demons, sorcery wielding necromancers, and impossibly agile villainous foils to name a few. This depends on a few techniques that developers use, namely aesthetics like the design of the bosses model/sprite, particle effects, or even what occurs before and after the fight.

Several examples of this role can be found in the *God of War* series. In this series, big bosses are to be expected, with a literal pantheon of famous foes it presents to players. Fans may think fondly on memories of facing the Hydra in the first game, or the Colossus of Rhodes in the second. But I think the best contender for colossal boss fights lives in *God of War III*, the titan father Cronos. Everything about this fight shoves the player's face into the scale of what Sony Santa Monica has crafted. The arms of the mountain-sized Cronos serve as the arena for the battle, similar to Gaia at the beginning of the game. Except this time Kratos is tasked with killing the titan instead of riding it into battle, slowly working their way up from chipping away at insignificant body parts to stabbing Cronos in the head with the Blade of Olympus. One of the phases even involves tearing off one of the titan's fingernails. In truth, this fight is very easy and fairly short, but the grandiose scale is enough to leave a positive impression in the minds of players.

Sometimes the overall atmosphere and perceived significance of a boss can elevate it to epic status. One of the most famous bosses of all time is the final Ganon fight of *The Legend of Zelda: Ocarina of Time*. Many children who grew up in the 90's fondly remember this fight, and the feeling of accomplishment they felt after overcoming it. In reality, any person who plays the fight nowadays, or even watches a video of someone else fighting him, can see how mediocre the fight is. Just dodge under the beast's legs and attack his tail over and over again to defeat it. It's clear that the gameplay is not what elevates this fight to worship status, it's everything else that surrounds it. The grandiose transformation of the evil wizard, the collapsing castle preceding the fight, the lightning storm surrounding the arena, and Ganon's act of knocking the master sword out of Link's grasp, all add to the epic feel of this encounter. While technological advancements have certainly diminished the impact of these effects in recent years, it's still a testament to the skill of the game's cinematographers and artists that they could make this mundane encounter feel as epic as it is supposed to be based on the context of the story.

Sometimes the significance of these bosses can be explained as the developers trying to show off how amazing their game is, as they often stretch the limits of a given hardware and the talented artists and programmers that make them. However one should not overlook the absolute joy some experience after facing a big and intimidating boss fight. The manufactured excitement gets their hearts pumping, and leads to them coming back for more. They get the feeling that they

have just conquered a challenge that no regular human could overcome. And in the end, isn't that one of the ways video games can bring joy into someone's life.

Telling a Story

In a game with even a rudimentary story, chances are the game's bosses tie in with the narrative, or serve as the culmination of a smaller arc in the moment they are fought and defeated. Bosses are often developed into defined characters, with their own personalities, relationships, and goals. Obviously there still exists bosses that are just generic spiky beasts populating pits in the depths of isolated dungeons, but in the latter half of video game history, there was an increase of focused stories and character moments that have led to some of the most memorable foes to grace the small screen. It's intriguing to see how some foes present themselves in the context of a functional boss fight, and how it is perceived by players after they are defeated.

One series that does boss fight theming very well is the *Sly Cooper* series. The game is presented as a noir heist story, with the thieving protagonist and his band of quirky accomplices performing numerous jobs across the world. Every game in the series is separated into distinct areas, often based on real life locations, and each area establishes a singular antagonist that has taken control of the region. This is all presented in a stylized introductory cutscene, leaving no doubt about what the player's goal is throughout the area. Often times these villains are very vocal and distinct characters, either intimidating beasts or caricatures of humorous archetypes. Because of Sly's snooping capabilities, a lot of missions involve the player following these foes and learning more about their personality and schemes. Because of these systems, I feel that *Sly Cooper*'s antagonists are some of the most memorable encounters in character based gaming.

And this added theming adds to the epic scope of the encounter when the player finally does face off against the villain in the actual boss fight.

Sometimes a boss is so important to a story that the entire game is named after it. Such is the case with the original *God of War*. While this title would go on to reference Kratos, the main character, it was originally the title of the actual Greek god, Ares. Kratos' desire to kill Ares cannot be understated. It's revealed throughout the game that Ares orchestrated Kratos into accidentally murdering his family so that the Spartan warrior could serve him without distraction. The imposing god is seen destroying the city of Athens at the start of the game, before Kratos embarks on a quest to retrieve pandora's box, the only thing that can stop the God of War. When the player does finally encounter Ares, the significance of the fight is almost palpable. It is the culmination of Kratos' story. In one movement of his sword, he saves the city of Athens, gets revenge for his family, and releases himself from Ares' bond. The fight is as grand in scale and difficult as should be expected. The player feels a profound sense of accomplishment after defeating Ares, not because they were told how important it is that he be stopped, but because they know how important it is.

Showcasing an even greater story tie in is the indie metroidvania game *Hollow Knight*. The game's namesake is a warrior that was sent to destroy an infection threatening a kingdom of insects, but was taken over by the infection and kept chained up to keep it contained. It serves as the game's final boss (in the normal ending at least), fought after a long gauntlet of finding new abilities and destroying the seals on its prison. *Hollow Knight*'s story and lore is very vague, but after some careful digging, players can link the Hollow Knight back to pretty much every aspect of the world in which the game takes place, from the king of the desolate kingdom to the player

character itself. During the fight there are also some significant story beats that relate to the Hollow Knight as a character, such as when it begins stabbing itself halfway through the fight. This action alone has served as the basis for several YouTube lore videos trying to deduce the mystery of this action. It's incredible how what is functionally just another boss fight can have roots throughout such a large and complex game world.

Story significance has always played a key role in the popularity of boss battles, going back to the early days of video game history. No matter how well a boss is designed, players won't care if their enemy is a grey box with no personality. These fights allow the player to step into the world of a game and be an active participant, influencing the outcome of a grand narrative to make it their own.

Doing Something Crazy

Sometimes, the point of a boss' inclusion is to be big, dumb fun, plain and simple. This can of course be applied to any gameplay mechanic, a random karaoke mini game, a side quest involving the set up of two elephants on a date, or the invasion of an alternate dimension filled with humanoid cows with weapons. However a lot of these crazy situations are reserved for boss fights, dialing the frenetic energy and absurdity of a game up to eleven. It's a chance for the player to take a break from the otherwise straightforward quest and fight something wholly unique and crazy, before jumping back into the expected. This is similar to the role of switching up gameplay, but this phenomenon can be purely aesthetic, not quite requiring player to get used to anything new. They just exist because the developers willed it, and they felt it would fill players with joy.

One cannot deny the absolute absurdity of The Great Mighty Poo in the raunchy Nintendo 64 game *Conker's Bad Fur Day.* As his name suggests, he is a giant pile of feces, complete with corn kernels for teeth and a wide array of scatalogical sayings. The player spends the fight throwing toilet paper rolls into his mouth as he belts out opera notes describing the rude things he is going to do to poor Conker, with musical interludes between each phase where the voice actor shows off his impressive vocal range as a giant pile of waste material. The entire fight is a riot, and to this day is remembered as one of gaming's most ridiculous boss fights. While some might say that this fight is juvenile, in poor taste, and just plain gross, they'd be totally right. The point is that those who were looking for a laugh definitely got some in spades.

The undisputed king of whacky bosses filled with intrigue and personality is the *Metal Gear Solid* series. The franchise is a genre bending noir sci fi story centered around the main character, Solid Snake, taking on a bevy of villainous masterminds, rogue mercenaries, and giant war machines. The series has never strayed away from absolute absurdity since the original game on the Playstation 1. This is exemplified by one of the game's most famous bosses, Psycho Mantis. This floating, gas mask wearing weirdo is designed to worm his way around the mind of the player, and I'm not talking about Snake. He constantly breaks the fourth wall, going so far as to read the memory card inserted in the console and recite other Konami titles the player might own. He also makes the portraits hanging on the wall, which depicts the game's developers, spasm uncontrollably, and he makes the screen appear as though the player's television is switching inputs and breaking. The only way to beat this psycho is to switch the controller to the second port, soon allowing the player to leave this disturbing fight behind them and continue to the next, slightly less crazy, boss. Do these bosses teach the player anything useful? Will they be seen as epic and emotional battles in years to come? Definitely not. But they are still very memorable, and players who face them will internalize that experience, for better or for worse. Sometimes we can forget that video games are just that, games. They're meant to be played with and enjoyed in any way possible.

With the conclusion of this lengthy chapter, I believe I have encompassed the wide array of bosses that populate the world of video games. There may be a few exceptions, but most can place themselves loosely into one of these definitions, or more often several of them. The question of "Why?" is still quite murky, but I think it's safe to say that boss battles do serve an important role in traditional video games, those that require a level of skill and logical reasoning to complete and present a dynamic story and world. But it is only one piece of the puzzle when examining the place boss battles occupy within the industry. In the next chapter, I will dive deep into specific mechanics that create interesting dynamics between a boss fight and the player. I will also touch on the mechanics that may inhibit a boss from reaching its true potential and leave players with a sour experience.

The Mechanics of an Enjoyable Boss Battle

The definition of a boss battle is fairly clean cut. They differentiate themselves from normal enemies in both difficulty, fight length, and presentation. Still most boss battles aren't too different from their smaller counterparts, sometimes having similarities in design and strategy. In fact it's very easy to make a boss fight, the most basic form of one at least. Just take a normal enemy, give it more health, scale it up to about four times the size of the player, and slap a health bar on the screen. The game has successfully been padded, and its players have now chosen a different game to play. Obviously making a successful boss fight requires a bit more finesse on behalf of the developer. The fight should feel like a completely new experience, even if it is heavily reminiscent of what came before it. No one wants players to exit a fight going "Wait, that was a boss fight?" Players should also be left with something valuable afterwards, whether it be concrete or conceptual, that makes the experience feel worth it (Rogers, Keren). 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. In the following pages I will lay out every little thing that goes into making a good boss fight, which in itself is quite debatable. However I will use outside opinions and developer commentary (Rogers, Keren, Stout) to construct a more universal and informed deduction on the matter. I will also discuss a few games that break the mold of traditions to serve other purposes and reinvent the concept.

In practice, the player should be able to tell they are about to face off against a boss before the fight even begins, usually due to some visual or auditory indicator. It's become a joke

within the gaming community, with players referencing all the common indicators of an upcoming boss, such as a large circular room, or a convenient save point, and how it fills them with dread and anticipation. All this is necessary however in crafting an effective encounter. So much of the emotional weight of a boss fight would be removed if the player were to just happen upon a boss while investigating a small nook of the world. As Ares and Ganon taught us, the build up to a boss fight can be just as important as the actual fight, indicating the implications that this fight is supposed to represent, even if the developer can't quite live up to the expectation.

Once the boss shows its ugly face, there is almost always a sound effect, animation, or UI element that provides an unmistakable indication that this enemy is a boss fight. This is true even in the earliest days of gaming. When the player enters a boss room in any *Mega Man* game, their controls freeze and the robot master descends into the stage. The foe perform an idle animation and during a freeze frame, the boss' health bar rapidly fills up with a distinctive, if not slightly irritating sound effect. The player better use these few seconds to mentally prepare for the onslaught of projectiles they are about to endure. These segments serve as great transitions between basic gameplay and distinctive boss fights, while also allowing players a brief moment to study their opponent before fighting begins in earnest. Some games do it in a subtle manner, like *Hollow Knight*. Every boss begins with the enemy entering the arena and emitting a roar or vocalization of some kind. This also comes packaged with a distortion effect at the edges of the screen and in most cases large text in the corner displaying the boss' name. Other games, such as the *Borderlands* series, go for a much more bombastic approach. Every boss (and npc for that matter) is accompanied with a full screen, freeze frame title card, complete with comic book

effects and a humorous tagline. Once again, this may just seem like a developer showing off their creation, but sometimes it pays to keep players informed of what's going on as they progress through a game.

In actuality we can extend our perception further away from the fight itself when discussing how to create an effective encounter. A boss can be built up from the very start of a game, as subtly or as boisterously as required, even if the boss is not the main antagonist of the game. This is also an effective way to hype up the difficulty and significance of the specific enemy (Rogers, Stout). Perhaps the boss is fought earlier in the game, but is scripted to defeat the player easily, such in the case of Vile in Mega Man X. This adds a whole new level of significance when Vile is faced again later in the game and strengthens Xs character arc. Perhaps the boss appears as the right hand man of the main antagonist whenever he/she is on screen, a la Sam in Metal Gear Rising: Revengeance. This method establishes a clear goal in the player's mind, subconscious or not, by creating a sense of tension with the boss. Even something as simple as eye contact between the hero and villainous character will convince players that they want to fight that boss. Perhaps there is even a massive backstory for a boss that is presented through audio files or lore tablets. Players can internalize this information, and recall it as the fight is taking place, transforming the battle into an emotional and story-driven climax. The Dark Souls series does this particularly well, with every boss serving some role in the mysterious realm of each game, their attacks and locations reflecting the tragic conclusion of their stories.

The brilliant adventure game *Okami* takes established narrative structures and turns them on their head when it comes to its bosses. When the player starts up the game they are treated to a lengthy opening cutscene that establishes the eight headed dragon, Orochi, as the ultimate

threat to a small village and is prophetically predicted to be defeated. After over a dozen hours of gameplay with a slew of new characters and locations, the player defeats Orochi, only to discover that they are only a third of the way through the game. The story is actually broken up into defined arcs with individual conflicts and resolutions. This unexpected subversion lends the feeling that the player is diving deeper and deeper into a cosmic conflict and breaking the expectations of the in game characters, as well as what they themselves had come to expect from the game.

Now we finally find ourselves within the fight itself, with the work far from over. Several more factors affect he success of a boss. First things first it should be possible for a player to defeat a boss. More than that, they should be able to defeat it on the merit of their skill, not based on luck or excessive ease. For every attack that a boss has, there should be a counter that the player can exploit to their advantage. The fight should feel like a fight, not like being bullied in middle school. Even if the player cannot counter an attack, they should still be able to predict and avoid it within a reasonable time frame. Often a boss will have a distinct telegraph before every actions it takes, which adds to the strategy of the encounter, as skilled players will learn to recognize these tells as they repeat the encounter (Keren, 35:00). No one looks fondly on a fight if they feel that they could not avoid a demise or are unaware how they were able to persevere despite failed previous attempts. Most of these effects are usually implemented into the animation of the boss itself.

This is the core gameplay principle of the *Punch Out!!* series. Each of the varied foes faced in these titles display certain animations that hint what attack they are about to perform and also indicate when they are open to a hit. Sometimes it can be as subtle as Mike Tyson's

aforementioned blinking, or as obvious as King Hippo's pants falling down when he is most vulnerable. These animations are absolutely essential to combat the lightning fast speed of most of the game's challengers. Sometimes the telegraph occurs within the environment in which the fight takes place. *Just Shapes and Beats* is a unique rhythm based game where the player avoids obstacles to the beat of a song. Every single object that can damage the player is pink, and when one appears suddenly, there is almost always an indicator of its arrival that appears with a lower transparency. The consistent nature of these obstacles also aid in making sure the player always knows what to avoid. It's a common complaint among players when they are hit by something that they perceived as a static object or visual effect. While the value of surprise still holds some merit, these techniques should always be at the forefront in the mind of a developer to ensure that their players view the fight as a fair challenge.

Of course predictability can be a terrible thing if taken too far. Which is why it's very common for a boss fight to be broken up into distinct phases, predefined sections where a boss' abilities and mechanics are altered, each one usually ramping up the challenge from the last. This mechanic can sometimes create the feeling of an entirely new fight, recreating the sensation when the player first entered the arena. The player's knowledge of the boss' telegraphs and strategies should still be useful, as it is important for a developer build off the previous phases instead of throwing them out entirely. However they are now faced with a slew of new mechanics that they must learn, maybe even testing different spheres of the game's gameplay types, such as eliminating the solid ground the fight took place on previously and forcing the player to damage the boss while hopping around on a smaller series of platforms. These jarring changes are expected to cause quite a few failures at first. But after several attempts, the player

might find themselves much more skilled at making it through the first phase, and soon the new phase will be put under their belt as well.

Just as with the boss' individual actions, it's important that a phase change be clearly presented once it occurs. Often times the boss' very appearance changes to reflect their added abilities, or the environment, as mentioned in the previous platforming example. If there's one game that does phase shifts extremely well it's *Cuphead*, a run n' gun boss gauntlet inspired by cartoons of the 30s and 40s. The game features around twenty bosses, all highly animated creatures and characters with hectic fights. Once the player shoots the boss' health down past a predetermined threshold, the creature shifts into a new phase. These occurrences start out subtle, with the boss possibly changing in size, choosing a new position on screen to occupy, or gaining new attacks. However, the final phase of the fight is always reserved for an insanely elaborate transformation that completely changes the mechanics and theming of the fight. Just a few examples include a dragon growing two more heads and creating a lightning storm, a queen bee transforming into a WWII fighter plane, and a grave that crashes down onto the corpse of a ball of slime and chases Cuphead around the arena. These whacky events lend the impression that every boss in the game was designed with love and care, not a single one left with a boring and predictable fight.

This talk of phases within a boss fight leads into the topic of progression within an encounter. Obviously the goal of any boss battle is to reach the end of the fight and claim victory. So it is important that a player have a clear sense of when this goal will be achieved. Boss fights are often fairly short compared to the base gameplay loop, usually taking around a few minutes, excluding those within lengthy, complex games such as turn-based RPGs and MMOs. Still the

act of peppering damage onto a singular foe and avoiding their attacks can get old fairly fast, so players need a concrete indication that what they are doing is making a difference. The most basic form of this technique is the universally used health bar. This UI element tends to mirror the player's health indicator, although in most cases is larger. It serves a lot of purposes, such as ensuring to the player that an attack did in fact land, and they didn't hit a part of the boss that was invincible, often with a flashy visual effect depicting a chunk being removed from the colored rectangle. It also tells the player exactly when the fight will end, although a lot of developers like to manipulate this expectation by starting a new phase when the health bar depletes, completely refilling it in the process. This strategy is a perfectly fine method of presenting information to the player, and hasn't decreased in popularity in a lot of game genres. However there are quite a few ways of tackling progression that don't hinge on something so quantifiable.

The base line for practically every family friendly mascot game is the *Mario* franchise. The gameplay principles of these games are gospel amongst 2D and 3D platformers, and the boss fights are no different. Throughout the series, the majority of the boss fights have followed the coveted Rule of Three. The boss throws a series of attacks at Mario before revealing its weak point primed for a jump attack. The process is then repeated exactly two more times, with the boss' attacks getting slightly more difficult. There is usually no major shake ups between individual phases, and the fights can get a little repetitive, but thankfully these fights are on the shorter side. These encounters are what can best be described as a completely inoffensive fight, popular amongst the creators of traditional adventure games and games aimed for children. They take no risks, but still serve the purpose of resolving sections of a game and rewarding players.

However if developers want their fight to have a more elevated status, they're going to have to take those risks and craft something unique.

For as famous as the bosses in *God of War* are, the later games in the series do not give any of them heath bars. Instead the fights shift around very erratically, with the damage Kratos is inflicting onto his enemies reflected in physical injuries amongst other indicators. The fight with Hercules is a great example of this, as the ancient hero's perceived power is decreased throughout the battle, with the actual difficulty remaining at a similar level. As each phase of the fight is completed, Kratos will remove a piece of Hercules' equipment and in some instances the boss will remove a mechanic of the fight himself. First Kratos rips off his armor, then he steals his magical cestus and uses them against him, leading to Hercules banishing his undead companions and becoming much faster and harsher in his attacks. The fight ends with Kratos brutally smashing the demigod's face in with his own weapons, capping off the journey of diminishing the mighty hero's power and, by extension, his health points.

Returning to *Cuphead*, we see a very unique and effective way of communicating the numerous bosses' health to the player. There is no traditional health bar present during the fight, although the aforementioned phase changes do an acceptable job of showing progress. However when Cuphead runs out of health and the fight is failed, the player is shown a timeline of the fight, with clear markers representing phase shifts and the end of the fight, as well as how close the player was to the fight's conclusion. This serves the game and the player in two ways. One is eliminating distraction during the fight, as the player will not feel tempted to eye the health bar as they are unloading their shots into the creature. Second is the way this convinces the player to

retry the fight, as they are informed how close they were to victory. They'll tell themselves that they just need to play a little smarter on their next attempt and the challenge will be overcome.

Now that we have established the internal mechanisms at play within a good fight, as well as how to place a boss in the context of the game as a whole, it's important to recognize the interplay betweens multiple bosses that exist in the same game. A lot of games have more than one boss, a series of challengers presenting a concrete hierarchy, with the final boss at the top. Even though these earlier foes are not the singular entity that serves as the culmination of the whole adventure, they are still obstacles that prevent players from reaching the end, and should carry significant weight within their encounters. Also a key component of an enjoyable series of bosses is how they differentiate between each other. Subsequent bosses should build upon its previous compatriots in both themes and gameplay. Often times an early boss will introduce a concept, while a later boss will reintroduce the same concept with a higher degree of difficulty. Sometimes the same boss will appear multiple times throughout a game, slowly gaining more and more abilities, ultimately serving as the foil of the protagonist.

One of my favorite games is the fairly obscure and underrated platforming game, *Puppeteer*. The game, framed as an elaborate puppet show, features a boss in every single level, totaling over 20 fights. An interesting motif I noticed when playing the game is that most of the bosses resemble each other in distinct groups. General Snake is fought early in the game, requiring players to ride across her enormous body to reach her head. Echoing this fight is the fight against General Dragon, which has the same gameplay style with much more challenging obstacles, and ends with a more traditional boss fight against the Brooklyn accented serpent. And throughout the game there are several enemies known as Weavers, in which the fight always entails knocking the enemy down from its levitating state and cutting up the fabric that forms its body. No boss feels like it is in a complete different game, and each one brings up memories of a past battle in this lengthy adventure.

A game that I played recently that brilliantly contrasts the story of two bosses is *The Wonderful 101*. Wonder Blue, the secondary protagonist, encounters Vijonne, the woman he recognizes as betraying his brother and causing his death. This causes him to make rash decisions and endanger himself as well as the team. Later in the game, it's revealed that the game's first major boss, Laambo, killed the father of Wonder Red, the game's main protagonist. The way Red calmly handles the encounter with Laambo creates a very intriguing moral and a complex character dynamic between Red and Blue, a great example of interplay between a game's bosses in the context of a game's story.

In this section of this chapter we will examine a few of the more controversial mechanics that are commonly utilized in boss battles. Some of these techniques have been cited by developers as aiding to a player's enjoyment of a game, but judging by my observations of player feedback and my own opinion, they seem to do quite the opposite. However they are fairly prevalent, so it's important to examine their merits.

It's a personal belief of mine that a boss fight should be an actual fight. This is done mainly through direct interaction, physically performing actions against the boss, leading to its defeat. Players need to feel as though they have an active role in the fight, that if they were not there, the outcome would be very different, other than the fact that there wouldn't be a fight at all. Most bosses perform this task well, using the same mechanics that players use throughout their respective games to manipulate the environment or defeat normal enemies. However a lot

of bosses can fall into the trap of simple survival tasks, or just creating normal game levels with a boss creature thrown in as somewhat of an afterthought. Some bosses simply perform a lengthy series of attacks that the player must avoid, before finally presenting an extremely simple and convenient method of damaging it before repeating the process again. One seemingly universal trope is what I not so affectionately refer to as a Run Away Boss. In these "fights" the player is chased through a corridor by a boss, usually performing a platforming challenge along the way. These are basically just timed levels masked as bosses. There is no interaction between the two forces at play here, and no matter how elaborate the design of the creature , it would function the same as a moving wall with spikes on it. If other players are anything like myself, they might feel as though they have been cheated out of a real fight. I think these fights only work as the setup for a later fight, showing the player that this foe is too dangerous to take on quite yet, so they must run for their lives.

Another personal pet peeve of mine is how a lot of developers choose to handle their game's final boss fight. 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 (17:45). However in my opinion this contradicts some of the major roles a boss fight is supposed to fill, and is a facade that most players will see through. The final boss fight would give players a much greater sense of accomplishment if they are as challenging and complex as should be expected from the previous events of the game. This is the final confrontation of the game, and its quality will reflect on the player's overall impressions. I will discuss this recent trend in more detail in the next chapter, as well as its probable roots.

The final mechanic to consider when crafting an excellent boss fight is what comes afterwards. Because boss battles serve as the final challenge for a particular sub-section of a game, the general consensus is that the player should be rewarded in some way. This reward can be anything, concrete or conceptual (Rogers, Keren, Stout). *Mega Man*, as I've discussed, awards players with a new weapon after each robot master. It can also be as materialistic as a boat load of coins to satisfy any player's avarice. Some players appreciate the quiet moment of respite after completing a boss, as the game transitions to the next area. Sometimes the reward is simply the feeling of accomplishment that comes from beating a truly intimidating enemy. For a lot of players this won't be enough, but one can't deny that a good boss fight leaves players with a sizable dopamine rush and a positive memory to look back on, occasionally convincing them to jump back in and face it all over again.

With that we draw every facet of a successful boss fight to a close. These mechanics apply mainly to traditional boss battles in games that traditionally have boss fights. But chances are one or more of these strategies apply to every good boss fight ever created, whether it lives in a bloody 3D hack n' slash or a match-three mobile game. As a developer, it can be tough to keep all these mechanics in mind. And in the end, I can pour my heart and soul into an encounter that I deem to be epic, challenging, and rewarding, but chances are it just won't click with some players. There's the caveat, the joy of fighting a boss can be rooted in pure emotion. While there are numerous ways to manipulate these feelings, in the end, players create their own stories while playing a game. But at least with this knowledge under my belt, I can work towards the level of these gaming giants.

The Perpetual Evolution of Boss Fights

As I have learned, the concept of boss battles is almost as old as video games as we know them. They've grown from simple road blocks in games meant to be extremely challenging, to thematic and mechanical milestones in gaming history. And as with anything so old and widespread, it needs to evolve to survive in its changing environment. With video games becoming an increasingly viable art form, and millions of independent developers finding new ways to present their unique projects, the games of today are a far cry from what we saw in the 20th century. Games are no longer just pulp fiction adventures following perfect heroes as they go up against purely evil foes. Games are now stories, moving paintings, and collections of emotional and memorable moments. And the same can be said for boss battles. It seems silly to say it out loud, to believe that something that by definition is a bombastic and straightforward confrontation with a big and intimidating enemy can be described in such airy and beautiful ways. But some games do manage to pull it off, simultaneously using common tropes of bosses to their advantages and turning the video game mainstay on its head. In this chapter, I will evaluate the exceptions to a lot of the points I mentioned previously, and form a basic perspective of how video game boss battles have evolved and where they are heading in the near future.

It's impossible to present an in depth study of boss battles without mentioning one game in particular. *Shadow of the Colossus*, a puzzle-platforming boss rush released in 2005, serves as a turning point in the gaming community's perception of boss battles. I can also admit that it is my favorite game of all time. It introduced the world to the concept of a boss-only game, excluding *Punch Out!!* of course. And if we're counting entries where the entire game is a single

boss fight, then *Donkey Kong* holds that title. However, in Shadow of the Colossus, the way each fight is presented elevates the game to extreme emotional heights. The player is thrown into an abandoned and silent landscape, tasked by an ancient god with destroying sixteen beings, part stone and part beast, in order to resurrect a girl he deeply cares for. The atmosphere of every location and encounter is hard to match, mixing quiet and lonely moments with battles that only get increasingly more epic in scale and emotion. The twist of the game is that the moral implications of the hero, Wander, aren't black and white. His goal is selfish, and the outcome of the destruction of the colossi could be catastrophic, yet players persist through the game nonetheless. A lot of the colossi don't even attack the player unless provoked, presented as wandering animals being ruthlessly hunted down, helplessly attempting to defend themselves as Wander ascends their hides and destroys their weak points. Shadow of the Colossus made the bold move to insinuate that sometimes the antagonists we fight against in so many games aren't always evil, scaly beasts that must be vanquished for the good of the game's story. These fights, these traditional boss battles, can just be against living things, with their own emotions and will to live.

Similar boss rush games followed the success of *Shadow of the Colossus*. Because these new types of games only had boss battles to rely on as the mechanical and aesthetic core of the game, most found interesting ways of presenting their regiment of bosses in ways that challenged established formulas. *Furi* is one such game; a cross between a twin stick shooter and a hack n' slash where the player takes control of a mysterious warrior who must fight his way out of a prison staffed by powerful wardens. Every boss in this game is a human enemy, often equipped with futuristic technology or mystical powers. No big bad monsters or demons from another

dimension to be found in this story. The developers made a point to relate every boss to the main character, and the player by extension, in one way or another. One boss is a prisoner as well, placed in her cell to hamper the player's progress. A couple of bosses remark that they wish to fight the player because they want to test their skill against a worthy opponent, exactly echoing the sentiments of players attempting this difficult game. By the end of the game, it is revealed that the main character is a huge threat to humanity, and the wardens were just doing their duty to contain you. Depending on the ending the player chooses, the antagonists of the game are actually the heroes, and if they had won their battle against the warrior, things would have turned out a lot better.

Another entry into the boss game sub-genre is *Titan Souls*, a simple pixelated title that like its famous inspiration, involves a young protagonist exploring a desolate land to fight ancient beings. Like *Furi*, this game also brings the bosses down to the level of the player, although more through its mechanics than presentation. Both the player, and every boss in the game besides the secret final boss, dies in a single hit. Challenge is still derived from the fact that the player can only fire one arrow at a time, and that bosses don't show their weak point too often. But a highly skilled gamer can finish some of these fights in seconds. This goes against what was believed to be a basic feature of a boss fight, that the foe should have more health than the player. However, in some ways this mechanic works to improve the interaction between player and enemy, creating a much better perception of an fierce battle between two equals.

In at least one case, the effects of shifting sensibilities towards boss fights can be visible within a contained series of games. *Batman: Arkham Asylum* released in 2009 to unexpected acclaim. Even though it was yet another licensed game based on a popular comic book

character, players were amazed by its well crafted combat and stealth mechanics. However, there is one blemish on the game's perfect report card that all players can agree on, the final boss fight against the Joker. Something should seem wrong with that sentence to any casual Batman fan. Joker was always a cold and calculating villain, not one famous for physical strength and dexterity. So it was a shock to say the least when the Joker injected himself with a serum at the end of the game and transformed into a ten foot stack of muscle. Everyone came to a common consensus; this did not need to happen, even if a final boss was to be expected. It was thematically tone deaf and ruined the ending of the game. This problem was more or less corrected in the follow up, Arkham City, which I have discussed above. There is a final boss, albeit against Clayface, a much less significant Batman villain. The final confrontation with Joker is just a cutscene, where the villain's tussle with Batman ends in the destruction of the cure he desperately needs to survive the effects of the serum from the last game, leading to the Joker's demise to the surprise of fans and casual players alike. This turn of events, while still somewhat controversial, is a better way to represent the famous super villain, and would help the game become even more beloved than Arkham Asylum. Its effects would also ripple through the game industry. The ending would be somewhat repeated in Arkham Origins, with the addition of a simple quick time event where Batman beats up the Joker. And I can't help but assume that 2014's Shadow of Mordor, based on the Lord of the Rings series, took direct inspiration from these games. The combat system has already been cited as eerily reminiscent of the Arkham games. The game ends with a confrontation with the dark lord Sauron, the main antagonist of the franchise, clad in full armor with his signature mace from the beginning of the original story, and is defeated in a single four prompt quick time event. The second Joker encounter was a huge risk

that I think payed off in the long run, but it seemed to make some developers think that it's okay for the final boss of a game to not be very good.

Moving onto another title from around this time, The Last of Us has a minuscule focus on boss battles. Many went through the bulk of the game believing there were no bosses in the game, and they would have probably been fine with that. It's a survival horror game centered around the relationship between the apocalypse hardened Joel and the young and curious Ellie. Even the deep and challenging combat and crafting systems are a treat given that the main focus of the game is the story and characters. There is however one boss in the game, and a fairly traditional one at that. Ellie encounters a mysterious man named David in the latter half of the game. While he is a capable ally at first, this character slowly reveals a dark side of himself and the people in his group and soon Ellie finds herself at a standoff with him in a diner during a snowstorm. The tension of the scene is on full blast, with Ellie hiding from the man who threatens to be a danger to her in more ways than one, pouncing on him to stab him occasionally, echoing Mario's Rule of Three. This scene is also intercut with Joel seeking out Ellie to rescue her. This encounter does not exist because there needed to be a boss battle at this point in the game. It exists because it serves the story for Ellie to encounter this dangerous man, to help her develop as a character. The ending of the game is very different with Joel going on a rampage, murdering innocent people to save Ellie, who wish to kill her to develop an antidote for a deadly virus. In the process, Joel dooms humanity. There is no final boss here because this event isn't about facing a clear cut antagonist. It's about Joel's character arc, and the horrors he will commit to protect someone he loves. Because of the conflicting nature of the rest of the game, some did not like the fight against David because it reminded them that they were playing a video game. I,

however, believe this is a prime example of a mechanic I love being implemented within the scope of a unique game and serving its goal in a wonderful way.

Sometimes the way boss battles are implemented in recent games can leave me feeling very conflicted. No game has been so divisive within my mind than Horizon: Zero Dawn. The game is quite fantastic, establishing a unique world, with a wonderfully told story, and a combat and crafting system that is extremely fun to play around with. And the boss battles in the game are some of the best I've ever seen... if they can be considered boss battles. The main selling point of the game is the battles against the machines, giant robotic animals populating the world just like real-life fauna. These battles, especially against some of the legendary machines hyped up in press material and in-game dialogue, test all of the player's skill and intuition to emerge unscathed. The problem arises form the fact that these creatures can be fought over and over again at any point during the game by simply finding their spawn locations in the game's open world. The unique bosses found in the game's campaign are much more lackluster, often carbon copies of basic human enemies with a big gun. This is even the case with the game's secondary antagonist, Helis. By definition, the giant machines are just really tough normal enemies. This became an issue with me about half way through the game. I had just defeated a Thunderjaw, a robotic T-Rex predominately featured in all of the game's promotional material. I felt so accomplished, my heart racing from the long and hectic encounter. Then I continued with the game's story and faced the remaining bosses, none of them living up to the heights reached by that first fight. I even faced more Thunderjaws, some meant to be stronger versions of the beast, yet I felt nothing different. I fought my greatest foe halfway through my 50 hour play through. I find myself not wanting to complain. The fights against the Thunderjaw, and the Stormbird, and the Fireclaw are awe inspiring, better than a lot of bosses in my other favorite games. But still I can't fight the desire to battle something completely unique, something that takes every mechanic in the game and implements it into a new boss that would be a proper end to my play through of *Horizon: Zero Dawn*.

I feel like the 2018 reboot of God of War is a good game to end this chapter discussing. The series has always been one of the godfathers of ridiculously epic boss encounters. In a lot of ways, the newest incarnation of Kratos continues that theme, but in a manner that shows the evolution of the concept and the maturity of the franchise and the developers that crafted it. There are much fewer boss fights this time around, and a lot of them are humanoid characters as opposed to the giant beasts from the original trilogy. But a couple of them have already implanted themselves in the minds of players as truly fantastic moments. The first encounter with Balder, known only as the Stranger at first, in particular gave players the grand sense of power and intrigue that they had come to expect from the series. The final boss fight lives up to these standards as well, depicting father and son working together to defeat Balder on the body of a colossal undead frost giant. However, once the god falls and everything calms down, the game does not end. The player regains full control of Kratos, still allowed to explore the open world, along with a subtle reminder that the warrior and his son still need to accomplish the task they set out to do. The credits finally roll when father and son travel to Jotunheim and scatter the ashes of their wife and mother. The main focus of the game was never killing the invincible god, but fulfilling this final request, so the final quest reflects this somber and emotional goal. It's incredible to see a game series so controversial for its glorification of violence and simplistic boss characters forgo all that to tell a heart wrenching story.

Upon further examination it seems clear that boss battles aren't going to disappear from the video game industry any time soon. To this day, games continue to be released that experiment with the concept in unique ways and add a much greater level of thematic and mechanical complexity to the encounters. It's clear that there are other developers out there that share a similar love for boss battles as I do, and wish as I do to leave their mark on the storied history of gaming's greatest antagonists. Even with developers that have diminished the importance of bosses within their own games, they still seem to recognize the merit of these encounters and include them wherever they seem fit. But they seem to realize that there are other ways to present major story moments and climactic confrontations that don't involve firebreathing monsters and mustache twirling villains with a maniacal laugh.

Living Fortresses

With the culmination of all my research, as well as my years of experience playing though video game history's most epic boss battles, it's time to try my hand at creating them. Living Fortresses is a boss game, first and foremost, my far reaching hope for the game to be a collection of about a dozen lengthy boss encounters. The actual gameplay style is a two dimensional mix of a hack n' slash and a twin stick shooter, with the player utilizing both options in various circumstances to take down their foes. Each boss will be a colossal robot, as big as a skyscraper, with weak points located throughout their towering bodies, complete with an arsenal of mounted defenses and support robots. The player takes control of a scavenger armed with a sword, a pistol, and a jetpack to fly to any point on the robot's body to cause as much damage as possible.

My main goals for the game is to provide complete freedom to the player, such as with the unrestricted movement of the jetpack and the dichotomy of the sword and gun, both with their strengths and weaknesses. I also want to implement an upgrade and shop system to further increase the pliability of the main character's abilities. There have been games that have presented battles against massive foes in a 2D plane, but a lot of them have been platforming challenges with slow progression to reach a predetermined sequence of points along the boss' body. And others have switched the gameplay entirely to accommodate the colossal foe, often trivializing the enemy's scale. With the gameplay style I am implementing, I hope to retain the perceived scale and epic connotations of the battle without placing rigid limits on the player. In the end the player will have taken down each of the colossal robots, and feel as though their attacks were enough to justify such a bombastic conclusion.

I will try to take into account many of the roles and mechanics I have described over the course of this paper in order to create boss battles that are significantly memorable and enjoyable. There are a lot of games with bosses that utilize just a few of my six main roles, but I feel that the best games utilize all of them across a wide array of bosses. This is my goal as well: to craft each individual battle so that it justifies its place in the game. I must also ensure that every boss feels very different from each other, while still following a basic blueprint of consistent attributes.

Theming is important to my vision for Living Fortresses, so I've formulated a basic story from which I can build meaningful encounters. The backstory begins as many other stories do, an alien invasion from a race known as the Ylaturi. However the humans have successfully countered the attack and forced the creatures into hiding. Unfortunately, after a short time, the aliens emerged from below the surface, having built habitable robots of colossal scale, capable of sustaining their civilization and wiping out the human race. With these unfathomably powerful weapons, the human race is soon threatened with extinction. The story begins as a lone scavenger, Marcello, equips himself with gear he fashioned from destroyed Ylaturi machines. The player takes control of this character as he goes up against Goram, a humanoid fortress tasked with destroying the fractured remnants of human settlements. One man against a walking mountain. From this opening battle, the story opens up, with Marcello interacting with new humans who now view him as a hero. The game will explore these relationships, as well as the implications of Marcello's quest as he goes up against more of the Ylaturi's fortresses, including an exploration of the alien race and the morality of his actions throughout the game. I want to make the significance of each fortress well established throughout the fight. The player will be

aware of the danger each foe poses to humanity, the immense power they possess, and the dire consequences of failure.

This game will certainly test my limits as an artist and game designer. Representing an enemy of colossal scale on screen and giving players all the emotions associated with such an epic encounter is as important to me as the technical aspects. It's not as simple as just drawing a robot and scaling it up a hundred times, and I'm going to have to focus on details if I'm going to sell the concept. The fortresses have to be very detailed, down to every screw and crevasse, with dozens of moving parts and effects emphasizing that they are functioning machines with enough horsepower to move across wide landscapes. And move they will. Even though I don't have any plans associated with incorporating this mechanic into gameplay, I feel that the fortresses' constant movement animation, their bodies' pushing forward through an area, gives the player the illusion that these robots are alive, and that they are preventing the machine from reaching a goal. The motion of these machines will also be represented with the background, with a constantly scrolling landscape and vertical layers to emphasize depth. I'm also going to have to dive into audio, to create fittingly dramatic sound effects and music and bring the game's target atmosphere to fruition. Everything, from to the deep booms of the fortress' feet making contact with the ground off screen to the occasional cloud passing by its head, will make certain that players know how big these fortresses truly are.

With these plans well established in my mind, I find myself at the biggest hurdle of game development, making the game fun. This will require a lot of testing, possible leading to the disposal of many of the systems I already have in place. The base gameplay will be mainly reflex based, with the player having to avoid damage from all angles while attacking the fortress' weak

points. The main challenge will arise from the player having to manage a lot of elements on screen, such as the robot's defense mechanisms, smaller sentry bots, and the power cells they must be targeting at all times. When done correctly, utilizing the previously mentioned strategies of telegraphing and consistent visual and audio motifs, these challenges can be very rewarding and easy to grasp for all players. I also want to stray from easy deaths and excessive punishments, possibly implementing a health recovery system and checkpoints. The second half of the gameplay will be derived from strategy and player choice, with the player having to decide what the best method for attacking the fortress is, weighing the effects it will have on the overall fight and the difficulty presented. An example I have planned out for Goram is that the fortress will barrage the player with missiles throughout the fight, which will get more prevalent as the battle progresses. The player can decide to take a detour to destroy these missile launchers, but also risk coming close to some of the fortress' more dangerous weapons. It's these mechanics that I hope will convince players to retry the fight to attempt faster and safer methods, perhaps with the incentive of a reward for skillful completion.

Living Fortresses is certainly an ambitious project, the culmination of what I've learned as a game developer and artist. I'm following in the footsteps of some great games, namely *Shadow of the Colossus*, which serves as my main inspiration. I can only hope that the final product shows the love and care I have for bosses and the effort I am putting in to make each battle mechanically and aesthetically excellent. For now, the first step of the process is to make a single fight against a mountain sized robot, and make it as awesome as I can.

Conclusion

I now draw to a close a deep analysis of five decades worth of boss battles, from their humble beginnings as pixelated dragons and U.F.Os, to the tragic and complex characters that they have become in recent years. I've loved boss fights ever since my early childhood, battling against the colorful antagonists threatening Crash Bandicoot, and losing more times than I'd like to admit. Even today, I still feel like a little kid as I do battle with fearsome beasts, staring wide eyed at the screen as I land the finishing blow of a truly epic fight. This is the magic of boss battles, placing players into the shoes of fearless protagonists as they face seemingly insurmountable odds. These fights echo centuries of fiction and mythology; David v.s. Goliath, Hercules v.s. the Nemean Lion, or Captain Ahab v.s. Moby Dick. These famous confrontations remain as timeless as they are because they depict universal conflicts, man v.s. beast and man v.s. man. It's at the very core of our human psyche to relate to these conflicts and be drawn into how they play out. We want the hero to prevail against the living obstacle, to reach the goals that they desire, a reflection of the goals and obstacles that every person faces. There may not be dragons and demons standing between us and our goals, but to some there might as well be, with as scary and daunting as their obstacles may be. Perhaps we would all benefit from imagining these conflicts as a physical foe, as terrifying and imposing as some of culture's greatest antagonists, but surmountable with the strength and bravery of the heroes that we all know and worship in movies, television, books, and video games.

Boss battles give people the chance to become an active participant in these ever-present conflicts. The best encounters leave players with the feeling that they themselves thrust their sword through the skull of an evil sorcerer turned twenty foot pig monster. In many cases they

are the emotional heights of a game, where all the story beats, gameplay mechanics, and player experiences are compressed into a single point. Through my research, I was happy to find so many developers and players who share a similar nuanced love of boss battles that I have, with informative panels laying out effective boss design and forums filled with fans describing their favorite fights. It's clear that boss battles remain highly popular, in both retrospection and the design philosophies of current developers. They continue to be utilized in ways that stretch limits of what games can do, filling players with emotions that normally remain dormant, only coming to light for a truly powerful moment. In my opinion, there are few things in video games that are quite as awe-inspiring and rewarding as a good boss fight.

I can only dream of achieving these heights with a boss of my own creation. Its going to take a lot of trial and error, a lot of poorly designed and excessively difficult battles before I mature enough as a game designer and produce something great. Writing this paper was an important step towards that conclusion. Now I am attuned to the concept more acutely, and have a greater sense of why I enjoy these battles so much. Perhaps one day someone will look back on their encounter with Goram, or one of the hopefully many other boss battles I will have designed, and remember all the feelings of achievement and intrigue that were thrust upon them with their defeat. I hope that he or she will then rush to the comment section of a gameplay video and brag about how they defeated it without getting hit once.

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