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# Games and Time

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GAMES AND TIME

by

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ABSTRACT

GAMES AND TIME

by

Evelynn Kersting

The University of Wisconsin-Milwaukee, 2023
Under the Supervision of Professor Stuart Moulthrop

Video games are a medium uniquely immersed in time. While the topic of time and games has been broached by many in the field of game studies, its centrality to both how games function and the experience of playing games remains underexamined. Reading games as literary texts, this holistic study uses queer and social theories to survey the myriad of ways games play with time. I argue games are time machines, each idiosyncratically allows players to experience time differently from traditional linear time. Beyond games with literal time machines, this dissertation examines games which structure themselves around labyrinthine and existential loops. It also considers real-time, or games competitively organized around time and those which change over time, in a sense, aging. Regardless of the subject, this dissertation seeks to illuminate the complexities of games and time, and argues that, despite their many conflicting messages about the topic, they all have something meaningful to say about the human experience of time.

For Kelley, Caroline, Sekani, and Deb

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# ACKNOWLEDGEMENTS

Even though this dissertation has my name on it, it is the culmination of decades of investment from others. My enthusiastic advisor Stuart Moulthrop found me a place in game studies and his guidance was invaluable in both selecting the subject of this project and getting it off the ground. Moreover, his encouragement prompted me to make my scholarship public through academically minded videos and films, which is today one of the most rewarding and meaningful uses of my knowledge and talents. I would also like to thank Thomas Malaby, whose theories on games deeply inform my own ideas, but who, more importantly, taught me to embrace an interdisciplinary approach to academic study. To the other members of my committee, Jocelyn Szczepaniak-Gillece, Lane Hall, and John T. Murray, I am endlessly thankful for your kindness, flexibility, and feedback. My academic journey was facilitated by too many mentors to list here, but to anyone who ever taught or encouraged me, this dissertation is as much a consequence of your labor as mine.

I cannot imagine how someone could create something like this without the help of friends and family. I thank my parents, who fostered my curiosity from an early age. I thank my Grandma Caroline, who taught me who I am. I thank my many friends, who introduce me to new ideas and experiences every day. I thank my child, Sekani, who inspires me with their playful attitude and infectious smile. Lastly, I thank my wife, Deborah: a dissertation's worth of words could not describe their love and support. Each of these people loved me in word and deed. This dissertation is a meager attempt to put that love back into the world.

# Introduction

Modern video game controllers come in all shapes and sizes, but they have one thing in common: a pause button. Whether labeled "Menu," "Start," "Esc," "Options," or "+," this button's ubiquity is at odds with its peculiarity. While anyone can pause a video, song, or podcast, for these mediums the button serves a purely convenient purpose. In games, we pause to equip weapons, check maps, level up, drink potions, and fiddle with settings. In other words, we pause the game and, while it's paused, continue playing it. The humble pause button betrays the complex relationship between games and time. Digital games are never played linearly, they are fragmented by stoppages, rewinds, fast forwards, and resets. As a result, just as players enter the "magic circle" of a game, they also enter a unique temporal space, one where the normal rules of time don't apply.

Time and temporality are reoccurring topics in games discourse. Authors have discussed the ludic mechanics of time in games (Hanson, Tychsen and Hitchens, Tobin, McDonald, Lindley), the narrative use of time in games (Stone, Zakowski, Knutson, Jagoda), and how developers, players, and games themselves are affected by time (Guins, Schreier, Cover, Fuchs). Moreover, most foundational theories of the field incorporate time into their definitions of games (Huizinga, Caillois, Juul, Malaby, Salen and Zimmerman). Despite the frequency of discussions around time and games, the topic is by no means exhausted. Not only does it share many of the same blind spots as game studies as a whole, but the centrality of time to how games function and communicate with their players is

under-examined. In game studies, as in other academic disciplines, such as physics, psychology, and philosophy, time is a divisive concept and one of the most elusive to grasp. No comprehensive theory explains the phenomenon of games and time, and indeed, none ever will.

Accordingly, this dissertation is an incomplete survey of the ways games play with time. Rather than present a unified understanding of games and time with a specific theory, I've arranged this project into a series of archipelagos, each containing a variety of games whose representation of time resonates with one another. Within each chapter, I examine a variety of games with unique perspectives on time with a keen eye toward the rich meaning they offer players. Just as we'll be island hopping between similar games, we'll migrate from one philosophy of time to another to best suit each chapter's subjects. What this interdisciplinary approach lacks in specific direction, it makes up for in its phenomenological richness. Video games do not mediate time as it is, but as their designers understand it. Thus, games can represent all our theories of temporality. To ignore this fact is to obstruct their potential meaning.

Perhaps the most consistent theoretical underpinning for this project is Thomas Malaby's definition of games: "a semibounded and socially legitimate domain of contrived contingency that generates interpretable outcomes" (106). The key temporal word of this definition is "contingency," which Malaby describes as "that which could have been otherwise" (107). While Malaby is primarily interested in the social significance of such "otherwises," I am intrigued by those games which incorporate the otherwise into their narrative and ludic structures to convey meaning. Malaby argues contingency provides the unpredictable component that makes games compelling to play and watch,

but just as often it makes games compelling texts to philosophically and literarily interpret. Across this dissertation's chapters, contingency, or what could have been "otherwise," will be essential as we attempt to parse what games have to say about time.

As Bo Ruberg contends, "Video games have always been queer" (1), and so are the ways they communicate temporality. Queer theorists attend to the subjective and personal nature of time in a way uniquely valuable to the study of games because games, almost invariably, present time from the perspective of a single subject. Of particular value to this project is Elizabeth Freeman's concept of chrononormativity, "or the use of time to organize individual human bodies toward maximum productivity" (3), from which she seeks to unbind time. When paired with Malaby's "otherwise," Freeman's discussion is directly applicable to games, as she argues queer critique must "use our historically and presently quite creative work with pleasure, sex, and bodies to jam *whatever* looks like the inevitable" (173). The most profound works we'll examine in this project are precisely concerned with jamming the inevitable and disrupting any sense of normative temporality. Whether by looping time, reversing it, or breaking linear time entirely, video games are a potent site to reimagine the temporal because the act of manipulating fictional time opens new ways to understand what it means to live in real time.

Henri Bergson's concepts of time and duration also figure heavily into my understanding of time and games. From him, I borrow the concept that time is synonymous with change. Bergson argues "The truth is that we change without ceasing, and that the state itself is nothing but change" (5). Similarly, video games are in constant flux, each moment they're played they change in response

to player actions. Games are not static objects, because as art they exist in the playing of them. This distinction is important because I do not define games as "state machines" (as Juul and Hanson do), or a system with different states, input and output functions, and "definitions of what state and what input will lead to what following state" (Juul). While such a reading is technically correct and can be used to come to the same conclusion that "computers are in a constant state of flux" (Hanson, 7), I am not interested in defining game time in an objective, mechanical sense because *to discuss games is to discuss the experience of playing the game*. Time, in this sense, passes not for the game as a series of states, but for the player, whose memory and experience of the game has a holistic quality more in line with Bergson's "duration" than a discreet series of dividable states. The state machine metaphor creates a sense of all-encompassing temporality where all possibilities are laid out before the player, but because the meaning of games is found in their interpretation, and we can only interpret our experience of a game, their meaning must be found in duration, not in any state or changes in state. Privileging the subjective temporal experience of playing games, rather than reading games as objective arbiters of time, is also crucial to reading them as queer, because queer readings center subjective experiences over what might otherwise be viewed as innate.

Scientific understandings of time also influenced this dissertation. For these I leaned on popular writing from established scientists. Neuroscientists like Dean Buonomano provide fresh ways of approaching the subjective human experience of time and how it might be represented or experienced in games. Physicists like Carlo Rovelli offer unique ways to objectively approach time, uncovering the current state of physical time (a particularly unsettled matter) which is relevant to

games like Outer Wilds, which seek to emulate, as closely as possible, a realistic representation of time. JM McTaggart's distinction between A series (presentism) and B series (eternalism) figures into some of our discussions: because games are man-made, they can conform to either series, but it's the reasons they conform to one or the other, not which series they adhere to, that have potent implications for what they're trying to say. In each case, while I do not base my readings on a scientific understanding of time, these authors and their ideas are as noticeable inspiration for how I interpret games for this project.

The word "time," the second most used noun in this dissertation after "game," is well-known for its multiplicity of meaning. Further complicating matters, individual chapters within this project use the word "time" differently. In the fifth chapter on "real-time" in competitive games, I describe time in crunchy, numerically exacting, terms to better understand how these games are designed to test the player's relationship to time and best another player. Meanwhile, in the second chapter on video games with time machines in their narratives, I use "time" as a malleable theoretical concept because these games allow the player navigate time in the same ways they navigate physical space. Generally speaking though, I use "time" most often as phenomenological concept which undergirds the experience of being, of living, because it's the experience of time games tend to be most interested in investigating the meaning of, as they are experiences themselves. While my definition of "time" changes depending on use, I always try to contextualize what I mean and to use alternate phrases (real-time, present time, representation of time, flow of time, etc.) to best relay what kind of time I refer to.

Because I define games primarily as experiences and read them closely as individual texts, situating this project in the field of game studies proves difficult. While theorists have many different approaches to understanding games, most examine them with a sense of objectivity my discussion lacks. Works in the vein of Salen and Zimmerman's *Rules of Play* concern themselves with game design and seek to identify, define, and interpret the framework of play, but because I spend most of this project analyzing the subjective experience of play, I don't examine the construction of rules thoroughly in the games I discuss. Other theorists draw connections between games and the study of other narrative media like literature and cinema, but my analysis regularly draws from literary and cinematic practices, theories from other fields are not the foundation of my discussion, even if I use these theories when a game itself purposefully leans into literary or cinematic modes of representation. Ian Bogost's concept of "procedural rhetoric," or the uniquely powerful "art of persuasion through rule-based representations and interactions" (ix) video games exhibit has also proved influential, particularly in furthering political discussions of games, but my project rarely intersects with traditional rhetorical analysis or overtly political frameworks.[1] My agnosticism toward foundational theories of game studies is neither a refutation nor replacement for them. Games are a multifaceted and complicated medium, and to meet them where they're at, one must remain fluid to different theories to understand them.

Methodologically, this project follows the practice of close play, wherein I thoroughly describe how the ludic and narrative features of a variety of games communicate concepts of time to

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[1] Though, of course, my queer identity and readings are inherently political.

and through the player. From that analysis, I seek to uncover what broader spiritual truths the representation of the experience of time in games reveals. While this project is in no sense an ethnography, I draw heavily from the anthropological technique of "thick description" as defined and developed by Clifford Geertz. Thick description seeks to understand social life by adding context to human behavior, rather than just describing the behavior itself. Similarly, my analysis seeks to add context to a different verb: *play*. It hopes to not just describe what the player does, or what the game's words and images communicate, but situate play within the semiotic webs of meaning games construct around time, particularly because they're played *in time*. Each video game inherently constructs a unique sense of temporality for itself and uses time as a framework to organize and define play. This dissertation is an attempt to illustrate some of the common temporal frameworks games use to open a fresh discussion around the ways games communicate and intimate phenomenological concepts to their players.

Across this dissertation, I strive to avoid talking about games in the abstract, which is the common way games and time are conjoined in game studies. Instead, I find significance in the specific experience of playing individual games, not just as texts from which to draw examples, but as unique vehicles to explore meaning. When applicable, I draw broader connections between these games, particularly in the thematic groupings of each chapter, but, when possible, I allow these connections to contradict and complicate one another. The ensuing complexity is by design: games present time in an endless sea of possible ways, to suggest otherwise, or to simplify them, would be a

disservice to their creators and players. In the end, the only constant for the games discussed in this project is also the only constant in life: change.

This dissertation's six chapters are divided into thematic pairs. In the first two chapters, we investigate time machine games. One covers "ludic time machines," or games which center their ludic action and puzzles around alternate and malleable temporalities. Examples include *Superhot*, a game where time only moves when the player does, and *Life is Strange*, in which the player-character turns back time to undo unwanted events. In a survey spanning five decades of games playing with time, we consider how these time machines invariably bend toward a subjective temporality and contemplate why the ability to control time seems to always be paired with personal tragedy. The second chapter covers "narrative time machine games," or those which feature a device or mechanic which allows player-characters to travel to different periods of time. Whether the millennia spanning journey of *Chrono Trigger* or the five-year investigative leap of *Return of the Obra Dinn*, in these games the time machine is not a tool to manipulate cause-and-effect, but one which bridges gaps between people and in those burgeoning relationships, finds meaning.

The next two chapters are concerned with loops. Chapter 3, "Loops and Labyrinths," reviews games with repetitive structures. From the early arcade era, we examine *Pac-Man* and how its temporal makeup is as much of labyrinth as its literal maze players traverse. Then we consider the long history of *Rogue* and its descendants, so-called "roguelikes," which use procedural generation to create endless content for players to enjoy. We'll ask what purpose we find in labyrinths and how one escapes their never-ending stories. In chapter 4, we inspect a different kind of repetition in

"existential loop games." These bleak titles present worlds on the brink of annihilation, often on a cosmic scale. In them, player-characters reset the clock again and again not only in the hopes of personal survival, but to rescue time itself from a never-ending loop. Despite the player's ability to rewind time, these games are not about controlling it, but working within limited time to reinstate the contingency of the future.

This dissertation's last pair of chapters place games in real-time. "Hourglasses, Stopwatches, and Hyperclocks" considers the ways real-time is implemented to create competitive contingency in multiplayer games like *Counter-Strike, Starcraft, and DOTA 2*. While these esports are often framed as battles of mental strategies and mechanical skills, how players juggle their hundreds, or thousands, of simultaneously ticking clocks and timers defines their ability to succeed in cutthroat competitions. This project's final chapter contemplates how games age. First, it examines live service games, which are designed to constantly add more content to their shells and balloon in size over time. Then, we consider games whose code remains fixed, but the ways they're played evolve to fit the needs of players. Lastly, we examine video game remakes, which reveal the age of their progenitors and their players, representing a continual series of birth and rebirth central to understanding the relationship between games and time.

Writing about games is always a tricky endeavor because they lie at the nexus of many discrete fields of study. For my part, I maintain a holistic and interdisciplinary perspective on games in this dissertation. My goal for this project is to elucidate the meaning of games on their terms. In some chapters, I rely heavily on literary practices to read games. In others, I lean on anthropological

and sociological theory. In others still, I ground my readings in physical and psychological studies of

time. Regardless of the disciplines I use to make sense of games, I aspire to engender my writing with

radical sincerity, best represented in the supplemental text to chapter 2. I am chiefly concerned with

the purpose of games, and, as I hope you'll find reading this dissertation, "time" is an incredibly

fruitful pathway toward uncovering their meaning.

# Chapter 1 - Ludic Time Machines

Video games are time machines. Time machines are traditionally imagined as fantastical devices that move the user forward or backward in time, and while a video game cannot literally transport their players in this way, nearly every game emulates the fantasy of time travel to one degree or another. Even otherwise simple games like *Pac-Man* offer what amounts to time traversal in the way they reset upon the player's failure; giving an opportunity, for just a quarter, to "go back in time" and try again, experience the same set of circumstances with new knowledge. A crucial aspect of most time travel narratives is the "fish out of water" experience of the time traveler, who has special knowledge because they exist temporally different state than those around them. How else might we describe a person's fifteenth attempt at tackling *Pac-Man's* maze than as a time traveler repeating the same obstacle course for the fifteenth time?

Games, because they fundamentally measure change based on user input, are also clocks. A clock measures the passage of time, often based on universal standards like seconds and minutes, but anything which measures change is a clock. If your stove takes five minutes to boil a liter of water, then putting the pot on the heat acts as a five-minute timer, or simply, a clock. From their most complex to most simple, you will not find a video game that does not measure change, and thus, all are clocks.

Video games also require an internal clock to function. Like a metronome, the internal clock keeps time for every "live" facet of the game. Every moment in live-action games is dictated by the measurements of the system's internal clock. The original *Super Mario Bros.* runs on the Nintendo Entertainment System (NES) at 60 frames per second. Mario himself runs at a speed of 2.5 pixels per frame and the screen is 256 pixels wide, so it takes 102 frames, or just under two seconds, for Mario to run its length. These movements only function because an internal clock measures just how long a frame is. The internal NES clock must accurately measure down to milliseconds for its games to work properly. Illustrating the impact of these internal clocks, the European NES runs at 50 frames per second, because at the time that was the standard refresh rate for European televisions. Many NES games were not changed to compensate, and thus run at 5/6ths the speed of Japanese or North American systems. Every game is paced to an internal clock, and thus every game communicates some sense of temporality.

While video games rely on time and clocks to present an interactive experience to the player, and thus we can describe all games as "time machines," not all are "time machine games," which are the focus of the following two chapters. The time machine game, in my conception, is one where the manipulation of time, whether narratively or ludically, takes center stage. In them, the user plays *with* time in one fashion or another, rather than only playing *in* time. The *Pac-Man* player, no matter how often they reset, has no control over the flow of time in the game. Pac-Man and the ghosts accelerate at constant rates and fruit spawns at the same intervals. When Pac-Man eats a power pellet, he is powered up for the same amount of time, every time. The consistency of these temporal aspects gives

Pac-Man its weight and strategic depth. We can juxtapose *Pac-Man* with *Superhot*, a game we will cover in this chapter. In *Superhot*, time only flows when the player chooses to move. The player's understanding of *Superhot's* world is fundamentally different from the other characters of the game, who perceive time at a "normal" speed. Like *Superhot*, time machine games twist the player's conception of time in radical and varied ways and, in the process, undermine traditionally paced linear time.

While the "debate" between narratology and ludology is largely over-represented in historical understandings of game studies[2], the distinction between narrative and ludic qualities is useful when discussing time machine games. In the games we'll cover in Chapter 2, the function of time machine elements deals less with moment to moment acts of play, and more with how the player imagines themselves, or their character, in the virtual space. For instance, *The Legend of Zelda: Ocarina of Time's* protagonist, Link, can freely switch between two different time periods. In one, the good king reigns, he is a child, the world bright and simple. In the other, he is an adult, the villain is king, and the world is dark and corrupted. The difference between these two states is represented by the passage of time, but the player does not literally "play with time," they simply traverse two worlds layered on top of each other. Games like *Ocarina of Time*, which we will describe as "narrative time machines,"

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[2] Espen Aarseth. "Game Studies: How to play – Ten play-tips for the aspiring game-studies scholar." Game Studies, vol 19, no. 2. 2019.
"23 Ludology." *The Routledge Companion to Video Game Studies.* Edited by Mark J.P. Wolf and Bernard Perron. Routledge, 2014.

have thematic elements of time travel that, whether or not they impact the game's mechanical, or ludic, qualities, change how the player conceives of their relationship to time.

In this chapter on "ludic time machines," we will categorize and explore how games give players the reins to time. The mechanics of these games are technically just as impossible by human standards as magical super powers or talking animals, but strangely, don't feel as divorced from human experience as one might expect. As neuroscientists like Buonomano[3] explain, people experience time in a variety of fashions. During a crisis time might feel like it slows down, while the expression "time flies when you're having fun" suggests time can race past you if you aren't careful. It's also well documented that the perception of time speeds up as one ages[4]. Ludic time machine games, as we will see, don't invent whole cloth new ways of experiencing time, but exaggerate and accentuate the ways we feel time at the margins. In their depictions of, and the ludic controls over, time they communicate different notions of what time means and why attending to it matters.

Importantly, not all games which cloak themselves in the language of a ludic time machine actually pull off the effects we will discuss in this chapter. For instance, the 2016 action game *Quantum Break* is ostensibly about time manipulation. Its primary character, Jack Joyce, has a variety of "time" related talents. Yet upon closer examination, these abilities are mostly re-skins of common video game powers. For instance, Joyce can "Time Stop" enemies to freeze them, "Time Rush" to attack them, "Time Blast" to levitate them, "Time Dodge" to maneuver out of harm's way, and "Time

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[3] Buonomano, Dean. *Your Brain is a Time Machine: The Neuroscience and Physics of Time*. W.W. Norton & Company, 2017.
[4] Claudia Hammond. "Why Time Speeds Up as We Get Older." Time Warped: Unlocking the Mysteries of Time Perception. Harper Perennial, 2013.

Shield" to create a barrier between him and enemies. These abilities all use the word "time" for thematic effect, but they are just flavoring. In similar games, the player may freeze an enemy with ice, do a "normal" dodge to avoid a falling sword, or make a barrier of metal or some other material to protect themselves. *Quantum Break* is far from the exception here: many games use the theming of "time" to otherwise replicate traditional game design mechanics. When I discuss ludic time machines, I hope to avoid these kinds of features, regardless of how fun or enjoyable they might be, because they do not meaningfully ask the player to think about or "play with" time in a manner different from how they play other games.

Playing with Malaby's definition of contingency, the ludic time machine game's mechanics express ways the course of time "could have been otherwise." In *The Sims*, if the player wants to skip past time to an important meeting, they can fast-forward the game's in-game timer to arrive sooner. Time didn't have to progress in such a manner to arrive at the date, it was the player's choice. Similarly, in bullet-time games the player chooses when to play in "normal"[5] time and when to slow down the game's temporal pacing to take more actions or have more time to make crucial decisions. In other games, time proves reversible, such as *Prince of Persia: The Sands of Time*, which allows the player to undo their mistakes. In this chapter, we will consider these examples and others as we develop the concept of the "ludic time machine."

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[5] I put the word normal in scare quotes here because, as the bountiful amount of descriptions and experiences of time's flow indicate: there is no normal or standard experience of time. At other times, I will put "normal" in scare quotes to denote a game giving the player options between a "normal" pace and faster or slower paces.

Ludic time machines tend to function seamlessly within the games that feature them. So much so they may not feel particularly noteworthy. For comparison, Microsoft Word has an undo button, YouTube videos allow the viewer to slow down or hasten up playback speeds, and most physics simulation software allows for dramatic leaps forward in time. What separates these examples from ludic time machines is the latter's desire to play with time, not for some productive purpose, but to reveal insights into the inherit malleability of the human experience of time, often obscured by time's otherwise ruthless march forward. Though, as we will see in *Before Your Eyes*, sometimes underscoring time's inflexibility can be just as meaningful as breaking it wide open. Regardless of how these games play with it, in each, time remains in constant flux, an enigma we never seem fully comfortable with.

Fast Forward

In some respects, *SimCity* is one of the most fascinating games ever created. In it, the player builds roads, constructs power plants, demarcates building zones, and sets government policy: all in the service of tending their city like a horticulturist tends a garden. What separates *SimCity* from mere city-building software, and indeed, makes it a game, is in its simulation of how a city actually works. For the most part, the player does not construct skyscrapers or houses. They do not deliver goods or open up pastry shops. They do not live in their city, but the game goes through painstaking efforts to make their city feel lived in. Cars bustle across the roads they lay. Buildings prop up in the industrial and commercial zones they draw on the map. People, seemingly, reside in their city's

houses, on hills and fields once barren. Like a watchmaker, the player wind up the world, and it

builds itself from the parts they provided, with the occasional nudge in the right direction. So

perhaps, despite the complexity of its design, it shouldn't come as a shock that *SimCity* can be

incredibly boring.

Unfortunately, it takes a long time to build a skyscraper, or to move into a new house. Played

in real time, *SimCity* would be unbearably slow, perhaps comparable to watching grass grow or paint

dry. While *SimCity's* in-game days are much faster than real life ones, some players want an even

quicker pace. If so, they can adjust the tempo of the in-game clock to watch their world develop at

breakneck speed. The player does not have omnipotent power of time in the game. They cannot,

with the tools provided by the interface, rewind the clock (outside of reloading a previous save), but

the developers seem to understand that some things take time, and some players may not want to

wait around in the meantime. What may seem like a quirky trick of game design to retain player-

interest over long play sessions fits like a hand in glove with the thematic material explored by

*SimCity*. The game naturally has a sense of a world bigger than an individual's. It reflects the sense of

time a collection of people, a community, might experience. A city usually exists before its citizens

are born, and will exist long after those citizens die, so of course, time would feel expansive and

different from its perspective than from our own.

*SimCity* is far from the only game with such a fast forward feature: the majority of titles with

the feature are also simulation games, or those titles which attempt to gamify and recreate aspects of

the real world. Whether they simulate flying a plane, starting a business, or managing an entire life in

an afternoon, simulation games provide the player with the fantasy of seeing the world from a wider

vantage point than they are used to. The ability to adjust in-game speed is usually informed by the

temporal nature of the simulated activity. In a game like *Roller Coaster Tycoon*, where the player starts

and expands a theme park, play is represented as spanning about a decade. Meanwhile, in 2008's

*Spore*, where the player nurtures a life form from a simple amoeba to intergalactic empire, millions of

years pass over a few hours of playtime. The topic of simulation games greatly affects their particular

relationship to time, despite the ubiquity of the fast forward feature to render their simulations

enjoyable.

Someone must match in-game speed to real-world time when designing these games. *The

Sims* seeks to match the daily rhythms of life, allow the player to create a virtual version of themselves

or play dollhouse with digital characters, yet its "normal" speed completely distorts those rhythms.

One second for the player is one minute for the sim, meaning a minute is an hour, and twenty-four

minutes is an entire day. Despite this relatively brisk pace, it would take the player 146 hours to pass

a year in-game, which, for most, would be untenably slow. The player can adjust the in-game speed

up to twenty times the slowest pace and pass an hour of time in just five seconds if they wish,

bypassing any potential boring periods, such as a night's sleep or a day at work. While designers pay

special attention to the flow of time in a game like *The Sims* to generate authentic game-feel, a casual

observer will likely notice within minutes that players spend most of their time on neither "ultra"

speed or "normal" speed: they tend to play the game paused.

Unlike action games, which require strict timings and dexterous feats for success, simulation games are much slower paced. They're meant to be methodical examinations of a topic and implementations of strategy, not challenges to player dexterity and quick-thinking skills. As such, when an individual decides to build their house in *The Sims* or place a railroad in *Sid Meier's Railroad Tycoon*, they simply pause the game, take their time on the task, and resume time's flow when they're good and ready. This action is not just incidental to simulation games, manipulating time in them is extolled as "good game design" because it allows the player the best chance to fulfill the fantasy the game provides.

The player of simulation games lives at the margins of time, either suspending it or speeding past it, and perhaps no game better exemplifies this attitude than *SimCity 2000*. Like its predecessor, *SimCity 2000* is a city building game where the player takes on the role of mayor, or manager, of a rapidly expanding metropolis. Most of their planning, as you might expect, takes place not at the game's "normal" speed, but while time is temporarily halted. During stoppage time, the player may set taxes or build roads, all of which happens immediately upon a click of a button, despite real world examples of these events taking months or years to complete. If only it were so simple! Of course, in order to collect those taxes and build more roads, or see its citizens explore their grand city, the player must eventually turn time back on.

*SimCity 2000* has a rather unique speed setting not always found in other simulation games. The game uses animals to denote its in-game speeds, with "Turtle," "Llama," and "Cheetah" all representing a quickening pace, but the final speed, "African Swallow," a reference to *Monty Python*

*and the Holy Grail*, is not a set velocity like "1 year per real-time second." Instead, it clocks out the user's computer, speeding forward at whatever the fastest rate the CPU will allow. For PCs of the time, a trick like minimizing the game window, so the computer did not need to render the game's graphics, could lead to centuries taking place in seconds. At such a speed, one can no longer interact with *SimCity 2000*, and if they're being fully optimal, they can no longer watch it either. Yet they still *play* the game. After all, it was their actions which caused this hypersonic city to slip into a state of reckless temporal abandon, any consequences of that action are not so different from pressing the "jump" button in *Super Mario Bros*.

The African Swallow speed was clearly a joke from *SimCity 2000's* developers, but it reveals a crucial truth about simulation games: their relationship with time is purposefully stretched and contorted not in the interests of "realism" but to provide the player with a sense of limitless agency and power over the worlds they create and inhabit. Barry Atkins, when discussing *SimCity* as a fictional narrative in *More Than a Game*, makes a similar observation: "In [the false promise of a truly open-ended experience] is one of the most interesting elements of the game-fiction's formal novelty and innovation – the multiple and plural is always prioritised over the singular as each plot fragment is encountered" (134). Simulation games do not just contain such multiplicity in their narrative forms, but in their representations of time. By fast forwarding past the boring bits and freezing during the important ones, they present a world constructed by decisions. They give their player the idea that it's not in the day-to-day, in-and-out processes that we find ourselves, but in the most crucial decisions we make and their consequences.

Despite, or perhaps because of, these games' single-player focus, this viewpoint profoundly decenters the individual. The player of *SimCity* or *The Sims* does not embody a character within the game's narrative. Their avatar does not live or breathe. They do not have wants or needs. Instead, they are an avatar of choice and decision. The player embodies fate: the cities they build and lives they wrangle do seem to have a mind of their own, but they're subtly influenced by a strange force guiding them toward its whims. By stepping outside of time in such a profound manner, the simulation game, purportedly the genre most "true-to-life," has the least in common with *living* of them all.

Yet this does not mean we cannot find truth in their strange, temporally anomalous structures, but this truth speaks to us not from the experience of beings, but the experience of the inanimate: the building, the road, the earth. It offers a deep time, one fruitfully disconnected from our bodies and rooted in the world as it existed before us and will exist after us. Games are always rooted in change; simulation games give a glimpse of the changes which matter most for objects, not subjects. Pausing the game, yet still playing within it, renders the world only material, and temporarily atemporal. Speeding up the game renders the world temporal, but immaterial in the sense that it cannot be interacted with. We find ourselves in between these two states, the temporal reality of everything else existing beyond us.

Bullet-Time

Despite its name suggesting the temporal experience of a projectile, "bullet-time" presents time at its most personalized. The concept of bullet-time first broached public consciousness in the wake of 1999's *The Matrix*, which pioneered the cinematic technique of tactically slowing down action scenes. In that film, it's used to emphasize the main character's special perception of a false digital "reality." Since its introduction, bullet-time has become a common tool for special effects artists across the film industry. Rather than slow-motion, which only represents a small deceleration of the perception of time, bullet-time drops the temporal pace of a film to a crawl, far further than any human perception of time. Of course, it gets its namesake from the fact that, at such a pace, even bullets move at a snail's gait. Steen Christiansen examines the cinematic phenomenon in "Bullet-Time," and argues its enduring, "iconic," appeal comes from its unique "mixing of control and intensity," in a way which makes movement felt by audiences.

It did not take long after *The Matrix* for video games to adopt bullet-time not just as an aesthetic choice, but a ludic one. While bullet-time mechanics can be found in nascent examples like *Requiem: Avenging Angel*, which ironically released on the same day as *The Matrix*, their most popular early iteration can be found in the 2001 third-person shooter *Max Payne*. The title character is a DEA agent plagued by drug addled nightmares. Framed for murder, he runs from both the mafia and police. The game's thin plot is primarily used as excuse to leap from action sequence to action sequence, and bullet-time is the hallmark of not just this game, but the entire franchise it spawned,

including a feature film starring Mark Wahlberg and Mila Kunis. *Max Payne's* gameplay revolves around shooting people and being shot at by them. Unlike in *Requiem: Avenging Angel*, where the player-character moves at full speed while the world is paused, in *Max Payne* bullet-time is far more restrictive: not only is "bullet-time" a limited resource, Max himself slows down during bullet-time, but the player can still think, aim, and shoot as though the game's world were normally pace. The feature primarily accomplishes three goals: it gives the player time to line up their shots, get out of the way of incoming attacks, and react to surprise events so Max doesn't get outflanked.

Most video games follow *Max Payne's* example, which is similar to the bullet-time of cinema in effect, but markedly different in terms of affect. While both counterbalance "control" and "intensity," cinematic bullet-time places an emphasis on every movement, using slowed down time to let the audience marvel at the actions on screen. As Christiansen notes, its goal is to underscore every minor action, making each feel enormous. Gaming bullet-time, on the other hand, is just as frenetic for the player on as it is off. They do not slow down but are afforded the opportunity to act faster than their enemies for a limited time. The desire to make the most of these short bursts of time manipulation means activating the effect ratchets up the player's attention to the game. What few seconds of bullet-time the player has are not special moments to relish in the violence they perpetrate, but a time to make the most consequential decisions of each encounter. What targets do they prioritize? Do they have enough skill to aim their shots quickly? Are they fully aware of every bullet they need to dodge? If the player could slow it all down indefinitely, it may replicate the

feeling generated by bullet-time cinema, but because it's a precious commodity in short supply, these moments are not savored, but intensify their concentration on the action.

What might a game look like if bullet-time was not a temporary phenomenon, but a core part of a game's temporality? *Superhot (2016)* attempts to answer this question. In this game, time only moves when the player moves, and it variably ticks depending on the velocity of the player's movement: if they run at full speed, the game's enemies and projectiles follow suit. If they stand still, so does the world. Through these effects, *Superhot* presents a radically individualized version of temporality. It posits a solipsistic world which revolves around the player-character. These observations may be easy to miss, however, even more so than *Max Payne*, *Superhot* is most immediately a game about killing.

*Superhot* is not gory: enemies shatter like glass upon being hit with a bullet or thrown object. Yet its only level-based objectives are kill, kill, kill. Facilitating this verb, the game has a stripped-down art style: nearly everything in the game world is white or light shades of gray, save for your victims, who are faceless bright red polygonal humanoids. At the beginning of each level, the player-character is set upon by these distinct enemies and must destroy each one to proceed. The moment the last enemy explodes the word "SUPERHOT" flashes on the screen, a low-pitched digitized voice repeating the phrase, provoking the player to press the action button and keep playing. If they stay for a few seconds, they can watch their recent conquest, not in slowed down bullet-time but in "regular" time, inverting the cinematic effect by emphasizing the player's impressive movement and

giving little time to process or examine its intricacies. These short video playbacks of gameplay are one of the few moments of the game time that is constant rather than dictated by the player's actions.

Superhot has a hypnotic quality. Its bare aesthetic, simple gameplay loop, and temporal speed make for an engaging experience, left unhindered by the game's relatively short runtime, which can be completed in a single sitting. To some, Superhot takes less after first-person shooters, the genre it most closely resembles visually, and feels more like a strategy game. In terms of numbers and weapons, the player is always the underdog, but when it comes to time, they are goliaths. Dodging a bullet in Superhot is trivial, as is shattering whoever shot it. If one takes their time and plans out each course of action, considers every variable, they can easily overcome the game's obstacles with little resistance. Yet most players seem to mix the game's potential for plodding decision making with the rush of time. It appears, even when given the option to play "perfectly," it's more in line with the spirit of the game to play with *some* haste and rhythm, letting time warp and fracture around you.

Superhot has a temporality all its own. To the non-player, watching it is like listening to a child playing with the RPM buttons on a record player. Time quickens and slows chaotically, with little rhyme or reason. For the player, Superhot is like performing in a symphony only they can hear, whose chords and tempo match whatever notes they choose to play. Every movement in Superhot is not just purposeful, but personal. The game punishes the player who moves absentmindedly, which gives metaphorical and literal weight to decisions taken for granted in most games in the same genre. Despite its consequential nature, Superhot never feels overbearing because it's so accommodating to the player's sense of time that they lose any sense of being in a simulation.

*Superhot*'s mesmerizing gameplay is reinforced by its meta-textual plot. The story has little narrative density but makes up for it with metanarrative devices. The player begins the game as as a fictional version of themselves using their DOS-inspired computer. A friend messages them and tells them to play "Superhot.exe" which they start up. At some points the game "crashes" and kicks them out into the "real world." Over time a strange presence, "the system" starts commanding the player, using its hypnotizing play patterns to perform a facsimile of the real thing. At first, the system tries to get them to stop, but it concedes to their will when they shoot a representation of themselves, wake up from the simulation with a headache, and yet still come back for more. The system then lets the player-character invade the core or "hivemind" and sacrifice themselves to the game, killing their in-game persona in the process. The barrier between "fiction" and "reality" blurs, as the game prompts the player to review the game on Steam or post on Twitter the sentence their friend has messaged them at the beginning of the game: "Superhot is the most innovative shooter I've played in years!" Whether or not the player does it, the player-character consents.

What's so strange about *Superhot*'s narrative is how contrary it is to the experience of playing the game. As already noted, *Superhot* personalizes time to match the player's actions, individualizing them, and Yet to complete the game, the user must kill themselves and surrender their subjectivity to a collective. The game's VR edition far more dramatically conveys the monumental nature of the decision, as it forces the player to point their real hand, holding a fictional gun, at their real head and pull the fictional trigger to continue. This narrative moment, while in line with the "edgy" tone the game cultivates, proved controversial, and the developers removed all scenes of self-harm from the

game in a future patch. Still, its specter lingers over the game's narrative: the *Superhot* player-character does not simply manipulate time, time itself is subservient to their existence. If death is an individual reaching the end of their time, the *Superhot* player-character cannot experience it because without them, time ceases to exist. So, in a sense, *Superhot* inverts the relationship between time and subjectivity. The only way for the player-character to die, and end the experience, is to commit suicide. The game can have no other coherent finale. By joining the "hivemind" at the end of the game, the player-character allows an exterior temporality to retake control of time at the cost of their own sense of self. We could go so far as to describe joining the hivemind as a mimetic act, a virus copying itself and replacing an all-encompassing subjective experience of time with an all-encompassing parasitic experience of time. It's worth remembering that viruses do not replicate themselves endlessly, only until they run out of hosts with which to copy themselves. A virus must take something and the hivemind takes the player-character's subjectivity.

*Superhot* is not the only game which warps temporality around the player's simulated and physical actions. *Before Your Eyes*, a game we will cover later in this chapter, does something similar with the act of blinking, but *Superhot* does uniquely reveal potent truths about subjectivity and time. As Buonomano and other neuroscientists have shown, our experience of time is uniquely subjective. Still, the brain tends to act more like a passenger floating down a river than a conductor at the controls. *Superhot* constructs a game world where time no longer holds a grip on our experiences, where it is not beyond, but beneath, us. Yet the game wants the player to come away with the salient truth that such an inversion is incredibly wrong. A solipsistic perspective of time is intoxicating, but

makes one inhuman, and consequently, their existence becomes a hollow repetition of killing others, until there's no one left to kill but themselves. While certainly not the *only* way a bullet-time game could end, *Superhot* suggests that without any potential return to regular time, we collapse in on ourselves, as though our very conscious depends on time's constant flow to function.

Reversing Time

Video games are a medium filled with consequential decisions for their players, so it's no surprise that the ability to rewind and undo those choices would be prevalent across a variety of games and genres. While nearly every game allows the player to fail and try again by reloading at a previous checkpoint or save file, such events are not characterized within the fiction of the game as "reversing time" and generally do not factor into a game's ludic features or narrative tale. Usually, such save states are only rendered visible when they disrupt the player's experience, such as when a game auto saves at an awkward moment which makes progress from that point difficult or impossible. Though, some games construct their ludic structure around the concept of reverting time to a previous state.

Perhaps the most recognizable example of this feature can be found in *Prince of Persia: The Sands of Time*. Armed with a magical dagger which allows him to reverse time in short bursts, the titular Prince strives to save his father and their army from the "Sands of Time," a dastardly substance he accidentally unleashed which turned them into monsters. While the dagger has a variety of

abilities, including freezing enemies and entering a less impactful version of bullet-time, the ability to rewind time has always been at the center of its identity in both marketing materials and the public consciousness. Though the code behind the dagger is likely quite complicated, its function is rather simple. At the press of a button the player-character can hit the metaphorical equivalent of a VHS player's "rewind" button and watch as the entire game world shifts to accommodate. Interestingly, in both *The Sands of Time* and *Max Payne*, temporal power is obtained through killing enemies, as it seems the only way to gain time is to take it from someone else. While the rewind feature has its benefits in the game's plentiful combat sections, where it truly comes to shine are in its platforming segments.

Much of *The Sands of Time's* gameplay constitutes jumping around forgotten tombs and dilapidated environments. While the Prince is certainly nimble, these challenges tend to be deadly and, if not for the dagger, unforgiving. A single missed input from the player or poorly aimed leap could spell doom for the protagonist. Failure does not mean death though, because the player can rewind and try the jump again. *The Sands of Time* designs much of its gameplay around a function which, for the most part, doesn't actually need to be used: a sufficiently skilled player would never need the dagger's time bending properties, because they're only necessary after a mistake. If this was the extent of its use in the game, a ludic device for undoing mistakes, the dagger might be unnoteworthy, but the item forms the backbone of the game's plot and narrative direction.

*The Sands of Time* primarily concerns the Prince and Farah, a young princess, who journey to undo the effects of the titular Sands. Along the way, they predictably fall in love, but in a series of

unfortunate events, Farah falls to her death to protect the Prince. To save everyone he cares about,

the Prince steals an item from the game's antagonist and rewinds time all the way back to his original

mistake: releasing the Sands of Time in the first place. After then saving Farah's kingdom, he tries to

explain to her all their experiences together, but it's no use: even a kiss does nothing to unlock her

feelings. As they part, he mentions something she told him that she had never told anyone, proving

his honesty, but it does nothing to salvage their relationship. Despite the fantasy of a tool which

rewinds time to erase errors, *The Sands of Time* strikes a surprisingly melancholic tone, suggesting

that some misdeeds can never be undone, and that the experience of rewinding time does not allow

an individual to succeed in making connections with others, as is often presented, but irrevocably

pulls them away from community.[6]

*Life is Strange*, a game with a far more developed story around reversing time, comes to a

similar conclusion. Unlike most of the other ludic time machine games in this chapter, *Life is Strange*

is not an action game where the manipulation of time assists in violent activities, but an adventure

game with a focus on conversation and personal relationships. The game follows Max, a teenager

who is both a fish out of water, as she just moved to a new school, and a little nostalgic, because she's

returned to her hometown, Arcadia Bay. While starting to reconnect with the local community, Max

witnesses her childhood best friend Chloe shot and killed in an act of school-place violence.

Overcome with emotion, Max releases an unknown latent power and rewinds time to stop the

incident from occurring. Realizing the potency of this power, she calls herself a "human time

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[6] Interestingly, the Hollywood version of the game rewrites the conclusion so the pair end up together.

machine." Across the game's runtime, Max will save a girl from committing suicide, find the remains of a missing person, stop a deadly accident (then undo it when the butterfly effect proves too potent), and uncover crimes by one of the school's teachers. Yet with every change she exerts over the timeline, an unnatural storm grows off the coast of Arcadia Bay, threatening to destroy the entire town, a literal evocation of the "butterfly effect" metaphor.

*Life is Strange* uses its rewinding mechanics for both ludic and narrative purposes. In gameplay, the ability to rewind time proves useful for exploring dialogue options with other characters. For instance, in an early confrontation, the principal asks why Sam is not in class. She can tell the truth, reporting the boy who originally shot Chloe for having a gun at school, or she can lie, say she feels dizzy, perhaps because of the altitude. In either case, Principal Welles expresses skepticism, either because the boy has a good reputation, or because he can see through her lies. The importance of this conversation is noted by the presence of a butterfly icon on the screen, and the principal's actions throughout the narrative will change depending on Max's choice. Should the player be dissatisfied with the route of the conversation, or curious as to how else it could have gone, they can use the rewind mechanic to try it again.

While the rewind mechanic in games like *Prince of Persia* is used to undo objective mistakes, such as falling into a spike pit, *Life is Strange* presents more nuance in its time manipulation. Usually, the game does not offer the player "right" or "wrong" conversation options, just different ones. The character of Max is not dramatically affected by these dialogue decisions: they usually feel congruent with her personality and resonate as things she might say. The player gives her a little nudge in one

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direction or another, often affirming the game's theme of the "butterfly effect" (and indeed, a butterfly is among the game's most enduring symbols) by showing the cascading consequences of the smallest differences in communication. While *Life is Strange* lacks many fail states, that doesn't make its use of time travel inconsequential, but rather characterizes it as a tool for better understanding its world's characters and their motivations, rather than one for succeeding in ludic tasks.

Narratively, *Life is Strange* is centered around the rewind mechanic. Max, a photographer, uses pictures she finds to travel back in time to the moment they were taken and influence past events. She makes decisions about when and how to use her gift: but the player has little to no input in these moments. Nonetheless, they profoundly shape the game's plot. Of course, the inciting incident of the narrative is Chloe's obstructed murder, but Max seems to constantly find herself in life-or-death situations where the only thing that saves her, or someone else, is her mystical ability to turn back time. The game underscores the terrible responsibility of changing the past through William, Chloe's father. William died in a car accident when Chloe and Max were children. When Max finds a picture of the pair as children and is transported to the past, she takes the opportunity to stop the accident from occurring, but upon returning to the present, she finds Chloe in a wheelchair, paralyzed from an accident in the car her (now living) father bought her when she came of age. After speaking with the disabled Chloe who asks Max to help her commit suicide, Max turns back time again, and, regretfully, undoes what she thought was a good deed.

In both *Life is Strange* and *Prince of Persia*, it's not so much the ability to rewind time that causes its primary characters stress, but the burden of memory. It would be one thing if only the

player remembered the consequences of their ill-gotten decisions (as is the case in most games), but these characters are entirely aware that what is could have been otherwise. The Prince knows that, in another time, Farah fell in love with him. Max knows that if Chloe's father didn't die young, Chloe's life would be dramatically "worse."[7] The ability to reverse time does not offer these characters a reprieve from the stress of the world; it does not allow them the opportunity to mend every broken relationship or fix every faux pas, but paradoxically reminds them that their decisions both matter and do not. They see the "butterfly effect" take place, find massive consequences in seemingly meaningless decisions, but no matter what they do, time will march forward, and events will take place. The ability to rewind time is markedly different than the power to *stop* it: change comes no matter what one chooses to do.

The *Life is Strange* series (and particularly the first game) has consistently been read by scholars as queer[8], both because its narratives consistently features queer characters and its ludic structure emphasizes different ways of understanding relationships. Matt Knutson contrasts Freeman's concept of the chrononormative to *Life is Strange*'s relationship with time, which is particularly potent because the age of the characters (young adults) place them in the most restrictive of chrononormative categories. He directly contrasts *Life is Strange*'s plodding gameplay with the "twitch reactions" required for esports and finds the former more in line with queer temporalities because its mechanics are not easily monetized. While careful to note that not all time travel games

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[7] This is her opinion on Chloe's disability, affirmed by Chloe's desire for an assisted suicide in that timeline.
[8] Dunne and Butt, Pötzsch and Waszkiewicz, Knutson.

present queer temporalities, Knutson argues *Life is Strange* does because it emphasizes "nonnormative temporal acts" like resetting and rewinding, while opening up video games "to reencounter what makes play creative, free and playful."

These queer actions are complicated by the game's finale, in which Max must choose between saving Arcadia Bay from the storm and letting Chloe die or saving Chloe and dooming the city. This ending received a significant amount of criticism upon release, particularly because it conforms to stereotypical tropes such as "bury your gays."[9] Pötzsch and Waszkiewicz argue the latter part of the game "reverted to a poetic and moving, yet ultimately docile, tragic narrative of suffering and loss crushing both heroes and their aspirations to power and influence." Meanwhile, Knutson reads the game's ending as an exercise in queer failure by intermingling "one form of success with one form of failure, salvation with destruction, defiance with acceptance." While I agree with these assessments of the narrative, these readings seem to ignore that the ending's melancholy and "failure" are just as much extensions of the game's central narrative conceit of rewinding time, as they are of its thematic and character-driven content.

*Prince of Persia*, despite the clunkiness of its narrative, forces its protagonist into a similarly uncomfortable dilemma at the end of its narrative: by saving Farah, the Prince ensures the end of their relationship. He even kisses her, despite her protests, before rewinding *that* mistake and fleeing the situation altogether. The narrative conundrum of both rewinding games is the same: the ability to reverse time only causes more problems, and further places responsibility for the state of the world

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[9] A term which refers to how LGBTQ characters often die during, or at the end, of their narratives.

on the time traveler's shoulders. Their ability to influence the world does not change with their newfound powers, only their ability to understand how little their influence can carry the day. In the end, *Life is Strange* climaxes with a difficult and fundamentally irreversible decision to highlight this truth. Max's ability, despite its power to save some lives, is ultimately a curse, one which reveals to its wielder their limitations more than it provides them strength.

We could imagine another ending to these stories. The film adaptation of The *Prince of Persia: The Sands of Time* gives the Prince exactly what he wants, despite the narrative resetting the memory of every other character. *Life is Strange could* end differently, just as its many dialogue trees suggest any encounter might, but thematically the ending makes perfect sense. The game's final choice isn't between Chloe and Arcadia Bay, but whether Max controls time, or time controls Max. By forcing the player into an uncomfortable and untenable position, one with no right answers, it repeats what it's been telling the player all along: even if you could change time, you'd still be beholden to it.

Braid

It would probably be academic malpractice to not discuss *Braid* in a chapter on ludic time machines. Released in 2008, *Braid* was an inflection point for independently produced games, helping solidify their presence in gaming culture. Critically, it remains an important touchstone for the concept of "games as art," and since its release, it has been one of the most discussed games by scholars. In *Braid*, players control Tim, an everyman hero on a quest to "save a princess," a clear

allusion to *Super Mario Bros*. *Braid*'s vague narrative, communicated through brief bits of prose between levels, explores the relationship between an individual's personal actions and relationship to the world around them. Ludically, it borrows from the genre standards of other platforming games but distorts them with its temporal theming. Each world of the game explores a different aspect of temporality. For instance, in "World 4: Time and Place," Tim's horizontal movement right pushes time forward (as one might expect), standing still stops time, and heading left reverses it for all other characters and objects. Across the game, Tim and his player can always rewind time and undo his mistakes, but functionally, *Braid* is not merely a "reversing time" game, as it employs virtually every kind of time manipulation one can find in games.

     *Braid* has been read in a variety of ways. Patrick Jagoda argues *Braid* represents the connection between history and the individual, as its "most powerful accomplishment may be its dynamic expression of the process by which historical events inscribe themselves into the desires, ambitions, risks, and responses of subjects" (769). In *Game Time*, Christopher Hanson uses *Braid* as a case study for ways games play with temporality. Conor McKeown compares the game's fictional presentation of time with the Quantum Theory of time and uses the comparison to explore ethics. Luke Arnott uses *Braid* to explore the narrative potential in game and level design apart from exposition. Liam Mitchell finds the game is an allegory for control and violence, where refusing time's passage "leads to monstrosity." This rich history of scholarship highlights the depth of nuance and meaning found in the game.

While these readings each emphasize different aspects of *Braid*, they tend to look past *Braid* as much as they appraise it. For these authors, *Braid* is a stand-in for the potential of games and games studies; one yet to be realized. Jagoda uses *Braid* to argue that "videogames are not mere entertainments but world forms that mediate between subjectivity and history" (771). Hanson concludes his study by gesturing to the broader medium, as *Braid* "underscores the numerous ways that digital games expand our experience and understanding of time, aspects that digital games have only begun to explore" (189). McKeown argues the game is an "early step towards a possible invocation of scientific theories in virtual worlds" (16). While *Braid* is certainly a forward-thinking work, the speculative nature of this criticism presupposes two falsehoods: that games weren't reaching their proper depth prior to this game's arrival; and that they still haven't achieved the level of meaning they should attain.

It's difficult to find a fresh avenue to discuss *Braid*, but the concept of "ludic time machines" gives us the unique opportunity to situate the game within the broader history of interactive media that play with time. As I've already shown, games were making meaningful use of temporal mechanics in the years leading up to *Braid*'s release. *SimCity 2000* (ironically released in 1993), plays with different user-controlled temporal speeds, just as *Braid* does with its forward and reverse time controls. *Max Payne* allows the player to slow down time, just as Tim does in "World 6: Hesitance." The game's central conceit of reversing time to undo mistakes can be found in *The Sands of Time*. None of *Braid*'s mechanical or narrative innovations were particularly new at the time of its release, even if their implementation was. While *Braid* is often characterized as the emergence of an art form,

from the perspective of ludic time machines, it represents a culmination and repackaging of a variety of tools and designs enacted in other games.

Of course, games, perhaps more than other kinds of art, borrow from their predecessors, and it is no fatal flaw that *Braid* looks back in such a manner; but what might it mean to read *Braid* as the apotheosis of early ludic time machine games rather than the inception of something new? *Braid* does not shy away from such historical comparisons either. Tim and his "princess," who's always in another castle, are a clear allusion to the *Mario* series, with the game's enemies acting as revisions of the "Goomba" and "Piranha Plant," two of the most recognizable adversaries in all of gaming. While this comparison is generally presented as pastiche, a means by which to familiarize the player with the game's non-temporal mechanics, it also suggests *Braid* has a foot in video games' past as much as it has one in its future.

An obsession with the past isn't exactly a difficult claim to prove for a game whose most salient mechanic is turning back time. Whereas most games have "fail states" which require the player to restart, failure in *Braid* does not cause a reset, but a rewind: the hero waits at the bottom of the screen to be reversed back to life. Importantly, as in *Superhot* and other bullet-time games, *Braid*'s sense of temporality is tied to individual subjectivity. When Tim dies, all of time stops until the player sends him back: everything from gravity to non-diegetic music ceases to progress. Despite the multiplicity of meaning scholars find in the game's time mechanics, *Braid* is sometimes limited by the uncompromising nature of its subjective temporality. The game does not, and cannot, imagine

time apart from this individual. Not the complex material temporality *SimCity 2000* dares to imagine, the queer temporality of *Life is Strange,* nor any community-centered temporality.

Despite these limitations, *Braid* does have interesting insights into temporality. In World 3, Tim encounters the "green glow" on objects, enemies, and the ground. Anything lit by this glow is immune to Tim's time traveling. For instance, at one point a lock has such a glow. If Tim unlocks the gate with a key (which destroys the key), then reverses time, he regains the key, but the lock remains open. To solve puzzles in World 3's levels, the player must often think from the perspective of objects whose temporality is different than that of the player-character. Yet still, their temporalities do not suggest a temporality all their own: they remain objects to be manipulated. Meanwhile, World 4's temporality is constructed not from an external clock, but by rightward and leftward movement. While the time in these levels is still subject to an individual's perspective, they well encapsulate the B-series concept of time by undermining the concept of the "present" and constructing a "tenseless" world.

In World 5, when Tim reverses time, a shadow appears before him and mimics what he did in the previous version of events. In one puzzle, he must pick up a key and jump to his death, then reverse time and steal the key midair before his doppelganger perishes. Jagoda finds this interaction "fraught with unease" because Tim treats an extension of himself as a mere means to an end, and suggests the moment critiques the way games disregard the consequences of player action. I see this moment as a collision of definitional and experiential understanding of games. Malaby defines games as domains of contrived contingency, vehicles for understanding "that which could have been

otherwise." Tim's shadow is a physical embodiment of such an "otherwise." The player acts in tandem with the shadow to complete tasks, experiencing the game live while another version of themselves displays the multiplicity of selves found from the past to present.

Braid is not the first game to put such specters of the player-character on the screen. Racing games have used the "Ghost Car" feature since at least 1988's Hard Drivin'. The ghost car is usually a transparent replay of a player's best lap or time. It accompanies the player on their race, goading them to overcome the best version of themselves. Unlike Braid's ghost, a ghost car does not interact with the game's environment (the player's car cannot collide with it), but it has a profound effect on the tenor of play. When encountering a ghost car, the player is immediately put into a defensive position: they no longer rush along the track alone to the best of their ability, but literally race against themselves. The ghost car centers play not on the player's moment-to-moment experience of the racetrack, but on a measurement against their past self: the racer constantly compares their current performance to the specter. Temporally, ghost cars are a metaphor for same "otherwise" as Tim's shadow. They present a game with contingency flattened to a single possibility, but that possibility is co-present with the contingent realities of live play. By placing the two in conversation with each other, racing games, and Braid, highlight how play is always informed by prior experiences, even if their immutable quality (being in the past) renders them aludic, or no longer playable.

While Braid plays with notions of temporality, it tends to do so in concert with chrononormativity rather than in opposition to it. Tim is a straight white male wearing a suit and tie with hopes of wooing princesses. While he does not achieve the goals of chrononormativity, he still

places a clear value in them. Most aspects of his identity are obscured by *Braid*'s sparse narrative details, but what is in the game gives the impression of a character annoyed by his inability to connect to other people and who places the blame on society at large rather than himself. *Braid's* marketing materials stress the question, "what if you could learn from mistakes but undo the consequences?" and its opening chapter pines for a world where "We could remove the damage but still be wiser for the experience." Yet despite all his time traveling shenanigans, Tim accomplishes no growth over the course of the narrative. He seeks to transcend change, be "non-manipulable" and sometimes "immune to the Princess's caring touch." As such, Tim is a curious character around whom to organize a game about contorting to time's lessons. Rather than change through temporal manipulation to find a place in the world, he uses this power so he might never change.

However, the narrative does not situate Tim as a virtuous figure. After completing each world, the final set of stages, World 1, finally unlocks and can be played. Its final level is titled "Braid." Like Christopher Nolan's *Memento (2000)*, "Braid" inverts itself and makes its inciting incident and conclusion one and the same: Tim finally sees his princess. She is captured by some brutish knight on the top half of the screen but escapes his grasp. Tim chases after her as she runs away and they help each other overcome obstacles, eventually making it to her room. Then the game inverts itself and reveals that Tim is not the hero, but a creep peering into a woman's room at night. The game replays the previous heroic chase in reverse, revealing that the Princess was running from him, and each moment of "aid" she provided was actually an attempt to stop him. She escapes with the knight, leaving Tim alone to contemplate his actions. The game's epilogue features a variety of

vignettes of a relationship between a controlling and distant boy and "the girl," while making

oblique references to the 1945 Trinity Test of the U.S. atomic bomb. If the player completes some

option bonus content, they can reach the Princess, but the moment they touch, they explode.

*Braid*'s ending has been read as a repudiation of Tim and his attempts to control time.

Hanson finds it upends the game and implicates the player in Tim's actions. Jagoda explains it as a

"statement about the dangers of obsessive, goal-oriented behavior" (764). Mitchell agrees with Jagoda

but argues the ending should first and foremost be read as the "impossible desire to turn back time

through the technological deployment of scientific rationality," which is "the logical extension of

that brand of totalizing, goal oriented behavior that regards objects, animals, and people as mere

things" (96). In general, these authors attempt to explain the ending, suggesting that it subverts

expectations and adds depth to the game. I am particularly fond of Mitchell's reading, which

challenges Tim's world view and argues any kind of time control literally objectifies others,

complementing my observations about the all-consuming subjectivity of bullet-time.

However, I feel these readings don't meaningfully interrogate how sincerely *Braid* treats its

protagonist and his worldview. While the game's ending makes Tim out to be the villain of his own

story, it sympathizes with him rather than confronts him, and moreover, does not offer any

meaningful alternative to his "objective" mindset. In the end, we understand Tim and his

motivations better, but he does not change. It's easier to make this criticism with the benefit of a

decade-and-a-half of hindsight. Jonathon Blow, the game's creator, seems to have a similar

perspective to Tim's. Since *Braid*'s release and his rise to indie stardom, Blow has argued that, due to

biology, women are inherently less interested in programming than men, platformed conspiracy theories like the claim that Covid-19 is a man-made virus, and gave a talk at a game development conference predicting the collapse of civilization and how to prevent it, in which he primarily discussed the declining quality of modern software. While Blow is no doubt an intelligent individual, he confidently spouts unscientific and nonfactual beliefs. He perceives the world with the same kind of toxic "goal-oriented behavior" Jagoda and Mitchell identify in *Braid* and tends to condescendingly place his own subjective experience above other perspectives under the guise of "objectivity."

A game's creator's personal views don't always reflect directly on a game, but *Braid* does little to dispel these beliefs. While its interventions in temporality are certainly interesting, they teach the player to think like Tim does in the game's narrative prose. To progress, the player must value an individual's subjectivity over the world around them. Time, and by extension others, become something to be controlled. Even in its lauded conclusion, the player is not privy to the Princess's perspective. She remains an enigma, only an object to be abused, after which her abuser reflects upon the abuse. The epilogue's text somehow suggests Tim both enacted massive destruction through the creation of the atomic bomb *and* is a victim of unfortunate circumstances. Such a sympathetic account might be valuable if the game had built up his character more, but since Tim lives in a timeless nightmare of his own creation, any insight into his personality is functionally meaningless: he will not change or learn any lessons from his mistakes. Ultimately, it is not his shadow in World 5 that represents discontinued contingency, but the temporal cage he built around himself prior to the start of the narrative.

For a game about creatively exploring a variety of temporalities, *Braid* seems unwilling, or

unable, to use that same creative impulse to examine other subjectivities, and in the process,

undermines any broader point it tries to make by subverting player expectations. *Braid* may

deconstruct the "save the princess" trope, but rather than replace an objectified woman with a more

interesting alternative, the game suggests the woman does not, and cannot, exist. It paints a world in

which relationship and change are impossible and implies they are only an illusion outside that

world. Even *Superhot*'s relatively ham-fisted and edgy narrative ends with an allusion to suicide so the

player-character can experience a new sense of subjectivity, but *Braid* offers no genuine attempt at

change: only a modest castle Tim constructs because he cannot have the princess's. While this final

sense of unremitting loneliness is a profound commentary on the consequences of Tim's worldview,

we have to ask: if *Braid* offers nothing beyond that mindset, maybe it still believes Tim's objectifying

perspective is better than any others.


Before Your Eyes

What unites each ludic time machine game we've discussed so far is control. In *SimCity*, the

player chooses whether time is paused or hastened: their clicks create the temporal reality of the

game's world. In *Braid* and *Superhot*, the player's movement through the world sets the pace of time

itself. In *The Sands of Time* and *Life is Strange*, the player can press a button and undo their decisions.

This isn't surprising, games are all about control and agency, players press buttons and make

decisions expecting those actions to have consequences in virtual worlds. Yet games are often defined

as much by what the player can't control as what they can, and no ludic time machine explores the power of limitations quite like *Before Your Eyes*.

Developed by GoodbyeWorld Games, *Before Your Eyes* is a first-person, narrative-based indie game. A hostile party might call *Before Your Eyes* a "walking simulator," i.e., a game where the player mostly explores an environment and does not take "meaningful" action, such as shooting a gun or jumping over a spike pit, but the game does not even feature walking. In the opening moments of *Before Your Eyes*, the player finds they are not a corporeal being with tremendous agency to remake the world around them: they are dead. As a soul, the player-character, Benny Brynn, cannot move or act, save for looking and blinking. A gruff but well-meaning Ferryman, an anthropomorphic coyote, picks him up and takes him to the "Gatekeeper" to see if they will be admitted into heaven. Along the way, the Ferryman asks to learn about Benny's life, so he might make a strong case for his inclusion in the afterlife. Yet his competency is suspect: he constantly uses a thesaurus and is surrounded by birds, later revealed to be souls he could not save. Through some unexplained power, Benny can share his memories with the Ferryman, all relived by the player in first person. His life literally flashes before their eyes. However, the ability comes with a twist: every time the player blinks–the actual player, not the player-character—the game leaps forward to another scene.

Technology bridges the gap between the player's physical body and *Before Your Eyes*. The game uses the player's webcam to track their face and eyes.[10] What makes the game feel special,

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[10] The implementation of this technology has been criticized as being unreliable. Personally, I played through the game twice without a webcam, with an alternative control scheme of "clicking the mouse" when I blinked. If used honestly, this achieves the same functionality as a webcam tracking the player's eyes.

relative both to other video games and in the realm of ludic time machines, is how it constructs its gameplay around an involuntary action. It pits control and instinct against each other, using the rules of a staring contest to tell the gripping life story of the game's protagonist. While the game is functionally about time and memory, as the events it chronicles represent a predetermined past, it's experientially about the feeling of time slipping away. Most of the game's memories feel interminably short, as though the player can't quite catch everything. The incompleteness is the point: *Before Your Eyes* argues memory is not the same thing as living, it is insubstantial and cannot hold us long.

As we might expect, Benny's life story begins when he is a baby. In the first scene, Benny spends the day as a baby at the beach with his mom, Elle. When the player blinks, morning becomes midday, and midday becomes sunset. Elle remarks "the day really slipped away. Oh well. Days have a tendency to do that," foregrounding the temporal journey the player is about to experience. In the opening scenes of *Before Your Eyes*, the player is introduced to Benny's immediate family. Ellie starts the narrative as an aspiring composer trying to finish her graduate work at Berkley, but reluctantly puts her passion aside to support her family with a career in accounting. Benny's bumbling father, Richard, is a professor of "Maritime Archaeology." Growing up without siblings or any other family around, save for a one-eyed cat named Ernie, Benny spends much of his childhood alone, but finds solace in artistic pursuits such as drawing, photography, and music. His parents discover his latent talent for piano and Elle pushes him to pursue the greatness she wanted for herself but could never achieve. The game explicitly frames art as a means to disrupt the cruelty of time. Ellie tells her

impressionable son: "the only way to fight the flow of time is to create a work of genius," and implies a "close second" is parenting a genius. Artistic creation is the focal point of the game's entire plot, as Elle's primary motivation through the game's early chapters is to turn Benny into a musical genius. It doesn't work. A prestigious music school rejects him, and his mother, dejected, gives up on the dream.

While the outcome of these musical efforts is failure, the path to that failure depends on the player's choices. As Benny begins piano lessons, a neighbor, Chloe, moves in next door and the pair begin a budding friendship, or, depending on the player's decisions, a romance. The game offers the player opportunities to either ignore practice and spend time with Chloe or ignore Chloe in pursuit of "greatness." If Benny devotes his time to piano, he performs exceptionally at his audition, and his parents take him out to the beach at midnight to celebrate. If he slacks off, he spends the night before his audition out on the beach with Chloe, forgoing sleep in favor of friendship. In either case, it's the night at the beach, not the audition, which acts as the climax of the first half of Benny's life story. In both, he finds meaningful connection and vulnerability with other people. As the scene progresses and he listens to his ocean view companion(s), Benny looks up at the stars and traces constellations with his eyes. What initially seem to be random lines between stars turn into letters, each one allowing him to blink once to remain in the moment. Eventually, the letters form the words: STAY HERE. This is the first sign that Benny's memories may not be fully accurate, as his subconscious pushes him not to go beyond this point. Yet the temporality of *Before Your Eyes* is cruel, and when the

player blinks, they're pushed forward to the next memory, no matter how sweet the current one may be.

As opposed to other ludic time machine games, which offer alternative ways of being in and relating to time, *Before Your Eyes* presents a kind of hyperreal[11] temporality. Benny's life is distilled into the most significant events necessary to understand who he is, but they are nonetheless presented linearly and literally for the player. Benny's erratic memories, in which a lifetime is condensed into an hour-and-a-half long game, are akin to the cliche phrase "where'd all the time go?" which can both be used to question the simple joys of daily life and the broader arc of a lifetime. The player, as the active blinker pushing the plot forward, is complicit in time's callousness toward Benny. What could be better than the memory of the best night of your life? What would you give to go back to that moment? While *Before Your Eyes* offers a taste of such fantasy, the creeping reality of the human experience of time is never so far away as to allow Benny, or the player, to truly savor it. As a metaphor, the temporality of *Before Your Eyes* is more real than real in its representation of what it feels like to experience time's passage.

After Benny's rejection from the music academy, his story picks up pace. He falls ill for a year and spends the time reigniting his passion for drawing, winning a local contest. He goes to art school, studies under a world-renowned teacher, "makes it" financially, and is considered one of the finest artists of his generation. However, time's ravages creep into the story yet again; Elle gets cancer, underplays it as to not disrupt Benny's career, and dies shortly after telling him. At the funeral,

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[11] Baudrillard, Jean. Translated by Sheila Faria Glaser. Simulacra and Simulation. U of Michigan Press, 1983.

Benny does not say a word, haunted by a giant metronome he associates with her.[12] In response to

her death, creates his magnum opus: a portrait of his mother. The painting also causes critical

reappraisal of her musical work, and by Benny's big exhibition she is considered "one of the greatest

composers of all time." At the exhibition, titled "Benjamin Brynn: A Life in Painting," a clear nod to

the autobiography the player finds themselves in, they can peruse all the drawings they've made

across the game before running into and reconnecting with Chloe. Here, Benny's life story ends and

the player finds themselves back on the river with the Ferryman.

  If this story of artistic prodigy and success seems too good to be true, that's because it is. As

the Ferryman develops his oration for Benny, the "liar birds" around him start to jeer "liar liar liar"

indicating falsehood in Benny's memory and story. The ludic time machine of *Before Your Eyes* breaks

down in this moment: what initially seems like an accurate account of a person's life is revealed to be

wrought with subjectivity. The "truth" as it turns out, may be more complex than a series of sparse

memories can relay. *Before Your Eyes* already foregrounds such subjectivity in its time traveling

mechanics, as the involuntary nature of stumbling forward through memories means the player

never gets a full sense of Benny's life. We could say the game is purposefully designed so the player

won't see all of it.[13] *Before Your Eyes* investigates memory as much as it concerns time. It provides the

player an unpredictable, one-way, time machine which allows the viewer to see a character's life,

linger at the best moments and skip past the boring or uncomfortable ones. Unfortunately, this time

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[12] The metronome holds additional significance because one appears whenever the player's blinks will push the narrative forward.

[13] See Geller, Jacob. "The Game That Won't Let You See All Of It." *YouTube*, June 18, 2021.

machine has a purpose: it does not exist to simply allow someone to relive their life, it is meant to communicate to others the essence of their existence and experiences—in this case, to aid an orator (the Ferryman) in their ability to convince the "Gatekeeper," functionally god, of the value of the dead soul.

The Ferryman, initially ecstatic at finding such a worthwhile spirit in Benny, turns antagonistic upon learning of his lies. As the boat is lifted into a dark tower to see the Gatekeeper, he warns Benny that the Gatekeeper does not take kindly to liars. In fact, they turn liars into birds. He suggests there must be darkness Benny skipped over in his life. He demands to see Benny's memories again, this time barking orders at the player to blink past familiar scenes before reaching two moments of loss previously glossed over. In one, Elle learns her father died. He was a musician who pushed her as she did Benny, and never told Elle he was proud of her. In another, Benny witnesses Ernie's litter of kittens killed and eaten by a pack of coyotes. However, these two memories pale in comparison to the greater truth: almost everything after the STAY HERE scene on the beach was fiction.

In Benny's factual memories, the player finds his childhood sickness was far graver than initially indicated. He spends the year not relearning to draw but falling more ill. He witnesses his parents' despair at their inability to help their son. Chloe lost her mother before moving in next door, so while Benny's friendship helped her find herself again, his impending death proves too painful, and the pair begin avoiding each other. In a bit of circular storytelling, Elle gives Benny a typewriter, where he concocts his life story of becoming a great and successful artist. The story upsets

Elle, who realizes Benny judges himself on her unrealistic expectations. Writing a new story, Benny calls himself a loser and chastises himself for not fighting his disease harder, before a strange glowing red mass of tendrils accompanied by a deafening white noise appears in front of him. When it emerges, Benny is rushed to the emergency room. While he survives, the mass torments him throughout the rest of his memories, requiring the use of pain medication to reduce its size and noise. In each subsequent scene, Benny says goodbye to the people who knew him, including Ernie, indicating the cat's ability to sense death. Soon after, he dies in a terrifying scene as his parents' panic, audible but no longer visible. The Ferryman, emotionally moved by their cries, begs Benny to let go and blink past his final memory.

As Benny and the Ferryman reach the gate, the Ferryman tells Benny the Gatekeeper takes many forms. In this case, it takes the shape of a three-eyed Ernie. When Benny blinks on the Gatekeeper to greet them, he jumps to one last memory, where Elle finally talks to him about his fictional life story. She says the character he made up is interesting, but she didn't like him, and tells him that he's everything he needs to be as he is today. She reads him a new story, one which affirms all the good he did in life and how his family and friends saw him. During this scene, when the player blinks, they are transported back and forth between his mother's story and the Ferryman's oration to the Gatekeeper, which are identical. The game ends with Benny closing his eyes, accepted into the afterlife.

The narrative of *Before Your Eyes*, with its dying children and afterlife premise, borders on saccharine. Whether or not its emotional overtures reach the audience though, it questions what it

means to live a full and purposeful life. Both Elle and Benny believe a good life requires creating

something that lasts beyond them. This impulse is fundamentally an attempt to grasp the atemporal:

they wish to escape the clutches of time through art and music. In a sense, their desires align neatly

with Tim from *Braid*, they just choose a different means of preserving themselves. Yet as Benny learns

traveling through his life one blink at a time, no pursuit of greatness can replace the present. While

the lesson of "live in the moment" is a cliche answer to the fear of being swept away by time, *Before

Your Eyes* goes a step further, and solidifies why the story must be told in a game with its simple

thesis: *living is changing*.

In Benny's first memory at the beach, he sees an agave plant. His mother explains "Eleven

years from now that plant will die so it can give birth to this tall amazing tree covered in flowers." In

each return to the beach, the plant grows bigger, tracking his own development, and unfortunately,

march to an early death. After Benny knows he's going to die, he sneaks out one last time to the

beach by himself. There he sees the plant, fully bloomed as a tree rising to the moon. In the margins

of *Before Your Eyes*, the player catches all sorts of similar changes. Calendars sneak their way into

many of the scenes; when the player blinks, they can catch October turning to January. The player

can track how old Benny is because on each of his birthdays his parents put a painted imprint of his

hand on the fridge. The game goes out of its way to chronicle growing: even going so far as to

purposefully make the player blink to watch Benny's environment change. This, combined with the

haphazard nature of blinking, forces the player to reckon with the fact that change is unavoidable.

The game's ludic time machine contradicts Benny and Elle's yearning to create something lasting by

conveying nothing is permanent. Making art with the purpose of transcending temporality is like trying to swim against the current of time: time always wins. While the folly of immortal pursuits is a common refrain across stories in all mediums, *Before Your Eyes*' natural contrast between the flickering temporality of Benny's life and the mass expanse of the afterlife suggests we don't take "permanent" things with us, only the immaterial.

While Benny attempts to control his life's narrative, his disposition toward time is far less antagonistic than in the other games we discussed this chapter. The protagonists of ludic time machine games seem to hate time: they rage against it and their powers tend to be a manifestation of the powerful emotions they feel toward time's indifference. Benny, too, feels these emotions, perhaps best represented in the stargazing "STAY HERE" scene, where he pleads with time, and himself, to let him remain by tracing letters from imaginary lines between stars. In those two words, "STAY HERE," rests the crux of every ludic time machine game. In each, characters try to sway time to let them keep something they shouldn't, something they can't. It's no surprise then that these games tend to have dour endings, because eventually their characters need to come back to earth, and realize that even if you could control time, you can't escape it, because to *be* is to *be in time*. There is no other way of being.

Like these other games, the sense of temporality in *Before Your Eyes* is deeply subjective. Despite Benny's inability to command time like our other time travelers, his journey does not showcase another's perspective or exhibit a temporality beyond his slippery memories. He experiences his life at his pace, and never gets far from it. Yet he grows over the course of the

narrative. The game's final scenes place a heavy emphasis not on his sense of atemporal identity, but his impact on others. Through his mother's story, Benny finally gets a chance to see himself, escape the limited perspective of watching his life pass "before his eyes," and instead see it *through* theirs. *Before Your Eyes* asks us to consider Benny not as a noun or subject, but as a verb. In a sense, it asks us to think of our lives a little more like games. Games are vehicles for change, we find value in the "doing" they provide. *Before Your Eyes* speculates that our value is in whatever we do *as it is done,* not in what it produces, and how deeply those actions are felt, not by which ones touch the highest quantity of lives.

In this ending, *Before Your Eyes* breaks free of the curse which seems to plague other ludic time machine games: it derives genuine meaning from the time machine. Most ludic time machine games write themselves into a corner they can't escape. In *Superhot*, the player-character commits suicide to get away from their non-normative temporality. In *Life is Strange*, Chloe must decide between her town and her friend, a deliberately bitter ending to indicate the perils of time control. In *Braid*, Tim remains trapped in his temporal hell after the narrative finishes, with only a vague and lonely castle to comfort him. Once the Pandora's box of temporal control is opened in these games, no one is allowed a happy ending. At a glance, Benny's story is no different, or perhaps even worse, as he starts the narrative already dead, but experientially *Before Your Eyes* performs an incredible feat: it tells the story of a person's life, a person who dies young, without achieving their dreams, but still powerfully justifies the value of that life. This value is not found in the individual getting what they

want, but giving what others need, a profoundly humanist lesson in letting go of yourself, and a fitting ending for a series of games consumed by an unending sense of solipsistic subjectivity.

Right before Benny meets the Gatekeeper, the Ferryman comes to a similar conclusion: "You know for a while now, I've wondered if I'm just not a good enough storyteller. If I just don't have grand enough words, can't tell grand enough stories. But grand words and stories, I think they may be overrated." Stories of time machines are almost always grand and epic. Whether *Life is Strange*, *Prince of Persia,* or *Braid*, they feature important people who hold the world in their hands, not just as it is, but will be and was. These games, in their tales of time travel, hold potent and powerful meaning for players, but as I hope I've shown, it's not because of their scale, but in spite of it. None suggest time can be meaningfully overcome, but *Before Your Eyes* gently contends it can be lived with, and in living itself, in the change from day to day, year to year, we find true meaning.

Ludic time machines indirectly speak on gaming as a whole. As I noted in the introduction, games, whether or not they privilege unique temporal actions, inherently disrupt linear time. We pause them, save our game and reload it when things don't go our way, or even copy other people's save files to skip forward in time.[14] Games regularly ask us to be absorbed temporally: particularly "single-player games," which almost all impress upon the player a sense of egoism. We don't *watch* the hero save the day when we play games, we *are* that hero. Much has been written in recent years on the fracturing of visual media: television moved away from mass-media broadcasts and toward individualized streaming. Films can be viewed in the comfort of one's home, with no need to be

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[14] Which I had to do while researching the next chapter, as I accidentally deleted 20 hours of progress in *Chrono Trigger*.

packed into a large auditorium with a crowd. YouTube's algorithm assures no two people experience

the same website when they log on. Games, which have encouraged players to sit in solitude for

many decades, have struggled with individualization for much longer, and maybe, with titles like

*Before Your Eyes*, and others we've yet to examine, they've found ways to turn that latent self-

centeredness outward and toward the world around us.

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# Chapter 2 - Narrative Time Machines

Partway through the 2000 game *Escape from Monkey Island*, the game's protagonist,

Guybrush, must travel through the "Swamp of Time." After rafting through the swamp following a

friend's direction, Guybrush encounters a gate, behind which is a suspicious individual: himself. This

duplicate asks the player's Guybrush what number they are thinking of, and when they answer

correctly (they cannot answer incorrectly), gives them a litany of items, including a key to open the

gate. The player's Guybrush can then continue through the swamp toward their objective. Later, they

return to the gate, now locked, and find a familiar sight: Guybrush. Now, they ask the questions, they

hand over the items to a past version of themselves and watch their past self reenact their past actions.

Should they alter their once future selves' choices, perhaps guess the wrong number, give the items in

the wrong order, or choose not to hand one over, it causes a rift in the space time continuum,

sucking Guybrush back to the beginning of the swamp, and forcing them to repeat the process again.

*Escape from Monkey Island's* "Swamp of Time" is a good bridge between ludic and narrative

time machines. On one hand, we find a hint of ludic time travel when the player is not just asked to

witness, but interact with, the passage of time by repeating, exactly, the actions of another self to

continue. This kind of gamification of time is a hallmark of ludic time machine games. On the other

hand, it's a decidedly "narrative time machine" in that it represents the passage of time and draws a

connection between past, present, and future versions of the self. Unlike the ludic time machines we

covered in the last chapter, Guybrush's perception of time is not altered from our own, he just

interacts with a "machine" (the swamp) which adjusts the nature of time.

Like the swamp, not all narrative time machine games feature a device called a "time

machine," but it is these games which most closely represent the collective imagination conjured by

the term. From *The Time Machine (1895)* to *Back to the Future (1985),* the concept of a "time machine"

intrigues audiences and inspires writers. Generally speaking, a time machine is a device which allows

the user to travel forward and/or backward in time. While, for narrative purposes, they take many

shapes from mechanical contraption to spaceship, and typically require special conditions for

operation (such as a unique source of energy or traveling at 88 mph), the fantasy of the time machine

is constant: a vehicle which does not take its user where, but when.

Time machines are a fixture of academic discussions of science fiction, but what meaning

writers derive from them varies. Terri Paul focuses on their ability to curtail the effects of death:

"time travel [is] the ultimate fantasy, the scientific addition to the human quest for immortality"

(278). Sorcha Ní Fhlainn focuses on renewed contingency and contends time machine stories affirm

"'the future is whatever you make it'" (181). David Wittenberg argues time travel narratives are "a

literature about the forms and mechanisms of storytelling itself… a narratological laboratory" (31).

Paul J. Nahin's *Time Machine Tales,*[15] one of the most comprehensive books on time machines,

describes them as "mysteriously and marvelously fascinating" and argues they appeal "irresistibly, to

the romantic in the soul of anyone who is human" (364). Nahin's discussion of time travel is

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[15] The first two editions were titled *Time Machines* but Nahin changed the title with the third edition.

particularly useful because it conforms to the two most common mistakes when analyzing time machine narratives: placing too much of an emphasis on the literal possibility of time travel and romanticizing time travel's possible literal meaning on our own lives.

The first is a common refrain among physical scientists and philosophers broaching the topic of time travel,[16] who tend to be far more concerned with proving or disproving the idea that "time's arrow" can be reversed by humans than wrestling with the narrative meaning of time travel stories. These authors may entertain thoughts of Einsteinian theories around the speed of light and black holes. Regardless of what they focus on, the mistake is obvious: time travel stories are fiction; they're meant to illuminate aspects of our lives and communicate novel concepts and ideas to audiences. Whether or not time travel is feasible is irrelevant to whether *Back to the Future* tells us anything meaningful about the human experience. Moreover, these kinds of questions would not be taken seriously with most other elements of fantasy and science fiction. No one writes academic papers arguing that *Lord of the Rings'* elves aren't real or that aliens from Krypton have never visited Earth. Time travel is fiction like these examples, and such discussions of it lack the nuance required to interrogate *why* we tell stories of time travel in the first place.

The second mistake in reading time travel is the philosophical equivalent to the overly scientific reading: focusing on what time travel stories tell us about the nature of time.[17] While the possibility time travel certainly stimulates the imagination, its ability to excite is meaningless in a

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[16] See Effingham, Wasserman, Norton, Erdinç and Cagatay, Monton, and Manchak.

[17] See Parker, Miller, Gavaler and Goldberg, Punter, and Eckert.

vacuum: *what* it stimulates the author to write and *why* they write it are the crucial questions to consider when assessing the meaning of time machine stories. Wittenberg makes this mistake when he argues analyzing "narrative machines" can lead to "a fundamental reconsideration of the philosophy of time" (2). While narratives are no doubt powerful, this overly romantic view of time travel stories tries to make them not just relevant, but crucial, to mildly related fields of study, which undermines their potential phenomenological meaning. Paul makes the same blunder in the opposite direction when he asserts: "Imagining ourselves beyond the force of entropy leads to the death of the imagination." Not only does this reading hinge on the idea that the time machine is only a tool for avoiding death, which it hardly ever is, it suggests that time machine narratives are a spiritual dead end, that we can't find meaning in their stories. In either case, reading time machines literally mostly serves to undermine the meaning we might otherwise find within them.[18] It's worth reiterating that time machines are fictional, born out of the heads of authors trying to answer questions that plague our temporal existence.

Video game stories of time travel have a tendency to subvert these misguided questions. By putting the player in the position of time traveler, any "grandfather paradoxes," or other complaints about the feasibility of time travel, are so obviously present and testable that to focus on them is pointless: game designers cannot possibly account for every contingency a time travel narrative affords, and most of them don't try, which forces us as players to focus on the stories they *do* tell

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[18] My argument here is not an invalidation the copious amounts of literature on the topic of time travel, physics, and philosophy, but rather an assertion that if we're trying to understand why human beings find value and meaning in stories of time travel, we ought to look at the stories themselves rather than contend with what time travel would literally mean for our non-fictional lives.

within the narrative form. Games feature a temporality utterly distinct from our own, but the player must physically interact with them through an interface to experience this temporality: the juxtaposition of their real time and fictional time is always apparent. Just as games with "3D graphics" are actually the illusion of 3D represented on two-dimensional plane, games which feature time travel graft the fiction of time travel onto a limited portion of linear time (the player's playtime). To go "back in time," in a fictional sense, requires the player themselves to go "forward in time," in a physical sense. Thus, video game stories tend to not say much about capital-T "Time" as a philosophical or physical phenomenon and are far more interested in pondering our unwavering relationship to time, particularly how it affects our social relationships.

Films which feature time machines tend to be associated with the science-fiction genre but can accommodate a wide variety of narrative forms such as action, arthouse, comedy, noir, and romance films.[19] Similarly, games which feature narrative time machines can be found across a variety of genres. Much of the time, time machines are simply used to enhance the aesthetic presentation of a game by making logically consistent an otherwise incoherent set of locations and time periods. The NES game *Back to the Future Part II and III* is a simple platformer in the vein of *Super Mario Bros.*, where the time machine is used to visit various locals from the popular film series. In the first-person shooter series *TimeSplitters*, the player travels to a variety of time periods, using a myriad of period-appropriate weapons, as they track down a race of time meddling extra-terrestrials. *Carmen Sandiego's Great Chase Through Time* is an educational adventure game where the player

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[19] Examples of each *Avengers: Endgame, La Jetee, Bill and Ted's Excellent Adventure, Synchronicity,* and *The Time Traveler's Wife.*

pursues the title character throughout the past to save it from meddling, presumably learning some history in the process. The real-time strategy series, *Command and Conquer: Red Alert*, takes place in an alternate history where a time machine was used to remove Adolf Hitler from history, the consequences of which cascades into a global war between the Soviet Union and the United States.

While each has a "time machine" somewhere in its narrative, these games do not meaningfully engage with the concept of a time machine on a narratological or thematic level. Instead, they use time travel as set dressing. When compared to literary works like Robert A. Heinlein's "All You Zombies" or films like *Timecrimes (2007),* where the concept of time travel is critical to the exploration of the human condition, these games present a rather hollow use of the device to superficially deliver stories about alternate history or temporally foreign locations. That said, they do emphasize the wide variety of game genres that can employ the time machine to build their fictional game worlds. In this chapter, we will consider three games from significantly different genres which use a time machine to tell their stories and impact gameplay.

Even if every game which features a time machine does not use it potently, video games offer a unique avenue for exploring the narrative possibilities of time travel due to the relationship between the player and the temporality of the game. Video games have a tendency toward non-linearity and player paced play which are difficult to replicate in other mediums. A film about time travel, no matter how often the characters jump between different time periods, is still experienced linearly, with the same path taken by every viewer. In a game with time travel, the player can direct the machine as they see fit, leading to a story paced by their own actions. The "time machine" in

these games takes on stronger metaphorical meaning because it is not a device the player imagines

existing for the sake of narrative continuity, but one which they must interact with to advance the

story. As such, the act of time travel carries an immediacy difficult to replicate in other mediums,

because the player must conceive of themselves as a time traveler to understand with the game's

puzzles and challenges.

Importantly, for this chapter I am not interested in games where the player takes an active

role in shaping the temporal experience of the game (i.e. the moment to moment experience of

time), but those games whose narratives are shaped around the concept of time travel, and what

those stories communicate about our relationship to time. In *Chrono Trigger*, player-characters may

use a time machine, but whether they are in a prehistoric jungle or dystopic future, their atomized

experience of time remains constant. Time does not slow or hasten; it just changes in the same way

geography does when traveling between continents or cities. In all three games we will cover in this

chapter, the player travels to the same geographic location at different eras of time. Their interplay

between in the past, present, and future set the tone of the games, influence narrative events, and

lead to the resolution the conflicts characters find themselves in.

Just as a wide variety of games use a time machine to narrative and ludic effect, the meaning

of those time machines and the narrative tone of time travel drastically differs between their

inclusion. In *Chrono Trigger*, the time machine is introduced as a mischievous and uncontrollable

device but ends the story as critical to preventing a malefactor from destroying all timelines. In *The

Legend of Zelda: Ocarina of Time*, the time machine takes on an unambiguously somber tone, where

time travel only further emphasizes the story's themes of loss, disaster, and regret. *Return of the Obra Dinn*, where time travel is localized to the voyage of a 19th century trade ship, challenges the relationship between truth, time, and documentation. Regardless of their approach to characterizing the time machine, these games each offer players meaningfully reflections on the nature of time, how we pass through it, and why no amount of time manipulation can alter fundamental aspects of human existence.

Chrono Trigger

Broadly speaking, some video game genres may eschew rich stories to keep the focus on their gameplay, but that's usually not the case for role playing games (RPGs). The fantasy of RPGs is that the player embodies and coinvents a character or group with the game, making both gameplay and narrative decisions congruent with how they want those characters to act. Outside the global juggernaut of *Pokémon*, the two most recognizable franchises in the world of RPGs are *Final Fantasy* and *Dragon Quest*, which have served as standard bearers for the genre since their inception in the 1980s. Today, both series are published by the same company, SquareEnix, but they spent their formative years apart, with *Final Fantasy* developed by Square and *Dragon Quest* by Enix. Yet prior to their corporate merger, the developers of these iconic RPG franchises collaborated on a game. Dubbed the "dream team," *Dragon Quest* creator Yuji Horii, *Final Fantasy* creator Hironobu Sakaguchi, and *Dragon Ball* creator Akira Toriyama put their talents together to make *Chrono Trigger*.

Given a blank check to make an RPG game about anything they could imagine, *Chrono Trigger*'s designers took a salad bar approach. The character designs by Akira Toriyama evoke his work on manga, the lighthearted story calls to mind the plots of *Dragon Quest* games, and the game design borrows heavily *Final Fantasy's* "Active Time Battle" system. Most importantly for our purposes, rather than pin their characters down in a medieval world with swords and magic or a futuristic dystopia with fantastic technology, *Chrono Trigger*'s designers put a little bit of everything into the mix. Though, the game's disparate environments are not connected by land and sea, but time.

*Chrono Trigger* follows the adventures of Crono[20] and friends as they attempt to save the world from the malevolent extraterrestrial force Lavos. The game begins in the humble village of Truce in the year "1000 AD." While the game's naming convention of BC/AD is lifted from the way we date time, *Chrono Trigger* is not set on Earth, nor are its years quite analogous to our own. Case in point, Crono does not live in a time akin to our Middle Ages, but the turn of the 19th century, with burgeoning electric technology and strange new machines set to the backdrop of an otherwise old world. While celebrating the new millennium at the world fair, Crono, a commoner, and the kingdom's princess, Marle, bump into each other, though she does not reveal who she is. After enjoying some festivities, the pair go to see an invention by Crono's friend Lucca. While using the contraption, meant to teleport the user from one place to another, a portal to another time is torn

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[20] In the English version of the game the character's name is spelled "Crono" while in English Japanese materials, his name is spelled "Chrono", I have elected to use his name as represented in English copies of *Chrono Trigger*.

open, sending Crono and Marle into the past, with Lucca following after them. Stuck 400 years prior

to their own time, the trio's medieval setting is the least of their concerns, as a raging war and

kidnapped queen, none other than Marle's look-a-like ancestor, burden the kingdom. After solving a

local mystery with the help of an anthropomorphized amphibian creatively named Frog, they rescue

the queen and manage to return to their own time. Unfortunately, Crono is set to be executed for

"kidnapping" the princess, so the trio escape via another portal, only to find themselves in 2300 AD

surrounded by the desolate remains of a society far more technologically advanced than their own

and where what few humans remain struggle to find food. The trio learns the devastation is the

doing of a giant alien creature named Lavos and resolves to save the future from destruction.

During the game's initial chapters, time travel is a one-way ticket, as using a time portal

strands characters in a new period until they find another portal to jump through, but after leaving

2300 AD they arrive at the "End of Time." The End of Time is a small abode in an otherwise black

void, populated only by a mysterious old man. From this location, the group freely travels to portals

they've used. Later, they gain access to the "Epoch," a futuristic ship which travels through air and

time. Yet no matter how the player accomplishes the feat, in *Chrono Trigger* time travel is not just

incidental to the game's events, but an integral part of how the game's characters understand their

role in the world and how the player engages with its narrative, puzzles, and action.

For example, one of the game's early villains is the enigmatic Magus, who, in the year 600 AD

starts the war between the monstrous races and humans. As part of his evil plans, Magus summons

Lavos, giving the heroes motivation to stop him early. Magus resides in a large castle protected by a

magical barrier. The only way to break that barrier is through a legendary blade named Masamune. In a prior conflict, Magus destroyed Masamune and its wielder, turning the only witness into the amphibian humanoid hybrid, Frog. Frog has the blade's hilt but has lost the will to fight. To retrieve the other half, the characters prove their worth by challenging the dual spirits who inhabit the blade in 600 AD. Then travel to 65,000,000 BC to find a stone needed to repair the blade unavailable in the future, in the process meeting Ayla, a future member of their group, and getting embroiled in a war between reptilians and humans. After obtaining the stone, they take the blade's pieces to its original creator, who lives in 1000 AD. With Masamune reforged, the group return to 600 AD, give the blade to Frog, and challenge Magus. This side quest is not unique in the game, most every task the player accomplishes requires a similar amount of temporal crisscrossing.

To advance in *Chrono Trigger*, the player must imagine time with the same looseness as the game's characters experience it. While combat is the de facto way of solving many of the game's conflicts, the where and when of the game's battles is dictated by its time travel mechanics. Actions taken in the past influence who and what characters exist in the game's future centuries, subtly reminding the player that everything they do has rippling consequences. For instance, as the characters disrupt Magus's spell to summon Lavos, they experience such ripples. Changing the timeline so dramatically causes a rift which thrusts them back to 65,000,000 BC, where they witness Lavos, as a living meteorite, crash into the planet killing the reptilians and causing a global ice age. The characters, realizing the scope of the problem is far greater than a single mage, escape through a portal to 12,000 BC, where the sky kingdom of Zeal harnesses Lavos's immense power to construct

an idyllic technological society. Yet while halting Zeal's progress seems a noble goal, Lavos

transcends any single age: he is an ever-present threat lurking under the game world.

It's difficult to discuss *Chrono Trigger* without recapping its entire plot. Minute details in one

time period have drastic consequences for the game's timeline, an interweaving tapestry of cause and

effect strewn across centuries. Of course, the density of connections between eras is the point. The

player takes on the role of historian, tracking changes and facts from each age and recalling them to

overcome current obstacles. To call *Chrono Trigger* a "non-linear" experience is technically true, but it

doesn't accurately describe the game's narrative mode. As the player collects allies and information

across time, they grow familiar not with any one world and its many possibilities, but a variety of

locales laid on top of each other, engendering a sense of deep, geologic, time at the heart of their

relationship to the game. The *Chrono Trigger* player does not simply make a myriad of choices to

reach a final destination in their own way, but breaks distinctions between past, present, and future

until the concept of "time" structurally falls apart. In the end, each era exists at once, the difference of

time condensed into a simple adjustable clock. *Chrono Trigger* gives the player a taste of

omnipresence: they exist not just anywhere, but anywhen.

Many media which feature time travel get distracted by the impossibility of the concept. In

2019's *Avengers: Endgame*, the heroes do not go back in time and stop the villain Thanos from

completing his evil deed, because to do so would create alternate timelines, not fix their own world.

Instead, they simply use objects collected from the past to complete an objective in the present.

Meanwhile, Marty McFly spends most of *Back to the Future* avoiding the "grandfather paradox" to

make sure he's still born in the future. Shane Carruth's 2004 film *Primer*, which attempts to provide a realistic time travel story, is so famously confusing Mike D'Angelo of Esquire magazine penned that anyone who understood it after one viewing was either a "savant or liar." In each of these examples, and dozens more novels and television series, the concept of time travel bears scrutiny by both characters and audience, its latent technical implications so overbearing that they warp the entire plot around their existence.

*Chrono Trigger* stands apart from other time machine narratives because it completely absconds from such presuppositions. The game employs no "butterfly effect" phenomena wherein stepping on a flower in 12,000 BC suddenly unmoors the entire timeline, causing the main characters to never be born. Marle saves her own ancestor from a kidnapping, a literal allusion to the grandfather paradox, but one which never puts into doubt the factual existence of her character. Despite revisiting the same time periods again and again, the characters never run into themselves. The game's time travel narrative has a particularly leaden structure: while decisions in one period can influence another, they never upend the structure of the game. In some senses, we could describe such an approach, leaving out any inconvenient details, as a "lazy" way to tell a story of time travel, but I'd argue *Chrono Trigger*'s narrative is far more interested in the connections between its characters and the events they cause than providing a "technically accurate" portrayal of a phenomenon which does not actually exist. *Chrono Trigger* is a story of a millennia-spanning conflict told through a unique perspective on time first, and a story about time travel second.

*Chrono Trigger*'s lack of specificity in its time travel mechanics is important because it allows the player to focus on capturing a picture of its expansive temporal realities in their head. For the purposes of the narrative, it doesn't matter if any given time traveling action makes literal sense, but whether it makes emotional sense. For instance, as the original 1000 AD trio venture throughout time they continually pick up new party members from each period. By the end of the game, their crew contains a member from nearly every visitable age, giving their quest to defeat Lavos a sense of timeless purpose. Surprisingly, nearly all these characters are unaffected by Lavos in their own timelines. Crono, Lucca, and Marle could easily live out their 1000 AD lives before the 1999 apocalypse, as could Frog and Ayla who predate them. Only two members of the *Chrono Trigger* crew are directly affected by Lavos's 1999 razing of the planet. Magus, the villain the heroes face in 600 AD, is surprisingly against Lavos and joins the team late in their adventure. An unwitting time traveler from 12,000 BC, he has a vengeance against Lavos because the alien's influence corrupted his mother and abused his sister. Meanwhile, Robo, a sentient robot from the year 2300 AD, only stands to lose from Lavos's defeat, as without Lavos's destruction of the planet in 1999 AD, it's entirely possible he will never exist. While most of the crew's material realities are not affected by Lavos, their heroic character is revealed when they resolve, unambiguously, to stop Lavos at all costs, taking the responsibility particularly because they are the few individuals capable of the time travel necessary to defeat him.

Though, as one might expect, defeating a giant mythic alien creature living for millennia in the planet's crust is no easy task. The group has no obvious path toward confronting the creature.

While the option is always available should they decide to travel to straight 1999 AD from the End of Time, to do so would be to attack Lavos at his most powerful, so they aim to circumvent such a battle by finding a more amicable moment to cross paths. Their attempt leads them to 12,000 BC, where they try to disrupt Zeal's queen from harnessing the alien's energy to "live forever," but it blows up in their face. Upon reaching the queen, Lavos kills Crono and scatters the group. From this point onward, the queen resurrects a huge ship named "The Black Omen," which resides over every age, imposing itself over everyone at all times for the rest of the game. Crono's death leads to the introduction of the item for which the game gets its namesake, the "Chrono Trigger," which can, for a moment, stop time. The group travel to the past, replace Crono's body with a lifeless clone at the moment of his demise, save him, and renew hope for their adventure.

It's worth dwelling on the "Chrono Trigger" to understand how the game presents a unique kind of temporality. Despite the fact that time manipulation is squarely at the forefront of the game's narrative presentation, it is only with the Chrono Trigger, and only for a single moment, that the group actively "cheat" the passage of time. Otherwise, they can place themselves anywhere on the timeline, but from that point onward, time progresses naturally. Outside a single plot point to save the game's main character, which was added late in development because the game's publisher did not like the idea of killing off the main character, time itself is not malleable in *Chrono Trigger*, it is simply traversable. As the single exception, the eponymous item brings the player's attention to their lack of control over the passage of time.

Understanding the difference between malleable and traversable in relation to time is important for developing ideas around the game and why it's important to make a distinction between "narrative time machines" and "ludic" ones. Ludic time machine games explore ways of experiencing temporality outside the traditional way humans comprehend time. Generally speaking, they are consistent with the A-Series, or "presentism" understanding of time, because the only thing that matters in them is the moment-to-moment experience of time, and how that can be manipulated to complete puzzles and action segments. Narrative time machine games, on the other hand, offer the player the fantasy of traveling to another era, of imagining the interweaving possibilities connecting all of time together. *Chrono Trigger* presents time in an eternalistic fashion, where everything happens everywhere at once: time does not "flow" from one moment to the next, instead, everything has already happened and will already happen. Yet despite setting up time in such a way, the game's characters explicitly attempt to dismantle such a deterministic view of the universe. It appears, at least in the world of *Chrono Trigger*, that time is eternalistic only until it's observed as such, in which case, if one knows how to traverse it, they can change the outcome of history. Thus, time travel is far more thematically crucial than experientially important in the game: the act of time travel does not make time pliable, but the idea of it does.

I am not the first to note the game's seemingly simultaneous determinism and indeterminism. Patrick Holleman contends, "At the heart of *Chrono Trigger* is the question of whether or not events are inevitable." Yet Holleman structures his argument around the idea that *Chrono Trigger* offers "two different answers to its central thematic question" (vii) and can do so

because "it is really two different games." Using the traditional schema of tragedy/comedy, he explains that prior to Crono's death and resurrection, the game has a tragic tone, or is "linear, authorial, and plot-driven" (81), inevitably leading to the group's devastating conflict with Lavos. After Crono's resurrection, meanwhile, the party intervenes in the lives of the planet's citizens in an "open-ended, flexible, and character-oriented" way across time. This arrangement of *Chrono Trigger's* narrative and gameplay fails to suggest that the "flexible" second half of the game might well be *commenting* on the first half of the game. If someone was to only play the first part of the game leading up to Crono's death, they could be forgiven for thinking it's a game about tragic destiny, but taking the game in totality, it's clearly a rebuke of determinism. Rather than view the game's midway point as a shift in broad genres of narrative design (tragedy to comedy), it's more fruitful to consider it as a shift between treating time as a physical phenomenon the characters experience and traverse to a spiritual idea they must believe in and embrace.

After resurrecting Crono, the group can travel throughout time fixing various wrongs and subtly altering the flow of history, often rewarded with powerful artifacts for their trouble, but eventually, they must visit the Black Omen, fight Queen Zeal, and vanquish Lavos. During their fight, the group finally discover what Lavos truly is: a parasite. Across the millennia, he absorbed the energy and "DNA" of each living creature to make a better version of itself with the intent of sending its spawn across the cosmos upon razing the planet. In keeping with the game's approach to storytelling, Lavos does not simply represent an existential threat to all life on the planet, but a

thematic one. His existence undermines the purpose and experiences of every person who ever lived on this world, which are recontextualized only as sustenance for a burgeoning parasite.

It's here where the theme of time travel, which represents the possibility to break free from eternalism, finds a true foe to define itself in opposition to. The group no longer fight simply to avert a cataclysmic future, but to define the purpose of their own existence separate from the whims of an uncaring extra-terrestrial. Even if Lavos does not directly threaten any of the people in the main characters' timelines, the knowledge of him is a threat to the *idea* of their existence. So, whereas the rest of the game's battles take place in fantastical, but plausible locations, the setting of the final encounter with Lavos is just as abstract as the ideas he brings to the forefront of the player's mind, as the battle takes place in a strange technicolor void with no physical objects to give a sense of proportion or space. Ultimately, the characters fight not Lavos, the nearly indestructible space parasite, but Lavos, the embodied concept of determinism. By defeating him, they retain a crucial aspect of their humanity: the ability to determine for themselves their life's purpose, direction, and meaning.

Keeping with the game's themes of indeterminism and free will, which run counter to its time traveling premise, *Chrono Trigger* has a bountiful amount of possible endings.[21] Alternate endings, while not wholly unique to video games, are a device the medium most successfully deploys compared to other narrative mediums. In most games which feature them, such endings represent an additional bonus for completing various optional tasks prior to completion. In some, the ending is a

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[21] See Transparency for further discussion.

culmination of the player's choices up until that point, offering what we could construe as a "personality test" with its final moments. Rarely do these endings meaningfully change the outcome of the story, and when they do, only one ending is regarded as the "true" or "canon" conclusion. *Chrono Trigger*, on the other hand, as a game whose entire theming leans on an indeterminate perspective of time, can't help but offer multiple endings not based on whether the player collected all the right widgets before finishing the game, but where and when they completed it.

As previously noted, once the player reaches the "End of Time," shortly after the *Chrono Trigger*'s introductory chapters, they may challenge Lavos at any point they desire. Doing so unprepared leads to the game's only "bad" ending, where failing to defeat Lavos rewards the player with the 1999 AD apocalypse they're already familiar with from their travels to the desolate 2300 AD. To call this an "ending" does the rest of the game's thematic material a disservice: it is simply an affirmation of the eternalist state of the game world without the player-characters' intervention, the future they've already lived through.

Generally speaking, the game's other endings fall into two broad categories: those completed prior to Crono's death and those completed after. Most first-time players are unlikely to defeat Lavos prior to this critical moment because they are simply not powerful enough. Once they reach the other side, they have a buffet of options before them. If the player fails to resurrect Crono but still completes the game, they get the "Reunion" ending, which, has a variety of outcomes dependent on how they took him on and what they did beforehand. These endings mostly revolve around the remaining group resolving to save Crono, but not actually doing so on screen.

The most common conclusion the player is likely to experience is "Beyond Time," where they rescue Crono and defeat Lavos at the natural end of the game, but even within this framing, a variety of potential endings await. Importantly, in the eternalistic fashion he represents, it appears the very existence of Lavos created the temporal anomalies the characters traveled in. When he dies, the various portals around the game world begin to fade away. If the Epoch is gone at the end of the game,[22] the closing time gates mean each character must return to their own time for good and the group say their goodbyes. Stuck in their own time, Crono and Marle accidentally float into the night's sky via a cluster of balloons, a conclusion hinting at the romantic feelings they've subtly been intimating across the game's runtime.

The other endings, which take place if the player completed the game earlier than expected, are primarily achieved through *Chrono Trigger's* "New Game Plus" system (a now-common term the game coined), in which the player starts the game over while retaining their characters' equipment and experience. These endings are too multiple to get into all the details: in some the characters are replaced by Reptiles or half-human/half-frog hybrids due to their actions affecting the flow of time. In another, Frog gets his revenge on Magus, who never had the opportunity to redeem himself. Each of these endings is determined by how far along in the narrative the player gets before challenging Lavos, which can be achieved earlier than in their first play through because in New Game Plus an additional portal is placed at the beginning of the game for ease of access.

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[22] One of the choices for the player is whether to take the "long way" through the Black Omen, or simply crash the Epoch into the ship to start the final boss fight straight away.

While the concept of a "New Game Plus" can usually be construed as a way for the developer to squeeze the sponge of their game to give players a little more content to strive after, in *Chrono Trigger*, its existence works in parallel with its thematic material. Each ending is a nod to the contingent nature of the game's world and presents "that which could have been otherwise.". If Lavos never crash lands during 65,000,000 BC and causes an ice age, the reptiles might have "otherwise" remained as the dominant species. If Lavos is defeated before the player-characters learn Magus's true identity and motives, it is reasonable he might be defeated by a vengeful Frog rather than earn redemption. Each of these endings affirms that once Lavos is out of the picture the concept of "cause and effect" finally returns to the timeline. Importantly, this occurs after the player has no actions left to take. The existence of New Game Plus encourages them to not think of any one ending as the "true" ending, but each a selection from a buffet of possibilities contingent upon their actions. Many of the endings are in-jokes with the player and only understandable because they have a thoroughly expansive idea of the deep time under which the game operates.

*Chrono Trigger's* strangest conclusion is referred to as the "Developer's Ending" and is accomplished in New Game Plus by defeating Lavos at the player's earliest convenience, about 15 minutes into the normally 20-hour game. Returning to the end of time before reaching the end credits, the player can interact with a digital representation of each member of the game's development team. Most of them crack a joke, talk about how hard they worked on the project, or call attention to some detail the player might not have noticed. When the player has talked to all available team members, a door opens, allowing them to meet the fabled "dream team." Both *Dragon*

*Quest* creator Yuji Horii and *Final Fantasy* creator Hironobu Sakaguchi's avatars muse on the concept of time in their brief interaction. Yuji exclaims, "Wow, the years sure do fly by. This game was first released in 1995!" While perhaps a joke on the fact that the characters are at the "End of Time," Yuji's words gain significance when playing the game decades after release, when the distance and impact of time render his digitized form an immortal placeholder.

The last of the developers the player talks to, Hironobu Sakaguchi, comments, "Boy, it used to be that I'd get thinner after each game. Now I'm gaining weight instead. Ack! I must be getting old." In just a few sentences each, Hironobu and Yuji's avatars express opposing views of the nature time. Yuji offers a timeless sentiment, that the game will continue on until the end of ages, while Hironobu grounds the individual's experience of time, bringing to mind his own encroaching expiration date (ironically, Hironobu is ten years younger than Yuji). Both statements are reflective of *Chrono Trigger*'s internal sentiments toward time: when the characters save the game world from Lavos, they set it right for time immemorial, but in doing so, they return to their original time periods, content to live out their lives, wither, and die with the knowledge of futures and pasts without them.

Yet while the "Developer's Ending" hints at a kind of conservative impulse, that time passes you by and one day you're gone, the game's most straightforward and common ending rejects such a simple prescription. If the player-characters take the standard route and keep the Epoch intact after defeating Lavos, each other character celebrates at the Millennial Faire and then uses the portals to return to their timeline, but at the last moment Crono's mom accidentally falls into the open portal

and it closes behind her. Lucca, Marle, and Crono debate what to do for a second before Lucca

exclaims "We have a time machine!" and the trio rush off to continue their adventures. Here, *Chrono*

*Trigger* opens its ending, suggesting the possibility for change and new experiences is never truly over.

While proclaiming such an ending as the "true" conclusion to *Chrono Trigger* would be pointless for a

game purposefully so varied in its presentation of time, this ending resonates with the themes we've

discussed, as it suggests that, once imagining and acting in a world beyond an eternalist mindset, we

cannot return to such a state of affairs.

  *Chrono Trigger* imagines a world beset by an eternalist mindset, where the importance of life

and personal experience is muted by the overbearing presence of a seemingly unstoppable force.

Ultimately, its characters do not defeat that force through violent capability but envisioning the

world around them as separate from that force, by seeing time as malleable. Many time travel

narratives have similar themes, as we will see with *The Legend of Zelda: Ocarina of Time*, but where

*Chrono Trigger*'s age-to-age story differentiates itself is in how forcefully it asserts its vision of time.

The "realistic" mechanics of time travel, the possibility of paradoxes, nor an entire field of the

philosophy of time (B-Series), are ever presented as meaningful obstacles, or alternatives, to its

conviction to tell a story about characters who, rather than ascend the timeliness of their dreary

scenario, work within the limitations of time to imagine a better future for everyone. In the end,

*Chrono Trigger* does not offer the player that all too familiar conservative impulse in time travel media

to return to a better time, or preserve the present indefinitely, but dares to radically reconceive

purpose and meaning in a way consistent with the nature of video games as media fundamentally informed by contingency.

The Legend of Zelda: Ocarina of Time

At first blush, *The Legend of Zelda: Ocarina of Time's* (*Ocarina of Time*) time travel narrative has a lot in common with *Chrono Trigger*. In both games, the protagonists come from an idyllic world but are presented with catastrophic futures they hope to avert. Both games employ a looseness with time travel, less focused on the specifics, and more the thematic possibility offered by turning time. Both games have "portals" which consistently take characters to and from the same moments in time, and solving puzzles often requires the player to crisscross between time periods. Yet upon examination, these similarities prove superficial. In *Chrono Trigger*, time travel is an optimistic tool for reimagining the world. In *Ocarina of Time*, it is somber and regretful, a representation of the personal cost of being a hero.

*Ocarina of Time* does not use dates to delineate ages, and it hardly has to, as the game only features two different time zones, which we will call the past (which I'm avoiding calling "the present" to not confuse) and future. The game begins in the past time zone, and immediately foregrounds its temporal bending schema. In its opening cutscene, the player witnesses the game's protagonist, a child named Link, having a nightmare wherein a man on a horse chases after a princess and attacks him. These events will transpire later in the game. Link's premonition is not just

appealing eye candy to introduce the player to the game's main characters, but signals that he is, indeed, the hero of the story. When the Deku Tree, the game's arboreal Merlin-equivalent, summons Link to send him on his journey, he specifically justifies the quest with Link's temporal sensitivity: "As the servants of evil gain strength, a vile climate pervades the land and causes nightmares to those sensitive to it... Verily, though has felt it." In these opening moments, the player understands Link is burdened with responsibility primarily because he is predisposed to an extra-sensory perception of time, which defines his relationship to the game's events.

Battling concepts of time are introduced in the game's opening area the Kokori Forest. The forest is populated by the Kokori people. A cross between hobbits, gnomes, and elves, the Kokori exist in a timeless stasis. Despite their varying ages, they all look like children, nary much older than child Link. It's unclear exactly how long Link has lived with them, but the implication is his entire life, yet Link is not a Kokori, he is a Hylian, the in-universe equivalent to a human being. The underlying assumption, never explicitly stated in the introduction, is that Link is on the cusp of maturation, of outgrowing his time with the Kokori, a kind of change otherwise not seen in their ageless halcyon society. Link is defined by not being part of dominant race, as he's labelled "the boy without a fairy," as opposed to all the Kokori who have a flying companion accompanying them. When the Deku Tree sends Link Na'Vi, his own fairy companion, Link's best friend, Saria comments that he is now a "true Kokori."

Though, the introduction of Na'Vi is actually the beginning of the end of Link's time in the perfect simplicity of the Kokori forest. A few hours later Link will leave the Kokori forest. On his way

out, Saria confronts the hero. She seems unsure of their relationship: "Oh you're leaving... But that's OK, because we'll be friends forever... won't we?" She gives Link an ocarina[23] and asks him to think of her when he uses it. As a denizen of the deathless Kokori forest, it seems difficult for Saria to imagine anything coming to an end, as she thinks aloud in terms like "forever." While Link cannot join the Kokori indefinitely, protecting them so they may continue their idyllic existence will remain a motivating factor for his quest throughout the game's runtime.

Unlike *Chrono Trigger*, *Ocarina of Time* does not introduce its narrative time machine at the outset of the story. In fact, the player does not obtain the titular "Ocarina of Time" until halfway through the game. Ironically, the item only allows the user to reach the place with the time machine, not time travel themselves. For the time being, Link explores the land of Hyrule, forging friendships and pursuing three "sacred stones," plot macguffins which will allow him to access the Sacred Realm. Zelda explains that, in the Sacred Realm, "someone with a righteous heart" can make a wish and lead Hyrule to a "golden age of prosperity," but if an "evil mind" has their wish granted, "the world will be consumed by evil." The game's antagonist, Ganondorf, has predictably been looking for the stones, but when he was rebuffed by their holders, he cursed them and their people with maladies. The first such holder is the Deku Tree, which, despite Link ridding the tree of its parasitic evil, still succumbs to its wounds, though not before giving the hero the first sacred stone. The Deku Tree's death disrupts the complacency of the Kokori way of life, suggesting the destructive potential of Ganondorf to upend the people of Hyrule's way of life.

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[23] Not to be confused with the titular "Ocarina of Time."

Obtaining the other two sacred stones follows a similar pattern. Link journeys to a location beset by some issue caused by Ganondorf, befriends the people who live at that location, dives into some dungeon filled with enemies, and solves the problem. They, in turn, entrust to Link their sacred stones as a kind of "key to the city" for pitching in. Accompanying these gifts is usually some gesture of prolonged relationship: Darunia of the Goron people calls Link "brother" and uses the stone as proof. Ruto of the Zora people gives Link the sacred stone as an engagement ring. Importantly, these two episodes place an emphasis on the continued relationship between Link and the people groups he helps; Link is not just a hero who stopped by once, he is incorporated as a member into their society.

Link does all these odd jobs in the service of unlocking the Sacred Realm and using it to stop Ganondorf, a quest he receives from Princess Zelda, who is the same young age as him. Like Link, she is sensitive to visions of a dire future, but her father, the king, doesn't take her seriously, so she and Link resolve to solve the problem themselves. Once obtaining the last stone, Link returns to Hyrule castle to deliver them to Zelda, only to find the princess and her caretaker fleeing by horse. Zelda turns and throws an item into the nearby moat as Ganondorf rides out of the castle behind them. Link opposes the evildoer, but like in his vision, Ganondorf accosts him with magic and rides off. Barely surviving the attack, Link heads to the moat, where he finds the "Ocarina of Time," the last item needed to open the door to the Sacred Realm.

Link heads to the Temple of Time and opens a giant stone door with the help of the stones and ocarina. Continuing the King Arthur allusions set up in the story, he finds an empty room with

the "Master Sword" trapped in a pedestal, the lock and key to the Sacred Realm. Pulling the sword from the stone causes a magical blue energy to descend upon Link, indicating transportation to the magical realm. Yet despite the potential triumph of this moment, it turns out the pair of Link and Zelda were playing Ganondorf's game all along. He invades the now open Sacred Realm and takes the "Triforce," a mystical artifact which houses the god's power.

When Link awakens, he finds himself not as the child he's been throughout the game, but an adult. Rauru, an early mentor of Link's and the sage who tends the Sacred Realm, tells him that he was too young to wield the Master Sword, so he remained in stasis for seven years until he was mature enough to use it. The specifics of the time travel are less important than the new reality Link finds himself: in the intervening seven years, the kingdom of Hyrule has fallen into desolation. The once vibrant market square, right outside the Temple of Time, is now populated by strange zombie-like creatures who scream and attack Link on sight, the sky is perpetually darkened and cloudy, and any of the good people Link met as a child are either discouraged and depressed at the state of the kingdom, or simply gone.

*Ocarina of Time's* depiction of time travel is far more costly than *Chrono Trigger's*. Link does not simply travel to an apocalyptic future, the act of which might spur him to go to the past and fix the timeline with his new knowledge. Instead, his actions cause that future to occur. While he can freely travel between ages, also changing form from child to adult, Link cannot prevent the future from having happened, so he must fix the problems he created in the new dismal era. *Ocarina of Time* performs a kind of morality play around the pursuit of power and time travel: Link and Zelda's

attempt to stop their premonitions from coming true caused that future to occur in the first place. Time travel is framed not as the solution to, but the cause of, trouble.

The game's attitude toward time is best exemplified through the character Sheik,[24] an enigmatic individual who appears to Link throughout his adult journey to give advice. Most run-ins with Sheik begin with abstract contemplations on the nature of time. In their second meeting in a the Kokori forest, the same place Link said goodbye to Saria, Sheik muses, "The flow of time is always cruel. Its speed seems different for each person, but no one can change it. A thing that doesn't change with time is memory of younger days." In a literal sense, Sheik's words contradict the game's mechanics. While he argues "no one can change time," Link not only can travel back and forth between his child self and adult self, but his ocarina can speed up and slow down the in-game clock. Despite its technical shortcomings in the context of the gameplay, Sheik's examination of time rings true thematically for Link. As an adult, he now towers over his old Kokori friends, who are still childlike in size and appearance. For them, time's speed seems exceptionally slow. For the rest of Hyrule, where the evil king Ganondorf reigns, time seems fast. Yet for adult Link, time has an abrupt quality: just yesterday he was literally a child. Sheik argues that the "memory of younger days" does not change, but he does not suggest those memories remedy time's cruelty, instead they seem to amplify it. By characterizing time as inherently cruel, *Ocarina of Time* shades its time traveling

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[24] In game, Sheik is referred to with he/him pronouns, but near the end of the narrative he is revealed to be Zelda in disguise. Promotional and marketing materials since *Ocarina of Time's* release refer to them with she/her pronouns. I will refer to Sheik as "he/him" to remain consistent with how he's addressed in the game. For further conversation on the topic, see Lawrence (2018).

premise with a somber tone: Link's quest may be grand and epic, but it's one marred by regret. He is

an unwilling victim of time's bitterness.

Still, time travel offers some sweetness for the protagonist. As Link ventures around the

future Hyrule, he has the opportunity to catch up with old friends, and these time-dilated

relationships are both the solution to the problems caused by time travel and the thematic

counterweight to time's cruelty. To defeat Ganondorf, Link must first free the five sages, each of

whom is confined in a dungeon. Initially, the identity of these sages is a mystery, but as Link

advances in his journey, each one turns out to be a friend from his childhood. In the Kokori Forest,

the sage is Saria. When Link frees her, she acknowledges the dour passage of time "I always believed

you would come because I know you... You don't have to explain [where you were the past seven

years] to me, because it is destiny that you and I can't live in the same world." Here "destiny" refers to

both Link's time traveling complications and the fact that they are different species who age at

different rates. The scene fades out and Link is forced to leave, though the words "Saria will *always*

be... your friend." punctuate the encounter. The game does not specifically attribute this line to a

character. If it's Saria, who last spoke, it can be insinuated that as a "sage" she gives up her identity as

"Saria," but still wishes to emphasize the bond she shared with Link. It may also be Na'Vi, Link's

boisterous fairy, in which case, it could be her trying to comfort Link at saying goodbye to his

childhood friend.[25] In either case, Saria rests in the narrative as a stand in for eternity: her friendship's

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[25] It could also be Link's internal monologue, but considering the character does not otherwise speak in the narrative, it's doubtful.

unending quality underscores that some things don't waver over time, even in a game marred by temporal consequences and change.

Link has similar experiences when overcoming the Fire and Water temples. When he arrives at Death Mountain, home to the Goron people, he finds their city deserted. One of the few citizens left is Darunia's son, who must have been born in the intervening years. To Link's surprise, Darunia named his son "Link"[26] after the hero who saved them seven years ago, further solidifying his sincerity at he and Link's "brotherly" relationship. The Goron Link then tells Link what happened to the Gorons: Ganondorf freed the dragon Volvagia and imprisoned all the Gorons to feed to her as food to show the consequences for disobeying him. Darunia set off to free the tribe but hasn't been heard from since. After heading to the dungeon and reuniting with the chief, Link frees the Gorons and defeats Volvagia. Darunia then reveals himself to be the Sage of Fire, and takes his place in the Sacred Realm, but like Saria, who reminded him they would always be friends, Darunia cannot say goodbye without affirming that the pair are indeed "true brothers."

The Zora people do not fair much better than the Gorons. When Link visits their sanctum, he finds it, and all its inhabitants, frozen over. As with Death Mountain, Ganondorf unleashed some strange creature upon Lake Hylia, which dried it up and caused the great freeze. Link can defrost some of the individuals but does not find his "fiancé" Princess Ruto anywhere, as she ventured into the underwater temple in Lake Hylia to solve the issue. Entering the Water Temple, Link finds her, and discovers she too is a sage. In the Sacred Realm, she professes her love for Link, but regretfully

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[26] Or whatever the player named themselves when starting a new game.

puts their engagement on hold to perform her sagely duties. Like Saria, Ruto's frames their

relationship around time when she gives Link the water medallion she declares "And now I grant my

*eternal* love to you" (emphasis mine). While Ruto's affection for Link is played for comedic effect in

the narrative, what matters here is less whether two are to be wed, and more the temporal severity of

their relationship, as the game goes out of its way to emphasize, again and again, the unending

quality of Link's childhood relationships.

The Spirit Temple's sage, interestingly enough, is not someone Link met as a child, or at least

not initially. Located deep in the desert, child Link did not have the means to reach the temple as a

child. As an adult, he finds himself too weak to push away the boulders blocking the temple's

entrance, so he returns to the temple as a child and meets Nabooru, a thief. They make a deal where

Link will acquire the "Silver Gauntlets" which give the user great strength, and in return, Nabooru

will disrupt Ganondorf's plans, but before they can complete their plan, she is captured by the

witches who reside in the temple and work for Ganondorf. Returning as an adult, Link defeats the

witches and frees Nabooru, who turns out to be the Spirit Sage. After her long "brainwashing" by the

witches, Nabooru is happy to help defeat the tyrant, but like the others frames her sagely duties in

relationship to Link, explaining that she now has a chance to fulfill the promise she made him seven

years prior.

After Link frees each sage, Sheik reveals herself to be Zelda, and the seventh sage, shortly after

Ganondorf kidnaps her. The remaining sages combine their forces to create an entrance for Link into

Ganondorf's great castle and, in the game's final moments, seal him away in the Sacred Realm for

good. While The Legend of Zelda: *Ocarina of Time*, bandies its protagonist as the "Hero of Time," it's easy to miss what that phrase is meant to mean in the context of the game. At a glance, it appears that Link's time traveling adventure confers the title, but in actuality, it's these core relationships to each sage that make him a hero. To be clear, being a sage is not a desirable position: they leave their lives behind to become spiritual essences in the Sacred Realm, lending their personal power to a project greater than themselves, but losing their physical forms in the process. To aid Link in this manner is a kind of death. Even when the somber seven-year leap provides Link with some relief and closure, it's by forcing those closest to him to suffer. In the end, Link defeats Ganondorf and saves Hyrule, but it's a Pyrrhic victory: the kingdom is in ruins, most of his friends are in the Sacred Realm, and most importantly, he's lost his childhood innocence. When Link began his journey, he was a child; for the world seven terrible years passed, for him it was only a few weeks, yet he changed as much as it did.

Time travel in *Ocarina of Time* is not presented as desirable or intriguing, but costly, which is reaffirmed in Link's final conversation with Princess Zelda. After Ganondorf's defeat, Link and Zelda meet in the Spirit Realm. Even she seems cynical of this world's chances, telling the hero: "peace will once again reign this world...for a time." Her skepticism, which hints that good things are always temporary, is clearly borne from her experiences during Ganondorf's seven-year rule. Zelda expresses remorse over sending Link on the original quest to open the Sacred Realm and tells him she must make up for her mistake. She asks him to lay the Master Sword to rest and close "the road between times." While breaking the link between worlds may be desirable, it also means Link will become a

child again, the only person in his time who knows his heroic deeds, of the heavy emotional costs he paid, of the growth of his relationships with the other sages. In effect, closing this road erases everything Link did to save Hyrule.

Link hesitantly gives Zelda the Ocarina. She entreats him to "Regain his lost time," to live out the many years between childhood and adulthood he sacrificed for the future. Yet a bitterness underscores this phrase. How can Link regain that time when, in the process of time travel, he already matured, became the "hero of time" he was meant to be? If, as the game's story continually suggests, the "hero of time" is grounded in a variety of fulfilled relationships with his closest friends, the game's seven sages, then Link is an old soul: he's seen each relationship with his childhood companion's through to their conclusion. When he returns to the past, he will have no interpersonal growth to achieve; he will be alone. Still, Zelda solemnly affirms the choice, seeing Link not as who he became, but who he was: "Now go home... Home, where you are supposed to be... the way you are supposed to be." This line, the final one of the entire game, contradicts its central theming. In *Ocarina of Time* and the broader *Zelda* series, Link is treated as a figure of destiny, a temporally sensitive individual, chosen by the in-universe gods to save the world, but Zelda sees Link's maturation, his journey to become the legendary "hero of time," not as his destiny but a regretful consequence of the mistakes they made as children. As opposed to the ending of *Chrono Trigger*, in which the group seem to relish in the adventuresome possibilities afforded time travel, *Ocarina of Time* ends on a dour note and suggests the only thing gained from the time machine is misfortune.

As the game's credits roll, the player, though not Link, is treated to a vision of the Hyrule they saved. Each area of the land returns to its natural state, the people celebrate, its many races conjoined in the same location for the first time all game. Though, Mido, Saria's Kokori friend, and Ruto's father sit together sorrowfully, clearly missing their loved ones. Above them they see seven colorful balls of light fly across the sky while the theme of the Sacred Realm plays, indicating their loved one's spirits still grace the land of Hyrule. The spirits land on Death Mountain and rematerialize in their physical forms. By closing the door of time, Link's friends can return to their lives: they just could never do so while he was there.

*Ocarina of Time* has two short post-credit scenes. In the first, Link arrives in the Temple of Time. Wordlessly, Link's normally fairy companion, Na'Vi, floats up and out of a nearby window. Na'Vi is, for all intents and purposes, an extension of the player. Before they even control Link, they meet Na'Vi and see the game world from her perspective. Moreover, Na'Vi has the most lines of any character in the game and often acts as Link's voice. She was with him for every moment of his journey. If any individual could comfort and empathize with Link following his conflicted return to the past, it would be her, and yet she leaves. Na'Vi's departure is one of *Ocarina of Time's* most intriguing mysteries, as it has no definite answer. We only know the two do not reunite, as in the sequel, *Majora's Mask*, Link leaves Hyrule to find her. Yet considering the game's emphasis on fleeting relationships, it makes sense Na'Vi would take her leave. For Link to fulfill Zelda's hope that he goes home, "where" and "who" he's supposed to be, he cannot carry any relationship from the

future with him, for they would only keep him spiritually trapped in that time. Instead, he must forge a new future apart from those relationships.

In the game's second post-credits scene, Link returns to the castle, to the moment he received his quest from Zelda, rather than the last moment he was in Hyrule as a child. He visits Hyrule Castle and sees the now child Zelda, who has yet to meet him, as she expresses shock. The implication of the scene is that he has a chance to prevent their original mistake, explain to her they should not open the door to the Spirit Realm, thus closing off any possibility of the terrible future he saved from happening. Link's royal visit is perhaps his only logical choice once thrust back into the past. He cannot reasonably go see Saria, his childhood best friend, Darunia or Ruto, his found family, because he's seen their futures, their relationships have run their course. Yet Zelda, surprisingly enough, is still a stranger to him. Across the game's run-time, Link conversed with her, as Zelda not Sheik, only three times. It's fair to say, despite sharing a quest, Zelda and Link do not know each other. She is the one character in the game he can start fresh with, and so the narrative ends by starting something new, breaking free of the constraints of time travel.

For those familiar with time travel narratives, The Legend of Zelda: *Ocarina of Time*'s ending may seem strange. The game clearly operates on a kind of "closed loop" system of time travel, where changes in the past directly affect and change the future, so why couldn't Zelda just send Link back in time and fix the future without all the trouble? Well, it appears Nintendo and Zelda's creators would agree with the sentiment, because they've spent 25 years post-Ocarina building their entire franchise from this exact question. The basic gist of the "*Zelda* Timeline" is that most every *other*

*Zelda* game, including those released before it, takes place after *Ocarina of Time* in one of three "timelines." In the "Adult Era," Hyrule's history proceeds from the seven years of Ganondorf rule and his subsequent defeat, games in this timeline include *The Wind Waker*, *Phantom Hourglass*, and *Spirit Tracks*. The "child era" games continue from the *Ocarina's* post-credits ending where Link is a child, including *Majora's Mask*, *Twilight Princess*, and *Four Swords Adventure*. It's important to note that each of these games was released after *Ocarina of Time*, indicating they looked back at that game to understand themselves.

The strangest alternative *Zelda* chronology is also the most populated. In "The Hero is Defeated" timeline Link failed to stop Ganondorf, and consequently, five other *Zelda* narratives took place. The other two timelines make narrative sense: the game goes to great lengths to suggest they coexist by showing the player both the conclusion of the future Hyrule and the past Hyrule in its epilogue. Yet this third timeline seems cobbled together out of spare parts. Most *Zelda* titles in this timeline were released before *Ocarina of Time*, seemingly put together to try to make sense of all the different *Zelda* games, which is strange, because the *Zelda* series has always been an anthology series first. Also, no other games have branching timelines suggesting Link failed in his quest. So why *Ocarina of Time*? Nintendo and the game's writers seem intent on trying to make sense of the relationship between *Zelda* games, put them into conversation with each other, and they use *Ocarina of Time*'s complicated temporal topography to achieve that goal.

*Ocarina of Time's* persistence as the progenitor of three different lineages of *Zelda* games puts into perspective why reading time traveling games literally proves unproductive. *Zelda's* many

timelines are a curiosity for fans, subject to debate and discussion, but the most meaningful thoughts

they produce are found not within any detailed discourse of narrative connection, but in the impulse

to frame time machines as functional literary devices in the first place. A time machine corrupts the

narrative it finds itself in: even the most airtight time machine stories are open to disruptive

possibilities, fatal "what-ifs" which undermine the factual details of their stories, but as *Ocarina of*

*Time* and *Chrono Trigger* proudly proclaim: it's not in such particulars we find the power of a time

machine story, but in the character of time travel, how it reflects the circumstances and desires of the

characters who use it.

Both *Chrono Trigger* and *Ocarina of Time* put a strong emphasis on the relationships time

travel produces and cultivates. In *Chrono Trigger*, a band of individuals covering millions of years in

temporal territory work together to defeat an existential threat. The time machine functionally serves

to unite otherwise disparate peoples. In *Ocarina of Time*, meanwhile, the time machine is used to

reflect on how relationships change and remain the same. *Chrono Trigger*'s relationships exist beyond

the scope of the game, but *Ocarina of Time* shuts the door on any such potential. *Chrono Trigger*

embraces change, pushing back against the idea that time is set in stone. *Ocarina of Time* is skeptical

of it: Link end the narrative by reverting Zelda and his most consequential narrative decision. Yet as

*Ocarina of Time*'s many timelines teach us, resisting change only leads to more disruption, a lesson

particularly potent in a medium where "change" is always the player's primary verb.

Return of the Obra Dinn

Unlike the other two games discussed this chapter, *Return of the Obra Dinn* (*Obra Dinn*)does

not contain a traditional time machine which allows its user to teleport between ages and influence

future events. *Obra Dinn* is not an epic adventure like *Ocarina of Time* or *Chrono Trigger* either, it's a

mystery game with a focus on deduction. In these differences, the tone of time travel takes on an

entirely different tenor, no longer a means by which to explore individual purpose and collective

relationships, but an opportunity to examine the evil potential of people and the way humanity is

reduced to numbers by aloof bureaucracy.

An interest in bureaucracy isn't a surprise for *Obra Dinn*, an indie game developed and self-

published by Lucas Pope, who gained prominence for the border agent simulator *Papers, Please*. In

that game, the player balances the authority and responsibilities of their official position with the

human element of empathizing with refugees and immigrants. Yet it places the player in an

impossible situation: they cannot balance these conflicting ideals; one will subsume the other. *Obra*

*Dinn* seeks to pull off a similar balancing act, but whereas its spiritual predecessor relies heavily on

interacting with other characters to advance the narrative, it offers a solemn journey toward an ever-

elusive truth.

In *Obra Dinn*, the player-character is an insurance inspector for the East India Company circa

1807. They are sent off to investigate the titular "Obra Dinn," a merchant ship which went missing

five years prior, but recently appeared off the coast of England with no survivors. The player-

character boards the Obra Dinn to inspect what transpired on the voyage and give an appraisal for

various insurance payouts to the estates of the ship's crewmen and passengers. Aiding them on their investigation is a mysterious pocket watch named "Memento Mortem." When the item encounters a corpse, it takes its wielder back in time to the exact moment of the deceased's demise and allows them to walk around in a limited radius to explore and better understand what happened. Over the course of the game, the player will peer into the moment of death for dozens of individuals, and with each snapshot, piece together what happened on the Obra Dinn's cursed voyage.

At the outset of *Obra Dinn*, the investigator is given little information. Outside the Memento Mortem, they only have a book with several chapters of undocumented events (such as the blank "Chapter VII: The Doom"), a ledger with the names of every crew member, and two sketches of the crew to cross reference with the ledger. Initially, the player does not know the identity of a single member of the crew. While it may seem that assessing each victim's cause of death would be the game's most salient task, with the Memento Mortem, that's often trivial. Instead, it's identifying each belligerent and victim through contextual clues that proves to be the primary challenge of *Obra Dinn*. Distinguishing some individuals, such as the captain, proves effortless, but differentiating the ship's fifteen seamen and ten topmen, few of whom are mentioned by name at any point in the narrative, requires careful observation of otherwise unremarkable details captured in the dead's copious memories. The player must identify sixty individuals and their cause of death. Fortunately, the game offers them some reprieve: when they have input three correct notations in the ledger, those notes become permanent, affirming the player that they are indeed, making progress, not just guessing in the dark.

The Memento Mortem, whose name translates to "remember death," makes for a strange time machine. Unlike the devices of *Ocarina of Time* and *Chrono Trigger*, it cannot change the past or future, only explain it. Its user is far more limited than the pilots of other time machines, as they only receive a single moment in time to evaluate, usually accompanied by a few seconds of audio the victim heard before their expiration. Yet as a tool for solving mysteries, the Memento Mortem proves quite useful: its instant snapshots do not just provide an easy way to deduce cause of death and assign blame but give insight into the actions and motivations of those not directly involved in the individual's expiration. The game's investigator has no ability to interview victims, analyze hard evidence, or entice confessions from suspects, but even so, the Memento Mortem allows for a full investigation to take place. As a time machine, it appears to have an unwavering commitment to the truth, though, as is often the case, human life is more complicated than an insurance agent's spreadsheet, and assigning guilt proves to be more nuanced than simply knowing who did what, when, and why.

While the Memento Mortem takes the form of a watch, a "time machine" is not the only metaphor one could use to describe it. In *Wandering Games*, Melissa Kagan compares the item to a camera, particularly for how it affords the player-character "the professional gaze." Kagan draws a contrast between the sterile use of the Memento Mortem to mechanically observe narrative events and the intimacy with which it draws the player into the lives of the game's characters. A camera is a suitable comparison because the fantastic device does provide a snapshot of a prior moment, but that moment is not a two-dimensional photograph the player examines, but a three-dimensional

environment in which they explore. Moreover, the Memento Mortem has a quality of depth not traditionally associated with the camera. If the user finds a corpse within the memory of a deceased individual, they can, in a bout of inception-esque inventiveness, travel deeper into the past, an exceedingly common investigative tactic in the game. Finally, a camera captures an individual's perspective and produces a photograph, one cannot have a photo without the photographer, but the Memento Mortem seems to capture something else: the dead's individual perspective is washed away in service of an objective recreation of the past. The camera metaphor serves Kagan's broader argument that *Obra Dinn* replicates late capitalism's cruelty through its depersonalized nature but faces limitations the conceptual time machine accentuates. I prefer the time machine comparison because *Obra Dinn's* central trinket has a similar function to the other time machines we've considered for this chapter: its primary function is to facilitate and develop human relationships across time and space, where such understanding would otherwise be impossible.

The narrative of *Obra Dinn* is primarily intriguing for its non-linear qualities. While the game offers a small amount of choice as to the order the player-character learns the tale of the titular merchant ship, for the most part, they experience its story in reverse chronological order on both a macro and micro level. The player-character starts on the ship's main deck, learning the fate of the captain and the final few members of the crew in "Chapter X: The End." They descend through the various floors of the ship, each unlocking as the player traverses through the story until they reach the first chapter. While *Obra Dinn* does not strictly move linearly from its last chapter to earliest, it's reminiscent of Christopher Nolan's time-bending film *Memento*; as that's the general trajectory of the

narrative. At any point, the player may traverse the corpses they've already encountered, scour them for potential clues and fresh information, often better understood once put into context by newly found events.

Frequent time travel is essential to identifying the ship's crewmembers: cross-referencing data becomes the game's most essential action. For instance, the player starts the game with the knowledge that aboard the ship is a Russian seaman by the name Aleksei Toporov. They can pour over the ledger's two sketches, but even when attempting to stereotype one who might look "Russian" they run into a problem: the ship has three Russian seamen. The simplest way to identify Toporov is to pay attention to the details. Across the game's many memories featuring the Russian sailors, one always has a pipe in his mouth. If the player-character ventures to one of the ship's earliest memories, they catch the three Russians playing cards together near their cots. Fortunately, each cot has a number which corresponds to a name in the ledger: if they investigate one of the cots, they find a bag with a pipe sticking out, indicating that the man smoking the pipe's identity corresponds to that number, which then allows them to return to a later scene and identify his cause of death. While such a level of deduction is not always necessary to identify individuals and causes of death, as sometimes the player will get lucky and someone will say a character's name or rank, the concept of time must be treated as malleable to progress in *Obra Dinn*. The player's role is to connect otherwise disparate memories and individuals to paint a mural of cause and effect.

Like its general plot, *Obra Dinn's* individual chapters are often revealed in reverse order. Such momentum is an unavoidable from the perspective of the Memento Mortem: for the player-character

to jump from one corpse's final moment to the next, there must be a corpse in the vicinity when the present victim died. For instance, "Chapter VII: The Doom" begins when the Memento Mortem is used on the corpse of the captain's wife, the last person to die when a kraken attacked the ship (many of the ship's maladies are supernatural in nature). From her corpse above deck, the player slowly uncovers corpse after corpse, traveling back in time and until they end the chapter before the kraken's appearance, with a small group of passengers and crewmen fleeing the Obra Dinn and killing a crew member in their escape. When considering the unorthodox ways the Memento Mortem perceives time, almost always in reverse, the comparison to a time machine becomes more apt: here is a device which, invariably, pushes its user to delve further into the past. Its use, both for the player and the player-character, is tantalizing: the knowledge it reveals never gives the full story, but partial answers, asking its user to fill in the blanks.

Played in chronological order, *Obra Dinn* is a kind of morality tale. The Obra Dinn sets voyage with poor omens: loose cargo kills a seaman, and a lung disease takes two more. These omens appear to have a specific cause: on the ship are four Formosan (Taiwanese) passengers, who guard a supernatural treasure. The ship's second mate kills a Formosan guard and steals the treasure, three strange shells, and the ill omens turn into catastrophes. Attracted to the shells, mermaids, wielding spears, sharp claws, and spiked tails, attack the second mate and his mutinous crew as they escape in the Obra Dinn's skiffs, killing most, but three are captured when the group flees back to the ship. More mermaids riding crabs assault the ship to retrieve the shells and their comrades. They are rebuffed, though not without heavy casualties for the crew. Then the mermaids summon a kraken to

destroy the ship. The captain, in a bit of desperation, kills two of the mermaids and throws two shells into the sea. The third mate and his stewards make a deal with the last mermaid that if they let her go, she'll call off the Kraken and get the Obra Dinn safely back to England. What remains of the crew and passengers escape with the last skiff, and then the final three members of the crew mutiny and attempt to kill the captain, only to fail. The captain, the last surviving member of the voyage, then takes his own life for his misfortune.

For the player, *Obra Dinn's* story is not just obfuscated by the game's unconventional narrative structure, but by a wall of records and details. In an average play session, the player spends more time navigating in-game menus and ledgers than they do physically moving around the Obra Dinn and its dead's memories. Whereas the substance of the game's narrative is felt in the past events of the cursed ship, its tenor is situated firmly in the perspective of the player-character, an insurance inspector whose aim is, ostensibly, not to experience a moving story, but to record salient details for claimants. Initially, the game does not come to a close with some revelation about the crew or bold declaration of human nature, but with an administrative whimper. The player is given an inside-look at the fruits of their labor: they view the results of every insurance claim, see what each crewmember's life was worth, examine how each decision they made affected the East India Company's bottom line. The results are cold and out of touch with the narrative, and considering the length of the ledger, go on for a mind-numbing number of pages. In this moment, the game appears to pull the rug out from under the player, undermine every detail they uncovered with procedural

formalities and argue, somewhat convincingly, that it wasn't the ledger that obscured the story, but the story that obscured the ledger.

For the moment, it appears as though Pope retreads the familiar pattern from *Papers, Please* by emphasizing the dehumanizing power of bureaucracy. Kagan sees the player-character as little more than a tool of capitalism, writing, "the mundanity, the lack of reaction from the insurance adjuster, is supremely late capitalist in its smug satisfaction with an inhuman and decontextualized system." She goes so far as to describe the adjuster as "psychopathic in their combination of zeal for the job and total disinterest in anything lying beyond the bounds of his[27] remit." Kagan uses this observation to draw a distinction between the adjuster, a tool of capitalist modes of production at work to satisfy their employer, and the player, a witness who mourns and emotionally connects to the otherwise "bare" lives of the doomed souls of the Obra Dinn.

While Kagan's reading makes for a satisfying affirmation of the player's humanity in the face of a totalizing economic force, she seems to miss contextual clues about the insurance adjuster which undermine their emotional connection to the Obra Dinn's plight. These clues are most prominently featured in the game's "true" ending, in which the player correctly identifies each person on the ship and their fate, in essence, telling the ship's "true" story. It's worth remembering, the ledger the player writes in and the pictures they use to cross reference the crew are not their own: they are the property of Henry Evans, the ship's surgeon, one of the few individuals to escape a terrible fate aboard the

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[27] The adjuster's gender changes with each playthrough. For instance, my adjuster was female. The ambiguity is why I use "they" to describe them.

Obra Dinn. Upon completing their investigation, the player-character returns these materials to Evans. In the game's final moments, set a year after the investigation, Evans dies. The surviving members of the Obra Dinn send a letter to the adjuster to inform them of his fate. If the player got details wrong, Evans' final words either express disappointment in them or lament the difficulty of their task, but a correct ledger leads to one last mystery to unravel.

"Chapter VIII: The Bargain" stands out as a particularly noteworthy section of *Obra Dinn*, as Evans writes a note in the book that he will only give the player the details of it after their investigation is finished. During the "true" ending, the letter from the other survivors expresses profound gratitude for their work. They specifically note that Evans was "pleased with your correspondence" and they return the ledger and all other details of the Obra Dinn to the player-character, as they wish to forget that "dreadful chapter in [their] lives" and request that the player-character "not write back." Accompanying this letter is a small package, which smells dreadful according to the adjuster's house servant. Upon opening it, they find a clenched monkey's paw, or, more importantly: another corpse. Using the Memento Mortem on the paw reveals the details of Chapter VIII, where, in order to document the final details, Evans threw his pet monkey into the lazarette, where the mermaids were imprisoned, and shot it, then saved its paw so that one day someone might use the Memento Mortem to uncover what happened. From the monkey's final moments, the player steps backward in time, and reveals details about the deal struck between the third mate and the mermaid to call off the Kraken and protect the ship until the Obra Dinn's story could be witnessed, affirmed by the fact that within hours of the adjuster completing their duties, a

massive storm comes and destroys the ship. After completing this final journey back in time, they insert the final details of the ship's journey into the book and place it on their shelf next to other various souvenirs from their journey.

Kagan argues this ending is cold, as the agent does not seem interested in publicizing the fantastic journey of the Obra Dinn and retains a reserved attitude toward its events. Yet reading the letter and considering their actions more closely, the player-character does not come across as "psychopathic" but empathetic toward the survivors. Evans expresses gratitude to the agent, not because they took some drastic action in response to the Obra Dinn's awful tale, but because they got the details right, affirming to him that someone understands their terrible and tremendous story. Similarly, the remaining survivors do not express disappointment or disgust with the adjuster, as their primary wish is simply "to forget." Meanwhile, as far as the East India Company is concerned, the matter of the Obra Dinn is "closed" per the end of long list of insurance claims. So we should ask why *must* the player input the final fates of each member of the crew to reach the end of the game? For their career and capitalism's purposes, these new details serve no purpose, but the player-character records them anyway, because, like the player, they care to see the story reach its conclusion. Yet despite their clear interest in the story and their correspondence with Evans, they "sit" on the story, not because they are alienated from their labor, as Kagan argues, but out of reverence for the survivors.

Kagan's primary argument that the crew mate's employer "did not care about them at all, not in any way that mattered" still resonates strongly with the game's thematic content, but by

characterizing the player-character as a sterile tool of capital and the Memento Memori as a camera, she undermines the potential of the time machine to create connections across space and time. As we saw from each other time machine narrative we've covered, the primary effect of time travel tends to be relational in nature and is often concerned with finding meaning in human experience through social connection. *Obra Dinn* is no different. By using the time machine to uncover the truth of the past, the player-character puts the dead to rest, and even through the obscene descriptions of a formal insurance document, tells their story. Meanwhile, that same truth binds the player-character to the ship's survivors, allows a relationship to form where one otherwise would not, as the insurance agent has, in a sense, shared an experience with them. Kagan's final words on the game place remarkable importance on the player's relationship to the story: "You bear witness. You slow down and freeze time, and you stand still in their last moments... The doomed souls aboard the Obra Dinn are not, by the end of the game, bare lives to you." Yet I don't believe the humanity of *Obra Dinn* is only found outside of it, as the player and the player-character share the experience of bearing witness, they share the experience of time travel, and they share the understanding that these lives had value, beyond the spreadsheet.

*Obra Dinn* is a game uniquely concerned with "the truth." The player and player-character's aim are not to act; each meaningful action in the story of the ghost ship has already been taken. Instead, their goal is to document the truth, connect the past and present, and put them into conversation with each other. Yet just as important to knowing the truth is choosing when and how to dispense it. *Obra Dinn* is rather conservative in this regard: knowledge is sometimes best kept out

of the spotlight. As we saw in *Ocarina of Time*, the sense of omniscience time machines seem to provide is not necessarily a license to change the future, and usually, the best resolution to another time's dilemma is to leave it there, and continue in your own time, aware of, but no longer influencing, time's natural flow.

The time machine is often regarded as a creature of unique complexity for the storyteller because it introduces a nearly infinite number of possibilities into a narrative. Moreover, audiences may complain these stories are difficult to follow, as constant time switches can leave a narrative feeling ungrounded. Video games appear to offer a unique opportunity for time machines, because it turns out that while watching someone else jump through time can be disorienting, when it is us who choose when to go we intuitively understand time travel with little explanation. In each game we covered this chapter the player chooses not just where to go, but when to be. Yet when they step into the past or leap into the future, what they find aren't possibilities they could never imagine, but shades of themselves. They find connections and relationships enabled, not disrupted, by the distance of time. They see, far more clearly than the linear passage of time will allow, the great bridge of time binding peoples together.

What they do with this knowledge changes based on circumstances: the heroes of *Chrono Trigger* fight to steal meaning back from existential threat, Link ends terror in one timeline and prevents it in another, and the lowly insurance agent of *Obra Dinn* uncovers, then re-covers, the truth. Each acts with a moral character consistent not with some external ethic imposed upon them,

but with the revised beliefs of the time traveler, a being with a special responsibility to the

individuals around them, and for whom decisions are always necessary, but never easy.

What's most odd about these three narrative time machine games is how they dismantle the

concept of cause-and-effect. Traditionally, a time machine is a device which reverses the natural flow

of time: in them, effects beget causes. Despite this, most time travel narratives tend to place an

extraordinarily heavy emphasis on cause-and-effect. They suggest cascading consequences from even

the smallest decisions, but in each of our narrative time machine games, causes are immutable.

Crono cannot stop Lavos from arriving, Link cannot stop Ganondorf from taking the realm, nor can

the insurance adjuster stop the Obra Dinn from sinking. Instead, time travel only allows them to

better understand their present, and with that knowledge, make the right decisions. The

consequences of these decisions rarely affect their game's protagonists: as noted, the *Chrono Trigger*

crew could easily live out their lives never affected by Lavos, Link could perpetually live in the

halcyon days of youth if he desired, and the insurance adjuster can complete their job no matter how

right or wrong their assessment of the ship ends up being. Yet each of them chooses otherwise,

because the ultimate power of time travel is not the ability to warp cause-and-effect to its user's will,

but the connections its operators make with others across time, which fundamentally alter how they

see the world and how they see themselves.

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# Chapter 2 - Supplemental Text

As part of this project, I wrote, recorded, edited, and produced a feature-length film on

*Ocarina of Time* and released it publicly under the pseudonym "i am error" on *YouTube* with the

playful title *Ocarina of Time is the Mayonnaise of Video Games*. The film has three parts; each of them

examines an aspect of temporality and *Ocarina of Time*. In the first, I analyze the historic claim made

by many popular games publications that *Ocarina of Time* is the "greatest video game of all time" and

consider why critics have been so eager to crown *this* game as the best. In the second, I "time travel"

back to 1998, and examine why I connected so strongly to *Ocarina of Time* as an adolescent child,

despite only playing the game's child section. In the third, I pull the proverbial sword from the stone,

and after two decades of avoiding the game's conclusion, I discuss finishing the game and explore the

relationship between my past, present, and future self. Breaking from traditional academic tone,

*Ocarina of Time is the Mayonnaise of Video Games* is a reflective documentary with (attempts at)

humor, in which I find meaning from my personal experience of the game.

You can find the film here: https://youtu.be/maGSFnnd-MA

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# Chapter 3 - Loops and Labyrinths

Jorge Luis Borges spent much of his literary life contemplating the nature of the labyrinth. In perhaps his most direct short story on the topic, "The House of Asterion," he draws a connection between the boredom and infinitude of the maze. Despite the enormity of the labyrinth Asterion, the minotaur and narrator of the tale, still finds it remarkably repetitive and dull; "The nights and days are long" and "Everything is repeated many times." He dreams of escaping the maze's boredom. To this aim, Borges offers games as a possibility, as Asterion explains:

> Of course, I am not without distractions. Like the ram about to charge, I run through the stone galleries until I fall dizzy on the floor. I crouch in the shadow of a pool or around a corner and pretend I am being followed. There are roofs from which I let myself fall until I am bloody. At any time I can pretend to be asleep.

> While Borges's story predates the invention of video games by a few decades, it had a clairvoyant ability to describe them, at least how their critics would: they are "distractions," in which we run until we're dizzy, pretend to be in dangerous situations, make ourselves bloody through faux-violence, or simply pretend to inactive, asleep, to pass the time. Still, most video games do not feel endless like the Minotaur's labyrinth: they have a beginning, middle, and end. One can reasonably leave their halls and go find something else to do. Others though, genuinely do last forever, and do so by imitating the labyrinth, either structuring themselves around infinity or randomly generating more "game" for the player endlessly.

While repetitions pervade the video game player's experience, they are not always essential to the broader construction of a game. The games that go beyond mere repetition take on the structure of the "ludic loop." A ludic loop is the repetition of a particular state of play, with the player reliving the same, or pointedly similar, experience again and again. A ludic loop is not simply the rehearsal of a similar event, but a return to a starting point. A game of baseball has repetitions, with a batter and a pitcher ready to throw to them, but these are not ludic loops because the state of the game changes with each pitch thrown. As any baseball fan will tell you, the difference between no strikes and no balls, two strikes, and three balls, in combination with how many runners may be on each base and the current score of the game, all change the nature of the pitch and its significance. A ludic loop is a reiteration of the *exact* experience, a beginning again from the same starting point. In every game we'll cover in this chapter, the most meaningful component of their design and play is an exact return to a neutral starting point; what the player does from that point changes the trajectory of their experience.

By nature of their existence as compilations of code, games have featured loops since their earliest inceptions. Consider a game of *Pong*: the ball bounces back and forth until a player does not manage to return it to the other side of court. Then the ball is randomly placed with a velocity on the board, and the gameplay repeats itself. It is in the difference between rounds of play, particularly in the other player, that one finds *Pong's* meaning and purpose. It is fairly obvious why video games skew toward such repetitive motions: it allows recursions of the same code to remain interesting for long periods of time. Nathan Altice makes the argument that many of the innovations and successes

of the Nintendo Entertainment System[28] hinged on developers and designers working within the limitations of the system. Loops in video games are an extension of the limitations of the computers they are played on. Throughout this chapter we will seek to understand how such limitations have shaped the way we understand video games as an art form.

That said, it is not as though loops were not present in games before their digitization. A game of Soccer always begins in the center of the field, with rules that have sparsely changed since its formal inception at Cambridge University. Card games, likewise, are played with the same, agreed-upon, rules, each time a group of players shuffle a deck of cards they adhere to them. The difference between the loops of such "analog" games and video games is where and how the players find variety within each loop. In traditional sports, novelty is derived from the experience of playing against another player. Playing the same games, with the same rules, against a different opponent, completely changes the game. Each popular sport is designed and maintained, first and foremost, on the native abilities and strategies of its participants. Even if a player is playing against the same opponent, the intervening days, months, or even years, are bound to affect the disposition and ability of the participants. Squaring up against David Beckham is certainly a different experience in 1997 than it is in 2021. Thus, traditional games are designed to highlight the interaction between participants, making it the primary difference between repetitious rounds of play. In a few chapters, we will interrogate how competitive video games, often described as "esports," continue to carry this torch.

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[28] Which while not the first console, was the one that solidified the gaming market as more than just a fad.

Single-player video games do not have the luxury of a human opponent to offer variety and have traditionally remained stilted by hardware limitations. Their designers must find ways to make gameplay loops interesting and engaging within the confines of limited computer space. How single-player games accomplish this can tell us about what kinds of play human beings find interesting and meaningful. Traditionally, the crux of ludic loops has been failure, or ludic death. Jesper Juul describes this as the "paradox of failure" wherein we dislike failure but experience it in games and seek it out. Half of all players in any given baseball game also experience failure, but what makes video game failure unique is its frequency. This can be because a game is difficult, such as *Dark Souls*, whose towering bosses require precise timing and strategies to conquer and offer a mountain of brutal deaths for the unperceptive or unprepared warrior. In any given play session, one may experience failure dozens, or hundreds, of times. Yet despite failure's apparent unpleasantness, it is this difficulty that made *Dark Souls* a smash hit, established FromSoftware as a cutting-edge developer, and spawned hundreds of challenging imitations. Of course, *Dark Souls'* difficulty was not met with enthusiasm in a vacuum. Many fans enjoy it specifically because it hearkens back to another period of gaming history where such punitive difficulty was just as, if not more, prevalent, which unsurprisingly was where games first met critical and commercial success: arcades.

Arcade games, more so than most released today, are designed to be failed and looped. The reason for this is predictably capitalistic; if the player submits a quarter for each run on the machine, the more they fail the more money the game makes for its owner. We can see a similar design pattern in their modern-day successor, mobile games, which fill the void of quarters with advertisements

vying for the player's attention. The trick for the game designer is to craft an experience that beckons

the player to reenter the loop, despite their previous failure. Even though the experience of failure is

undesirable, for the arcade game it points to that which is desirable: success, fun, and enjoyment.

Unlike a lost chess game, where the opposing player may get up and leave, perhaps never to be

played again, the arcade player only needs to give up a coin to repeat the challenge, giving them an

opportunity to do something they cannot in real life: rewind time and try again.

It is in this ability to rewind where games first truly shined as novel play experiences. In

competitive sport, a player or organization's mistakes define their legacy as much as their successes:

the Red Sox can never retract their decision to sell Babe Ruth to the Yankees, Bobby Fischer could

not take back his infamous faux pas in his World Championship match against Spassky, and the

Portland Trail Blazers can't withdraw their decision to draft Sam Bowie over Michael Jordan. It is

such contingency, a feeling of finality in the face of prior uncertainty, that draws in spectator and

player alike to devote so much attention to sports. Arcade game designers, since their earliest days,

have understood that to hook the player they must both experience the deep cut of defeat, and the

transcendent ability to try again as though nothing had happened.

This ability to "reset" an arcade game comes in many flavors. Like a great song we can see

both big and small loops at play in the earliest arcade hits. *Space Invaders*, which popularized the

standard arcade game[29] contains one large loop, at the end of which the player's run at the game is

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[29] Hague, James. "Eugene Jarvis." *Halcyon Days: Interviews with Classic Computer and Video Game Programmers*. Dadgum Games, June 22, 2002.

over and they receive their final score, but within that larger loop there are smaller loops to consider. As the player progresses, each time they demolish a wave of would-be conquerors the level clears and a new set of extra-terrestrials are dispatched. The player also has multiple lives to play with, if they lose one, they are reset under the same circumstances, but with one less mistake to work with. With each passing of these smaller loops, the game does not remain the same. Instead, the pressure mounts: enemies are faster and more deadly. Each decision carries more weight when the player has less room for error. *Space Invaders*, and all games of its ilk, are crafted with an attempt to ratchet up the tension to a critical apex, making the most emotionally intense (and strangely gratifying) moment of play not any button press or decision, but the relief of failure, that split-second where the player knows they are done, relieved of their obligation to attend to the game with every facet of their being. This moment is ubiquitous, for the difficulty of the game is always too great for any layman to truly succeed without failure, thus ensuring an end the loop. The fact that such failure is the de facto experience of nearly all arcade games is not incidental, it leaves a purposeful mark on the player, tempting them to try again, even long after they've suffered defeat.

Perhaps not coincidentally, in the prototypical arcade game we find the most potent metaphor for video game loops. In this game, the player evades ghosts and eats dots in an eerie labyrinth that never changes. Of course, I'm talking about *Pac-Man*. *Pac-Man* moves the emphasis of the loop from *Space Invader's* "destroy" to a less violent "eat," but retains the same fixation on loops as its contemporaries. What separates *Pac-Man* from others is not just its rabid popularity, dubbed "Pac-Man Fever" at the peak of its popularity, but its brazen ability to wear its identity on its sleeve. Every

level of *Pac-Man* is the same as the one that preceded it, the only changing factors being the speed of

Pac-Man and the ghosts, how often his adversaries turn on their "seek" mode, and whether the super

pellets give Pac-Man the ability to eat his enemies.[30] The ubiquity the dark blue map on the *Pac-Man*

screen left a ghostly imprint on any cathode ray cabinet displaying the game, burning the labyrinth

onto the physical form of *Pac-Man's* arcade machines. In doing so, *Pac-Man* tells us precisely what

video game loops ultimately are: labyrinths.

The labyrinth is an enduring symbol of intellectual complexity and difficult man-made

contraptions. They suggest our compulsion toward trapping ourselves and others in mental prisons.

They are also a potent example of freedom and escape, those who conquer the maze are all the better

for the trial. All around the world one can find curious mazes in corn fields and paper dining mats,

often more casual than rigorous in their complexity. Video game loops are not always so forgiving.

*Pac-Man's* labyrinth has no center, no cake at the end of the challenge, only level after level of the

same maze. Truly, without pursuers, the game would grow dull within seconds of inserting a quarter.

It is thus the ghosts, and as we will come to see, all things like them, that make *Pac-Man* a compelling

experience for the player. The maze of their design manages to be both visible and hidden, apparent

and obtuse. It is in any game's ability to simultaneously hide its design while leaving hints to its

machinations that allow it to entrance the player in its twisty passages.

As for *Pac-Man*, anyone who has played the game knows the ghosts hunt the player, and

anyone who has played for a significant period of time also knows each ghost seems to have a

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[30] After level 19 the ghosts only retreat for a moment when Pac-Man eats a power pellet.

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different "personality" in its approach to catching them. While seemingly random, these patterns are not. Each ghost has two modes, one in which they patrol a corner idly, and another where they seek out Pac-Man deliberately. The timing between each mode is consistent and measured by the game's internal clock, the idle period grows shorter the further into the maze the player gets. Similarly, the ghosts do not all chase the yellow consumer by the same metrics. Instead, one aim's right for where *Pac-Man* is, another a few spaces in front of him, yet another behind him, the final one aims for a space based on the location of another of the ghosts. This leads to them never occupying the same space in the maze for too long, further increasing the complexity of traversing the labyrinth. As with most great games, this structure has an addictive quality, a unique pleasure in outwitting what feels to be thinking creatures on the prowl, even if, in the end, they are just following a basic programming protocol. Whether through personalizing each ghost with a name and color, or by changing the speed of the game, *Pac-Man* obfuscates its nature as a piece of programming in favor of letting the player insert personality, and more importantly, soul, into the machine.

In the case of all loop-based games, the labyrinth hooks the player not with its cathartic finish, a story ended satisfyingly, but on defeat, on variation, on the presumption that "it-could-have-turned-out-differently" had made different choices. If the player manages to usurp death long enough, *Pac-Man* ends not with a bang, but a whimper. On the game's "kill screen," level 256, we see half of the familiar maze and half a jumbled mess of numbers and letters, which occurs because of an overflow error, not an intentional design decision. The maze cannot last forever, literally or figuratively, as the user will eventually grow bored of it or have something better to do. Still, *Pac-Man*

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does satisfy the conventional itch of the maze, even without giving the player any proper reward for their efforts. Yes, high scores may emulate the experience to a degree, but nothing within these games truly evokes the "aha!" moment of finding the exit to a hedge maze, the wanderer finally free from their prison. This is at once the video game maze's most liberating and damning quality: the stakes are low, the player can always eject themselves from the game, leave the hungry yellow puck on the screen for dead and walk away. Meanwhile, a traditional labyrinth, once entered, must be solved for the sojourner to continue on with their activities. Any sense of being lost comes with some feeling of real consequences: dread, confusion, anxiety, all creeping up in the back of the wanderer's mind.

By some estimation, both the arcade ludic loop and the labyrinth share a litany of failures before an inevitable success. While exploring a maze, one continually finds "dead ends" and must turn back to some other fork in the maze. Each of these dead ends is a failure that forcefully asks the wanderer to "try again." Yet these frequent failures do not qualify as loops. The wanderer may back track, but they have no real lesson to learn and apply to their next choice. Each decision made exploring a maze is as good as random until the explorer has created a sufficiently accurate mental map of the space. Arcade games do not place the player back at the last fork in the road when they fail, but back at the start of maze itself. Because a ludic loop requires both dexterity and wit to succeed, a player with the right mental map can still fail to perform adequately enough to return to their previous decision so as to rectify it. More importantly, while most physical mazes are multicursal, or containing differing paths, the number of such paths is countable: in fact, such

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knowledge is needed to solve the maze. The number of decisions to be made in a game of *Pac-Man* is not, as the player makes incalculable choices with every passing second of play.

Pac-Man* is not particularly dense as a piece of coded architecture compared to a traditional labyrinth, it's still a two-dimensional maze, but it is experientially more complex because the player exists within time in one and without time in the other. A maze's design does not change once it is set, thus, it is timeless. *Pac-Man*, on the other hand, changes in relation to every decision that the player makes. Consider that the *Pac-Man* ghosts are designed to pursue the player based on *where they are* in the maze at any given moment. This makes *Pac-Man* less like the static maze of Daedalus and more like the shifting sands of an endless desert, a labyrinth whose walls constantly move. Every time the player makes a decision, the game reacts to them, putting up new walls where none were previously. They cannot avoid this change, only react to it, attempt to preempt it. In this way, the game and the player hold a continuous conversation, where one's actions influence the other and vice-versa. It is worth reiterating here that the artificial intelligence of the ghosts does not change as the game gets more difficult, they only move faster, and Pac-Man slower. This ensures that difficulty is a matter of degrees, of giving the player less time to solve the maze with each successive round. This is only possible because each round of *Pac-Man* is located *in time*, an internal clock dictating the game's, and by extension the player's, rhythm. Time generates complexity because the game changes over time: the ghosts still hunt, even if the player refuses to move.

Despite, or perhaps because of, maze games' inability to fully recreate the experience of the labyrinth, they have become one of the most sought after kinds of media-experiences across the

world. Games with maze-like qualities reign supreme on Twitch, Steam, and "best-of" lists of critical praise. While every game could be construed as a labyrinth of sorts to be explored, some games, like *Pac-Man* and other arcade games, specialize in imprinting the loop onto the player and the machine they are playing on. Allowing, and sometimes forcing, them to relive the same experiences over and over, slowly learning with each successive round through the loop. These games wear their loop-like qualities on their sleeves, rather than hiding them behind layers of game design. They expect the player to engage with the ludic loop and learn to love it, rather than grow weary of its repetitive qualities. These games embrace loops in their construction, narratives, and design.

Tetris

Many games continued the lineage of arcade game loops, even if inserting coins was no longer required. Perhaps most noticeably *Tetris*. While *Tetris* moves away from *Pac-Man*'s literal labyrinthine design, it retains its devotion to treating time and speed as the primary metrics of difficulty. Like *Pac-Man*, *Tetris* does not introduce new game pieces or foes to retain interest: the only thing tweaked over the play experience is the rate at which pieces fall. The fact that this satisfies the loop, and makes it impossible to continue playing forever, suggests just how potent time is as the arbiter of play. The original NES *Tetris* still has a vibrant community in 2023, who play the game and attempt to best each other's high scores. Moreover, these players are still discovering new ways of

holding the controller and pressing its buttons so as to succeed at the game's highest speeds,[31] because unlike *Pac-Man*, *Tetris* has no kill screen the player can reach to end the maze, however difficult it might be to get there. The speed of *Tetris* simply becomes too much for a person to bear and they "top out." But this, like explorers sailing further into the ocean than any other before, does not deter the prospective *Tetris* player, only emboldens them to seek a further horizon than any other has before them. While *Tetris* is primarily thought of as a console, or handheld game, it exists as the dream fulfilled of early arcade games: its elegant design has been described as "perfect" by critics all across the world. *Tetris* puts the player in a labyrinth so addictingly powerful and remarkably simple, that they never seem to mind that the only end to the journey is the maze collapsing in on itself. Moreover, it's incredible popularity, despite the fact it contains no noticeable character or human element. But like every great loop game, the human quality resides not in the game, but in how it asks the player to insert themselves into the loop, piles up each of their decisions into a great puzzle of their own doing, like each fork in a maze does. *Tetris* does not need a soul, because the player freely gives theirs in lieu of one.

This player provided spirit may indeed be a feature of all video games, as a prerequisite to being a "game" is some degree of interaction, but maze-like games feel less like a directed and crafted experience set before a player, and more like a puzzle to solve. Some game designers though, in tweaking the model imagined by *Pac-Man's* Toru Iwatani and *Tetris*'s Alexey Pajitnov, have managed to co-opt the ludic loop's inherit emptiness for more nefarious purposes. From their earliest days,

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[31] Which we will discuss in greater detail in Chapter 5.

games featuring profound ludic loops have been described as "addicting." "Pac-Man Fever" does not just describe a cultural moment or is the title of a catchy one-hit wonder, but it is also an apt description of how one feels when under the game's "spell." In Buckner & Garcia's seminal hit the singer describes themselves as "going out of [their] mind" because they are playing so much. Always less subtle, Weird Al Yankovic croons in his song "Pac-Man" (a parody on The Beatles's "Tax Man") that he can "Play all day 'til my hands are sore / And I quit my job to play some more" and decides to sell his house in the pursuit of his addiction. Despite the addictive quality of these early examples, *Pac-Man*'s "quarter-to-play" model and the need for a *Tetris* player to purchase a console and the game to play, they pale in comparison to their modern antecedent: mobile games.

Mobile games share with arcade games some familiar limits: limited storage space for the game, limited time to grab the consumer's attention and hook them on the product, and a need for shorter, bite-sized experiences as they are typically played in short bursts. The primary difference is their monetization model. Whereas previous loop games had an upfront cost of entry, mobile games bill themselves as free experiences. In their most innocuous state, mobile games sell the attention they garner from an audience to advertisers, but many less scrupulous games hinge their financial success on how much money they can extract from the consumer. This extraction is almost always predicated on some function of the ludic loop. The player can pay money (often defamiliarized into tokens one pays money for) to continue a game after they run out of lives, receive a boost to gain more resources for a short time, or simply to get more in-game resources now. In their least offensive form, they simply offer cosmetic rewards for those willing to shell out some cash. These games don't

always use failure as the structure of the ludic loop, but it does not take long to see just how potent the resource of time is to their monetization model, particularly in so-called "idle" games, where paying money simply speeds up the time it takes to achieve the game's goals.

There might be some line before which purchasing "time" with money could constitute moral game design, but mobile games have long since passed it. Just like *Pac-Man* and *Tetris*, these games never "end" so time is always a metric one could use more of, but unlike those games, they are not designed with an ever-mounting difficulty spike to keep the player from playing forever. Instead, the player "playing forever" is the goal. In essence, these games trap players in the loop for their own financial gain. As Weird Al notes above, once entranced by the loop, one will pony up much to stay in it, and many players, much to their own detriment, will pay to play something marketed as "free." If the amount was proportional to what the player might spend on a traditional video game on a store shelf, this design wouldn't be immoral, but these otherwise simple games, scarcely as well designed as their arcade forebearers forty years ago, ask the player for not a set amount, but as much as they can offer. The most prized consumer to "catch" for these games are "whales," who will shell out thousands of dollars for bells and whistles that are incredibly cheap to give, and lack any value for anyone who hasn't caught the game's "fever," or has otherwise been caught in its ludic loop. It is important to reiterate, the existence of whales isn't an unfortunate consequence of the design of mobile games, it is the *point* of why and how they are designed.

If the player gives *Tetris* a soul in the act of playing through its loop, in such mobile games there is a soul-sucking apparatus in place. One which hypnotizes, yes, but fulfills, no. This does not

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mean that every video game loop is "bad" but just like how there are labyrinths made for one to intellectually conquer and others that designed with an attempt to imprison, so too are there ludic loops designed to end. Other loops are designed to never conclude, never give reprieve to the player, never give relief. These mazes have no obvious exits, they are built not for the benefit of the wanderer, but its designer. The fact that such "free-to-play" games can be uninstalled and left at any time, but often aren't, suggests just how potent the ludic loop is. Modern game designers of unscrupulous morals need not physically trap minotaurs in their mazes, they only need to let the prospective player walk through the door and shut it behind them: we will gladly stay trapped in the maze for as long as we'd like.

In this, we find something terrifying, but it does not have to be. *Pac-Man* and *Tetris* use loops to beautiful effect. The arcade era popularized video gaming and is the focal point for much important critical work, not only because it managed to monetize the medium (though that certainly helped), but because these games revealed, particularly in their recursive loops, a person's capacity to learn a new system, and *enjoy* learning. They sparked the imagination of future game designers with their willingness to trust the player to get better at the game, rather than expecting the game to meet the player where they are at. They point us to our more noble characteristics, specifically our ability to grow and change. Ludic loops, to a degree, reveal who we are.

*Rogue*

After the arcade era, loop-based games went dormant in the popular consciousness. While the occasional bigger budget game, like *The Legend of Zelda: Majora's Mask*, courted a loop-based style, with more resources, both fiscal and computational, designers discarded the design principles that made *Pac-Man* and *Tetris* best sellers and churned out more robust linear experiences. The 1980s console video game market was not only dominated by arcade games, but by those that borrowed from their design. For instance, *Super Mario Bros.* retains its arcade progenitor's clock, a lives system that resets the player at the beginning of the game if they run out, and is intended to be completed start to finish in a single sitting. Console games struggled to do more specifically because of the lack of ability to "save" time between sessions. More complex games like *Metroid* required the player to write down arcane passwords and input them at the start menu to continue where they left off, a tenuous relationship with continuity to say the least.

The Nintendo Entertainment System's popular *The Legend of Zelda* was the first console game to allow players to save their progress between play sessions and pick up exactly where they left off. It is fitting that a *Zelda* game, whose future incarnations would play with time in other unique ways, marks the point where time began to truly exist beyond a single session for most players. While it wouldn't be until the early 1990s when console game designers would fully grasp the potential of save states, those making PC games, as they often do, had a head start. Popular adventure games like *Zork* offered robust options for continuity between stretches of play, so these narrative-based games,

which required more time from start to finish, and less effort in the way of manual dexterity, mostly found a home on the then much smaller market of the home computer.

It was from this environment that loop-based games would find a home after the arcade era, most prominently in the genre of "Roguelikes." Unlike most genre names, "Roguelike" refers to a specific game: 1980's *Rogue*. Think of it a bit like calling every platforming game a "Mario-like."[32] *Rogue* is a dungeon crawling game with ASCII, or text-based, graphics. For reference, the player-character is designated as an "@" symbol among a sea of other letters and symbols. In *Rogue*, the player ventures into a dungeon filled with monsters and treasure, with the ultimate goal of retrieving the "Amulet of Yendor" and escaping. *Rogue* wears its influences on its sleeve, particularly *Dungeons and Dragons*, from which it lifts many of its numerical mechanics, and other adventure games, from which it borrows its basic design structure. While the concept and ensuing game was certainly fun, it was just another dungeon diving game, of which there were many from the period, given the popularity and influence of *Dungeons and Dragons* on other forms of media. So how did *Rogue* spawn an entire genre? Through its most inventive design decision: procedural generation.

Depending on who you ask, procedural generation is either a specter for the gaming industry or the holy grail of game design. Essentially, games with procedural generation are designed to change each time the player encounters them, not in a set pattern, but algorithmically following rules set by the game's developers. Procedural generation takes different shapes and forms depending

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[32] Interestingly, this naming convention lives beyond *Rogue*, as the phrase "Souls-like" is used to describe games that borrow design principles from *Dark Souls*.

on its context. For games like *No Man's Sky* or *Minecraft*, a "seed" or random number determines the

characteristics of the worlds the players explore. In the case of these games, the random nature of the

worlds enhances the feeling of exploration they attempt to engender within the player. Other games

do not procedurally generate their worlds, but the items within them. *Tetris*, rudimentarily, includes

procedural generation when it gives the player random tetronimos. Meanwhile, in the *Borderlands*

series, the player opens "loot crates"[33] that have randomly generated weapons within, the random

part being the offensive capabilities of the weapon and its special features. This allows players, even if

they have functionally the same weapon as one of their friends, to feel as though their gear is one-of-

a-kind.

    *Rogue's* use of procedural generation is the defining aspect of the game, at least in terms of its

influential legacy over the genre that followed it. But just as arcade games were developed around the

limitations of computers, procedural generation was, and to a large extent still is, a consequence of

the limitations of developers and computers. For reference, in order to hand craft the 18 quintillion

planets of *No Man's Sky*, each person on earth would have to develop two-billion worlds of their

own. Procedural generation is the use of an algorithm to create content at a scale that otherwise

couldn't exist through traditional game design. One of the earliest examples of it, the Atari 2600 title

*Maze Craze*, affirms this use of the algorithm. In *Maze Craze*, two players compete to reach the end of

a maze before the other. This maze is randomly generated each time the players start a round, which

ensures competitive fairness, as a player cannot memorize the maze beforehand. In the case of *Maze*

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[33] Not to be confused with games with microtransactions.

*Craze*, we see that for certain kinds of games it is not just the challenge of overcoming a difficult but relatively static obstacle, that entices players to stay in the loop, but variety, the chance to experience something new each time the player enters it, can also keep a player enthralled.

Despite the promise of infinite replayability, procedurally generated assets are not always welcomed by players. By their nature this kind of content is not "crafted" for the user's enjoyment and can be seen as a substitute for good game design. Sure, a game like *No Man's Sky* might have a limitless planets for the player to explore, but are those planets actually interesting to visit? Outside of *Minecraft*, few games use procedural generation as a chief selling point while managing to move copies and achieve critical acclaim. This said, procedural generation comes in many different shapes and sizes, and the genre "Roguelike" infers procedural generation, while sidestepping the phrase's cultural woes. Roguelike games aim to find a sweet spot between intentional design and randomly generated levels, using the fact that they are designed to be looped and played again, each time with slightly different parameters, to keep their core gameplay fresh.

Procedural generation would not be particularly meaningful if players only trotted through *Rogue's* dungeons a single time, as the nuances of making a game designed to build a fresh dungeon from the ground up would be lost on the player. Thus, to raise the stakes and reach the mantle of replayability, *Rogue*'s designers chose to implement a permadeath system into their game, which has since become as much a marker of the genre as procedural generation. In *Rogue*, permadeath means that if the player-character dies, so too does their save file, and they must begin anew from the start of the dungeon again with nothing to show for their previous efforts. Each death, the dungeon changes

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and the player realizes that they will not simply be able to memorize a layout but must learn how

game's systems function to succeed. As with many good game design decisions, to hear the

developers talk about it, permadeath was not some intense, "hardcore" feature placed in the game to

artificially raise the difficulty, but a matter-of-fact choice that made sense for the kind of systematic,

procedurally generated, replayable game, *Rogue's* designers wanted to experience themselves. In

essence though, the experience of "permadeath" distinguishes the Roguelike from other genres and

presents it as a decidedly "loop-based" genre.

"Permadeath" is the most common subject of academic discussions around Roguelikes. Rob

Parker uses the feature to draw a throughline from "traditional" Roguelikes to modern examples, and

argues its inclusion keeps the niche. While I also contend that permadeath (and procedural

generation) connect *Rogue* and these progenitors, when viewed from the broader angle of "loop-

based games," the loop's addicting qualities and "permadeath" are not necessarily subversive in-and-

of themselves. *Pac-Man* and *Tetris* are two of the best-selling games of all time, and despite Parker's

focus on "underground" Roguelikes, in the years since his publication, a number of high profile, big

budget, Roguelikes have broached mainstream gaming culture. It's not the inherent features of a

Roguelike (permadeath, procedural generation, or even difficulty) that keep them obscure, it's their

complexity relative to other games and lack of on-ramps to guide new players into their complex

worlds.

As we find with most loop-based games, the desire to continue going through the loop has as

much to do with the player as it does the game's design. A good loop-based game challenges or

intrigues the player, prompts them to consider what they could have done differently and apply that knowledge. Players are more likely to grow disinterested if they cannot tell what they could have done "otherwise." In the case of *Rogue* and the games that carry its torch, players cannot simply learn a lesson like "don't drink that purple potion" because the contents of any given potion will be different every time they encounter one. Thus, to get better at the game, players must master the system, place some piece of themselves in the game. This cooperative relationship between player and game defines the legacy of *Rogue*. Even the creators of the game were surprised by just how much the players could imagine themselves in the game. In a panel at Roguelike Celebration 2016, Glenn Wichman, one of the game's creators, remarked at how he saw an early player nearly fall out of their chair upon encountering a troll in the game. Remember, since *Rogue* is a text-based adventure game, the player was not startled by the image of a giant troll invading their screen and dwarfing their character, but the simple letter "t."

Rogue's design of a varied, but predictable, loop was inspiring to players and future game designers because it was created with procedural generation in mind. Earlier games with procedural generation, like *Maze Craze*, used it to functional effect, but the "random" nature of the tool was not used to surprise or test the player, and rather acted as a novel way to present something familiar to them. *Rogue*'s designers were not inspired by these few titles, but like most innovators, by a problem they found in games they enjoyed. Fans of text-based adventures like *Colossal Cave Adventure*, they felt these games lacked replayability, as once the player knew the solution to the game's puzzles they were trivial to play. To solve this problem, they devised a program that would build a dungeon from

scratch, giving the player something new each time they played, so it would be possible "for even the creators to be surprised by the game."[34] This use of procedural generation shocked and challenged would-be adventurers and made the game a cult classic.

Lou Reed once remarked that while The Velvet Underground's albums didn't sell well, "everyone who bought them went out and started a band,"[35] and something similar can be said for *Rogue*. While its initial cultural impact was relatively muted, it opened pandora's box of game design, and an entire genre spawned from later developers attempting to improve its formula, patch its flaws, and take procedural generation in new, bold directions. The most prominent clones in the years directly succeeding *Rogue's* popularity were *Moria* and *Hack*. Both games were open source, allowing for even more descendants which tinkered and improved on *Rogue*'s design. Yet while the appearance of many "Roguelikes," indicates a wealth of potential to be mined by game designers, their reception from critics and fans mostly fell into the lot that *Rogue* itself found: relative obscurity. The community that fosters and plays these games may be incredibly passionate, but the games themselves were not able to find mass appeal beyond these players. *Rogue*'s story does not end here though, as many designers were inspired by the game, but did not have the resources, whether technical or financial, to make modern titles in its mold until the industry caught up.

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[34] Wichman, Glenn. *A Brief History of Rogue*. Self-published, 1997.

[35] Holden, Stephen. "Pop/Jazz; Recalling A Pop Artist and a Friend." *New York Times*, Jan 6, 1989.

The major revelation, in this regard, was the rise of the independent game developer. With an influx of resources funneled to smaller game operations, many inspired by *Rogue* were able to develop on its formula closer to the mainstream, and by the late 2010s, the name "Roguelike," would become a common moniker to describe one of the most popular genres on the biggest games distribution platform, Steam. The three we will primarily concern ourselves with are *Spelunky* (2008), *The Binding of Isaac* (2014), and *Hades* (2020), but before we get to them, it is worth considering what the name "Roguelike" means to those who use it.

While the genre titles like "Strategy," "Action," "Puzzle," or "Horror" cast wide nets, the phrase "Roguelike" would appear to throw a more focused line, implying specifically that the game in question is "like *Rogue*." But what exactly does it mean for a game to be "like *Rogue*"? If one were to look at *Rogue* and then peer at *The Binding of Isaac*, they would likely come to the conclusion that the two have nothing in common. *Rogue*, a game with ASCII graphics and turn based gameplay, looks more like a text document or bowl of alphabet soup than a video game, while *The Binding of Isaac*'s top-down perspective clearly draws from the first *Legend of Zelda* game and its irreverent cartoon art style mocks organized religion. The nearly 40 years between them confers perhaps the most meaningful sense of difference between them, and yet the latter is, to most, a preeminent example of what a "Roguelike" video game looks like in the 2010s. Many fans of the original *Rogue* feel dubious about this link and they attempt to reclaim the word "Roguelike" and rebrand other games in *Rogue's* image as "roguelites," the implication being that they are "light" or "diet" versions of the genre, and perhaps even inferior.

These genre border disputes are so ingrained into the identity of the Roguelike community that at the 2008 Roguelike Development Conference in Berlin individuals put forth the official sounding "Berlin Interpretation" as to what defines the genre, generating "high value" and "low-value" factors that define it. Some of these delineations, such as the inclusion of procedural generation or the "permadeath" mechanic seem logically consistent with the *Rogue* and its lineage. But more vague factors, such as a game being "non-modal," needing resource management, or having turn-based action, take the idea of being "like *Rogue*" to a logical extreme. In the eyes of the Berlin Interpretation, to be "like *Rogue*" a game needs to essentially *be Rogue*.

This kind of evaluation does not meaningfully take into account that precious commodity we've discussed at length in this project, time. It attempts to crystallize *Rogue*, a game which has always been a living text, one whose defining feature, both in development *and* for the player, is its propensity to change, to shock, and bewilder with its dramatic and emergent potential. It's hard to take these genre disputes seriously when they so sorely miss the point: games change and evolve over time, and the beauty of influence is in their subtleties, not their obvious progeny. So, as it applies to *Spelunky*, *Binding of Isaac*, and *Hades*, I will treat them as the kindred spirits of *Rogue* that they are: three games which use procedural generation and, as importantly, the ludic loop, in the same function as their forebear did.

Spelunky

Perhaps unsurprisingly, the most successful "rebrands" of the Roguelike genre have come

from games that combine *Rogue's* defining attributes, procedural generation and permadeath, with

popular and familiar forms of play. *Spelunky* is a dungeon diving game created primarily by

independent game developer Derek Yu. Its aesthetic takes after serialized adventures like *Indiana*

*Jones* and its gameplay borrows as much from 2D platforming games like *Super Mario Bros.* as it does

*Rogue*. Unlike most platforming titles though, where the goal is to jump and climb, in *Spelunky*, the

player descends into an unfamiliar and dangerous cave looking for treasure, clearly taking after

*Rogue*'s own preclusivities. This seemingly innocuous change, going down instead of up, left, or

right, has a profound shift on the way the player approaches the game's challenges. Rather than

haphazardly running and jumping toward an endless horizon as in *Mario* games, the *Spelunky* player

descends into precarious situations they cannot fully predict. The game is replete with traps and

enemies, many of which outright kill or seriously injure the player-character upon contact. *Spelunky*

has limited room for error and is a difficult game of patience, timing, and knowledge. Indeed, it is a

challenge for the first-time player to successfully descend a single level, let alone the game's 16 base

levels to reach its canonical ending.

It is this challenge, and the many different ways the player can come to an untimely end in

*Spelunky*, that defines the game's ludic loop. The player attempts a Sisyphean task, descending as far

as they can, collecting rare equipment to aid them in their travels, only to suddenly fail and see that

progress erased. This precarity and difficulty is typical for the Roguelike genre, but is perhaps most

clearly solidified in *Spelunky*, a game whose unforgiving nature is legendary among its players and the gaming community at large. This difficulty has a purpose of a filter: only those players with the stomach for its drastic difficulty spikes are likely to stick with the game and enjoy it. These players, like those of other Roguelikes, MMOs, and competitive games, tend to spend an excessive amount of time attached to these games, often more than one would expect of even the most robust traditional single-player experiences. What makes *Spelunky* so appealing that players are willing to invest so much time in it? That answer lies in uncovering what it takes from *Rogue* and *Super Mario Bros.* and considering how it employs the ludic loop to entrance the player.

Like *Rogue*, *Spelunky* began as freeware, and thus had more license to challenge its playerbase than the traditional mold of arcade games or mass marketed console games. Unbothered by the confines of market forces, both Yu and *Rogue's* creators engaged with design prompts and questions without the worry if their answers would be palatable to a mainstream audience. As a result, just as *Rogue* spawned hundreds of copycats, *Spelunky* is the most recognizable beginning of the "modern Roguelike," a genre whose mainstream appeal, firmly established by the late 2010s, owes much of its basic structure to the experimental *Spelunky*. *Rogue* asked so many interesting questions that designers 40 years later are still trying to answer them. *Spelunky* simply proved there was a sufficiently large audience for excruciatingly difficult "Roguelike" experiences, leading the charge for other designers. The game also left a similar sized hole of questions unanswered, paths not taken, to inspire hundreds of similar games that attempt to answer them.

*Spelunky* most obviously takes after *Rogue* in its basic structure. In both games, the player's goal is to descend into a dangerous dungeon in search of treasure. Upon death, all material goods and boons are forfeit, and the player must start again from the top and attempt the plunge yet again. The further underground the player journeys, the more difficult their quest becomes, making the earlier acquisition of useful treasure important for future success. Thus, each level of these games builds on itself, a continuity that rewards the player for knowing how to both obtain equipment and use it effectively. Often, an element of additional danger is at play to acquire items that will help the player later, so they must decide if it's worth it to risk their current safety and health to be more prepared later. This kind of decision making goes far beyond simple item acquisition, as *Rogue* and Roguelikes are filled with additional secrets and systems to uncover.

The player's slowly growing mastery over these systems, understanding when to take risks and when to play it safe, defines the Roguelike experience. An example of this from *Spelunky* would be how the player interacts with the game's shops. Of course, the player can spend their hard earned gold on items, but they can also steal those items. Doing so enrages the shopkeeper, a powerful enemy that is difficult to kill, who attacks the player on sight and will continue to do so on each in subsequent levels in the ludic loop. When in the shop, the player must consider: is this item worth so much to me that I'm willing to risk present and future danger to have it? It is these kinds of decisions that make each loop feel meaningfully different, particularly because the items in the shop are also randomly generated. Simply rearranging the various traps and enemies in each level can only

accomplish so much, the player needs to feel as though their actions have weight and significance to them, because it is that "what if" questioning that spurs the desire to reenter the loop and try again.

For *Spelunky*, it's not just elements of decision making that create variety in play experience. In his autobiographical book on the game, Derek Yu writes that he was inspired by three elements of *Rogue* and its successors, two we have already discussed at length, random generation and permanent death, but the third is a little surprising: "a ruleset for physical interaction that is shared by the player, non-player-characters (NPCs), and items" (6). What this means is that anything that can kill the player can also kill an enemy or destroy an item. An example of this in the game's early levels would be arrow traps. An arrow trap is a motion-sensor hazard that shoots a single arrow at the first object to cross its path. In order to avoid the trap, the player can throw an item across its path to set it off, blow up the trap with a bomb (a precious, limited resource), or lure an enemy into its line of fire, killing two birds with one stone. While one of the simplest interactions in the game, this example showcases how the "shared ruleset" Yu describes and leads to dynamic moments with unpredictable outcomes.

For the sake of contrast, let's consider Mario's relationship with a Goomba in *Super Mario Bros.* Mario can either jump on the Goomba, killing it and removing it as an obstacle, or run into the Goomba, taking damage. Their relationship, for the most part, is a simple binary. The player can always expect the Goomba to do the same thing, as the Goomba does not interact with any of the other enemies or systems within the game. It cannot pick up a mushroom power up, nor can it hurt another enemy. The rules for Goombas and Mario are segmented from each other. The distinction

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between them leads tighter experience for the designer, who crafts each element of every level with the player in mind, but for the procedurally generated worlds of *Spelunky*, such interactions could easily grow stale with the many ludic loops the player travels. It is that layer of unpredictability, where systems interact in unexpected ways and generate unique challenges for the player, that helps keep the loop of *Spelunky*, and most Roguelike games, interesting.

Despite their differences, *Super Mario Bros.* and *Spelunky* have much in common. Both are 2D platforming games with an emphasis on movement. Both make the act of touching an enemy a lethal endeavor. Both have a goal of rescuing "damsels in distress" (literally called damsels in *Spelunky*). Perhaps most meaningful for our discussion of time in games, they both have an external timer meant to rush the player along any given level. While the timer in *Super Mario Bros.* is less exacting, with 400 "seconds"[36] allotted per level, it is far more punishing, as the player instantly dies when the countdown reaches 0. This kind of timer is a relic of arcade games, which want to kick players off machines as often as possible. When *Super Mario Bros.'s* timer reaches "100" the clock the music alarmingly speeds up, both warning the player of their impending doom should they loiter longer and relaying what their state of mind should be considering their limited time. Considering that the *Mario* player usually has a singular goal of "reach the end of the level" this timer is not particularly impactful on how the player approaches its challenges. Yes, they cannot dilly-dally, but their objective remains static.

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[36] The unit of time in Super Maio Bros. is 0.4 seconds.

In *Spelunky* the in-game timer is about as exacting as *Super Mario Bros.*[37] but seemingly more forgiving. When the timer reaches 0, rather than outright kill the player, the game warns them "A terrible chill runs up your spine!" then "The Ghost," an invincible enemy that can move through walls, chases the player endlessly: one touch and the player dies. The only way to "defeat" the ghost is to exit the level and advance to the next. If exiting the level was the player's only goal, The Ghost, like *Super Mario Bros.'s* timer, wouldn't be that meaningful an obstacle, but because the player also aims to collect valuable treasure and useful items in their descent, the ghost acts as a threat to not just their current life, but the validity and power of their future endeavors. Yu explains that "I never intended *Spelunky* players to collect every piece of treasure... Instead, I wanted to force them to make difficult decisions and experience both the satisfaction of choosing correctly and the regret of choosing poorly." Thus, *Spelunky's* timer, in intention and function, does not simply encourage the player to "play faster" but "smarter." As we've already noted, *Spelunky* is a game filled with dangerous traps, its basic design encourages patience. The timer cuts against the grain, adding significant tension to the player's choices. Time makes *Spelunky's* ludic loop more meaningful because it forces the player to determine for themselves which objectives are both most predicative of future success and which are feasible given the time.

From the outside looking in, the loop-based play of Roguelikes gives off the appearance of attempting to trap the player within its complex systems. Roguelike games find their value in a special kind of repartitions, which to those unfamiliar may come across as a significant flaw. Game

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[37] Compared to the functional 2:40 of *Super Mario Bros.* which also has much shorter levels.

journalists, critics, and academics tend to fixate on those qualities of games they find surprising or new, and what could be fresh about a game in which you play through "level 1" dozens, or hundreds, of times? Yet *Spelunky* is interesting precisely because the player treads and retreads familiar, but not exactly the same, situations. As opposed to listening to a piece of classical music or playing a game with a linear path to a predetermined end, starting a Roguelike is like learning to play jazz. The player constructs a body of knowledge and skills, and then puts it to use confronting dynamic and changing circumstances. Just like jazz, the basic structure underneath the notes played might be simple, but the complex interactions between chords, melodies, and players are what truly give the music its spirit. Just like with *Tetris*, the player provides the real entertainment. Despite its procedural generation, a Roguelike doesn't change itself to keep the player interested, but to challenge the player to change themselves with each play through.

If *Rogue* kicked off the genre, *Spelunky* advanced to a new era, because it liberally borrows from the rich history and popularity of 2D platformers players come into the experience familiar with much of its design and can easily pick up and play the game. No prior knowledge of *Rogue* is necessary to enjoy it, even if *Rogue* had a much larger impact on the shape of *Spelunky's* design than *Super Mario Bros*. *Spelunky's* dramatic success paved the way for other games to translate *Rogue's* design principles into new contexts. Today, all manner of Roguelike games use *Rogue's* core ideas and transplant them into fresh themes, and genres. In the next two sections, we will consider how the ritualistic formula of the Roguelike informs the thematic content of *Hades*, a game about Greek gods

and afterlife and *The Binding of Isaac*, a game about rituals and religion. Both examples, quite clearly,

have something to say about spirituality, ritual, and as all Roguelikes seem to, loops and labyrinths.

*Hades*

One of the few Roguelike games to literally feature Asterion (styled as "Asterius") as a

character is Supergiant Games's *Hades* (2020). Set in the underworld of ancient Greece, *Hades* follows

the young demigod Zagreus as he attempts to escape the underworld in search of his mother,

though, being the Lord of the Underworld's son complicates matters. Zagreus ascends through a few

areas: the urban Tartarus where those evil in life toil, the volcanic Asphodel for those who

accomplished good and evil, and the idyllic Elysium where the heroic and virtuous rest. Each step of

the way he encounters the passed souls of Greek legends, such as Sisyphus, Achilles, Orpheus, and

Theseus. If Zagreus manages to pass these tests, his father Hades awaits him at the surface, and unless

the player has well-honed their skills, he will fell them and send them back to the House of Hades.

Like *Pac-Man*, *Spelunky*, and *Rogue*, *Hades* pushes the player to repeat a ludic loop, but it

rejects the "purity" of our other ludic loop games by giving the player points to increase Zagreus's

skill after each failure. As one plays *Hades*, it's not just the player who changes, but the player-

character. From our perspective this chapter, where we've considered the relative consistency of the

loop as the background to the player's adaptability to an environment, *Hades* shows the player their

reflection in Zagreus, a character who reflects their journey of improvement while diluting its potency.

These fresh elements, where some player-character improvements continue beyond "permadeath," divide players. As previously mentioned, some in the Roguelike community use the (often pejorative) term "roguelite" to describe games like *Hades*, which borrow the constant resetting and procedural structure from *Rogue*, but add additional systems which undermine the uniqueness of each run through the labyrinth. In the case of *Hades*, a player who beats the game may only be able to do so because their Zagreus has experienced a long list of failures and has been rewarded in turn. Meanwhile, accomplished players may find it exceptionally difficult to beat the game with the weakest version of Zagreus, because the difference between the proverbial "level 1" character and "level 50" version is incredibly profound in terms of gameplay prowess.

While detractors may feel a need for recategorization to protect the "purity" of the genre because such mechanics undermine the badge of pride its notorious difficulty confers, they aren't completely wrong in their assessment. *Hades* is a remarkably different experience from other Roguelike games. Permanence does not just pervade the game's mechanics, but its story as well. Zagreus is a far more defined character than the other protagonists we've discussed this chapter, and he has persistent relationships with much of the game's cast. He can interact with most characters by sharing Ambrosia with them, getting on their good side and advancing their relationship. These relationships can grow romantic, and characters may even fight alongside Zagreus for brief moments. Each time Zagreus returns to the House of Hades, he has an opportunity to learn what his fellow

gods and privileged humans (Achilles, Orpheus, etc.) are up to. Simply put, it's not just Zagreus, in

stark contrast to a game like *Rogue*, where the entire world ceases to exist upon the player-character's

defeat, the world of *Hades* persists through each of the player's failures.

As we've come to find, failure is a defining feature of ludic loop games, but *Hades*

purposefully removes its sting. Juul argues "Failure forces us to reconsider what we are doing, to

learn. Failure connects us personally to the events of the game; it proves that we matter, that the

world does not simply continue regardless of our action" (122). It's difficult to find game genres that

place as high a value on failure as arcade games and Roguelikes, which use the ludic loop as a means

of embracing failure. "Evolutions" like *Hades* shift the focus away from failure and suggest the world

*does* continue regardless of the player's action. The player may still be the center of the game's

universe as the only actor capable of changing the game world, but *Hades* attempts to minimize their

feeling of responsibility over the events of the game by allowing them to progress regardless of the

player's performance. At its most irreverent to the genre that spawned it, *Hades* can unintentionally

suggest the player need not change at all: if the player turns on "God Mode," every time they die

Zagreus becomes more resistant to damage, eventually capping out at 80% resistance, which while

not literally invincible, but quite close.

As an accessibility setting, "God Mode" allows players to experience all of *Hades* narrative

twists and turns in disregard of skill-based difficulty challenges. On that front, it is valuable and

succeeds quite well, but if we consider *Hades* as part of a long line of ludic loop games stretching

back to *Pac-Man*, the "soul" of the loop is fragmented when a game is designed to adapt to player

failure rather than the other way around. *Hades* reveals a crucial truth about ludic loop games, because if the player need not change to experience the game, what *is* the experience the game provides? Games offer all kinds of experiences to players (as we've covered in other chapters of this book), but ludic loop games privilege the player's ability to adapt in the face of failure. *Hades*, meanwhile, deliberately cuts the player enough slack so that adaptation is not be necessary, which means it emulates the form of a ludic loop game without implementing a ludic loop.

Ironically, the Asterius of *Hades* affirms the value of failure in his infrequent conversations with Zagreus. In one such instance, he explains "I, too, was born of darkness. But, I chose the path of light. Even in death, it was not too late. Not even for a monster, such as I. I trust your deaths will likewise be enlightening." Asterius affirms the value the failure, how it can cause an individual to grow and change, "find the path of light" despite one's circumstances. In many cases, the *Hades* player will likely resonate with Asterius's sentiment, but how often will their story not be one of overcoming obstacles, but of experiencing a fictional character improve through failure and follow the path, while they wait in stagnant darkness watching?

The Binding of Isaac

Where *Spelunky* uses the design of *Super Mario Bros.* and other 2D platformers as a ludic shorthand to give its Roguelike design space to innovate, *The Binding of Isaac* (*Binding of Isaac*) borrows both its name, and its central design pillars from another of Shigeru Miyamoto creations:

*The Legend of Zelda*. First released in 2011 as a Flash game by indie developers Edmund McMillen and

Florian Himsl, then "reborn" in 2014 from the efforts of the indie team Nicalis, *Binding of Isaac* is a

top down live-action 2D dungeon crawler where the player-character "Isaac" descends a labyrinth in

an attempt to escape his murderous mother. *Binding of Isaac's* dungeons evoke the spirit of the first

*Zelda* game in their shape and design: the player traverses identically rectangular and interconnected

rooms, each containing a variety of enemies, items, and other obstacles. On each floor, they'll find a

treasure room with a unique power up, and a boss room with a notably difficult enemy: defeating

this enemy unlocks the next floor of the dungeon. Similar to *Zelda*, the player's health is measured in

hearts and along the way they collect keys, bombs, and coins. The similarities between *Binding of*

*Isaac* and *Zelda*, much like *Spelunky* and *Mario*, are not coincidental: McMillen's goal was to merge

the original *Zelda* game's action-adventure design and *Spelunky*'s innovative use of procedural

generation, and perhaps Isaac only takes such direct inspiration from *Zelda* because McMillen already

released his own a successful Mario-inspired game: *Super Meat Boy*, a few years prior to making

*Binding of Isaac*.

While the similarities between *Zelda* and *Binding of Isaac* cannot be avoided, *Binding of Isaac* is

not simply a *Zelda*-clone with a Roguelike sheen. The player-character is not a noble adventurer with

sword and shield on an adventure to save a princess and her kingdom, but Isaac, a small child,

escaping into their basement to evade their abusive religious mother. They descend from their cellar

into bizarre and surreal situations, and from "The Womb" to "Sheol." Each geological layer

represents the psychological fragments of a lonely child. Isaac does not fight with any traditional

weapons, but with his tears: pressing a direction on the arrow keys causes him to cry in that direction, sending forth tear bubbles which hurt the game's enemies. While some of Isaac's enemies are traditional video game foes like zombies, skeletons, or spiders, most embrace a disgusting inversion of the natural such as embryos, leeches, eyes, and brains. Its bosses are even more fantastical, ranging from the "Duke of Flies" a giant, sick fly who coughs up more insects, to Fistulas, Blighted Ovum, and the Four Horseman of the Apocalypse.

The items Isaac collects are typically not classic contraptions like hookshots or swords, but body-horror alterations to his physique which irreverently reference everything from stigmas around religion and pregnancy to video games and pop culture. For example, one of the game's more recognizable items is the "Wire Coat Hanger," which increases the rate at which Isaac cries. When Isaac picks the hanger up it becomes lodged in his own head: a symbol of unsafe abortion practices. Many of the game's items have a religious flavor, some are "Holy" like communion wafers, rosary, mitre, or simply "The Bible," others are devilish, like a Necronomicon, pentagram, brimstone, or "The Mark" (of the beast). Unlike *Zelda* games, in which the procurement of a new item gives the player the ability to solve puzzles and progress where they otherwise couldn't, items in *Binding of Isaac* simply alter Isaac's combat abilities. Some increase Isaac's "base stats" such as the range of his tears, their rate of fire, or his overall speed. Others have more dramatic effects: "Technology" swaps out Isaac's tears for laser rays, "X-Ray Vision" reveals hidden rooms to him, "The Poop" an active item he can use once a room, allows Isaac to do exactly what its name implies.

*Binding of Isaac's* items form the core of its random generation: while the player does explore a complex labyrinth of randomly generated rooms, those rooms tend to be similar: the same rectangular shape, the same kinds of enemies with the same patterns of behavior, and one of a small collection of bosses waiting at the end of each floor. Importantly, no randomly generated item is essential for progress because the designer has no guarantee a player will find a certain item on their runs. Unlike *Spelunky*, in which some of the variety comes from the fact that every in-game enemy interacts with the environment in the same way as the player, in *Binding of Isaac* variety comes not from without, but within. The most up to date version of the game contains over 900 items, and how those items mix and combine with each other forms the novelty of individual runs. The player does not get to pick and choose what items they find lying around the game world, and thus, nearly every play-through they encounter synergies (or dis-synergies) they'd never considered. They'll never run out of combinations either, as the "deck of items," as it were, to draw from is unfathomably large: the number of digits in 900!, if written out, it would be longer than this paragraph. [38] Each run of Isaac is

[38] 900 factorial, or 900 x 899 x 888… (all the way down to 1), is:
6752680220964584158387906136180081422426942786958938431219826870368509164318041696913244695269830379422601037057867290859319834769988692859190650103158765184697675968111260952478709384800442836318689339527278445063035408024321764665802469665906595179375722352022923557754865383368110217097389374605464912641590914315017286072115668581065575923001145013299217645498322753869634011261044702900233700488787726638770458607729358543315161251880014776446118268082286709278669498283183864180099749981933920657941532564974848626523391891108711459244089659406267591429492581671986217837467927209263752478693903629003592427178225373805988693392344787776958300301670536333903141306915583751852476107834205263547563211316961877454927570148010693336299000373258937059355732529943473445929586672898874079417465439147992600084884668670872973671320728520371273220127241083083691305263536508288872517163608158715160346829110675464039823214667362737089593409077782882754955423243619046482799868392717924602991944325102646445233793959919852829782859112268996062036123824831315807164339584840504726141268003987773376184987444732386791171263002317174596827846578055856806703501388527508029213736049187516494772446422169353375503530006533006513749083203952338296374702618565305033183238099184484256075092354377518858209648747695025441836519899967468441728626544278665159440478162294690187916638293071419690822746013302760581786487737771219314213762543035371844826939073261577664528319882860291768022404108899389261050680219591724783890010691069805703037919057105760584932311330863445200817988116561644976764835416122506696796129760969874273792338939161520744115231939284568767331189924

unique: while the items, rooms, and bosses may be similar over enough runs, their order, location, and the way they interact with each other never is.

Despite its enormity, we could argue *Binding of Isaac* is actually light on random generation compared to *Rogue*. Whereas the latter composes entirely new worlds in shape, size, and function from scratch whenever the player starts a game, *Binding of Isaac* simply constructs a new world out of familiar parts, rearranging them in the world's most complex shell game. The first version of *Binding of Isaac* drew from a library of around 200 room layouts, randomly slotted next to each other. Today that number is much larger. Though, unlike a shell game, what's actually behind each door is less important than what the player does with what they find. Experienced players know how to make the most out of any given run and succeed despite not finding the highest quality equipment. Meanwhile, less skilled players can lean on the chances of lady luck: find some oppressively powerful one-in-a-million combination that carries them to victory. *Binding of Isaac* embraces a heterogenic experience for the player: while no two runs are exactly the same, they are just similar enough that the player can transfer skills from one run to another, continue Asterion's conversation with another self.

The goal of *Binding of Isaac*, like our other labyrinthine games, is to escape the maze, but on a more visceral and immediate level, it's to kill their mother. The boss of the game's first section is

0853277034218629728716444954095722599855632154714820833256532317771132713265799703107556049739697089494773742549744802946524270224367053801840640088534572145185152709855631954129931452740576886344488124494458006176311627682431256064248447093720221499084635722549126549077634457585439809991491229981043789656267818986552214432636014051520731997065850802887350402054173712772530962432000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000

simply titled "Mom," a larger than life figure whose foot stomps at Isaac like an ant, and whose eyes squeeze through the game's doors to get a look at him. Later, the player will fight "Mom's Heart" as the final boss of "The Womb" and their resurrected "Mother" at the end of "Corpse." In *Binding of Isaac's* introduction, Isaac's mother hears the voice of god, which extols her to sacrifice her son to prove her devotion, an allusion meant to evoke the biblical story of "The Binding of Isaac," the other place the game gets its namesake. In the story, God tells Abraham to kill his only son, Isaac. Abraham complies, and at the last moment before he slays his son, God sends an angel to stop the act, and supplies an alternative sacrifice in the form of a goat. For the religious, Abraham's actions are a potent example of faith and reverence to God, while philosophers, such as Søren Kierkegaard, have examined the story to establish a moral framework and suggest it's an example of the "teleological suspension of the ethical." McMillen's game though, like many historical religious skeptics, points out the cruelness of the story by telling it from Isaac's perspective and asking: if God commands a man to kill his son, is that God worth worshiping, or are they simply an extension of humankind's broken nature?

Rather than the passive Isaac of "The Binding of Isaac," who seemingly accepts his fate, our Isaac flees into the basement to get away from his mother. Given the game's unique obsession with troubling aspects of religion and culture, the player's quest to kill their mother is oedipal, not unlike *Hades* where final boss is Hades, Zagreus's father. Once in the labyrinth, the game less resembles a biblical story and more the Greek fable of the labyrinth. The primary question the player answers is whether Isaac is Theseus, slayer of the beast, or the Minotaur, waiting for his would-be slayer.

Regardless of the outcome, Isaac suffers like the Minotaur. As opposed to *Rogue* and *Spelunky*, where

the player-character's goal is to get treasure, Isaac fights for survival, and that changes the nature of

"random generation" profoundly. In most other Rougelike games, procedural assets facilitate the

player's power-fantasy: even if the games are traditionally quite difficult, the player-character's

strength grows quite rapidly over the course of a ludic loop: they find new equipment and power-ups

to advance further in their quest. In *Binding of Isaac*, meanwhile, Isaac becomes a monster in order to

survive. As demonstrated with the wire hanger, but can be found across the game, Isaac does not pick

up items he can later discard, but rather, each item he touches becomes a permanent part of him,

mutilating his figure in exchange for new strength. Once he's descended a few floors, the naked Isaac

who first fell into the basement is replaced by a hideous figure: transformed by the need to escape the

clutches of his mother. No matter whether Isaac succeeds or fails in his goal, they succumb to the

transformative effects of the labyrinth.

Jordan Wood reads Isaac's transformation as an "alternative queer politic over and against the

linear, reproductive capitalist subject" (225) which stands at the center of the game's queer

temporalities due to how the game's "endless temporal and spatial configurations" (224) dissipate

heteronormativity. This reading excellently identifies the ways *Binding of Isaac* uses queer bodies to

disrupt normativity and we can extend it beyond its representation of biological change to the player

themselves. The player, like Isaac, is transformed by the maze. *Binding of Isaac's* infinite combination

of items, rooms, and enemies may seem daunting at first blush, but the more one plays the game, the

more accustomed they grow to it, and the more they understand its tricks and secrets, the further

they can advance into the maze. Mentally, they are just as liable to be "in the flux of becoming" (225) as Isaac when they play the game, indicating a queer disposition toward play. While it may take longer than an arcade game like *Pac-Man*, with its singular maze and four enemies, to understand, *Binding of Isaac* models the same pattern of behavior all other ludic loop games employ: the loop grows comfortable and familiar in the same way Asterion describes in Borges's story, though, unlike that story, which always marches toward the same destination (defeat at the hand of Theseus), *Binding of Isaac* refuses such easy prescriptions.

Like Isaac's myriad of forms, the game contains a myriad of endings. The first time they defeat "Mom" the game grants the player a cutscene which shows Isaac trapped in the corner of his room, about to be stabbed by his mother, before a Bible (characterized by the narrator as an angel) falls from the shelf and kills her. This is a ruse though, as it turns out to just be Isaac's fantasy he writes alone in his room. A moment later his mother enters the room, knife in hand, and the game cuts to credits at his shock. Like this conclusion, many of the game's final scenes could be construed as "false endings," which only perpetuate the story, suggesting to the player than the labyrinth has no end. Many of the endings simply have Isaac recover some new item, which will then be available in treasure chests in later runs. Creating a consistent cosmology from these snippets of story is impossible: they contradict each other often, in some he's at odds with his mother, in some Isaac is demonic, in others he's a missing child on milk cartons. The game's many possible endings bind nicely to its recursive structure: each of the game's two dozen conclusions offer a result dependent on

the different kinds of monsters Isaac became in his journey, but importantly, each suggests further developments, none satisfyingly close the loop.

That was true until the game's 2021's expansion *The Binding of Isaac: Repentance*, which offers a distinct "true ending" to Isaac's tale. It begins like many of the game endings, with Isaac ascending to heaven in a beam of light. He remembers his entire life backwards up to his own birth and prepares for unexistence. Then, the game throws the player a curve ball: Isaac's dad, who is scarcely mentioned across the game, metatextually interrupts the somber moment and asks: "Are you sure this is how you want this story to end, Isaac? You're the one writing it, it doesn't have to end this way. Here, how about we tell it a different way - maybe a happy ending?" It turns out, he's been the narrator the entire time and the events of the game, including every one of the previous endings, were (let's be honest, gruesome) bedtime stories for a child.

In many narratives, such as in the television series *Dallas* or *St. Elsewhere*, a twist of this nature would be contrived, but considering *The Binding of Isaac's* ludic structure, the plot development compliments the game. In each run, Isaac is irreversibly changed: he cannot cast off the effects of the game's events, so every one of the game's endings leaves room for the story to be told again. *Binding of Isaac*, thus, gives us another kind of labyrinth to consider in relation to the "ludic loop," an endless story.

The most famous "endless story," and likely inspiration for Isaac's final scene, is the popular collection *One Thousand and One Nights*. In the frame tale of the book, a king has been scorned by women, and now marries one each night only to execute her the following morning. Scheherazade,

the Vizier's daughter, avoids certain death by telling the king a story so entrancing the King simply must hear the end of it, thus she postpones her demise for another day. Every night she finishes the previous night's tale and starts another, creating a seemingly endless series of stories. The "endless story" imagined by *One Thousand and One Nights* has such broad influence on modern literary culture as to need no introduction. The collection's influence on interactive fiction is particularly notable, as its multicursal structure is a common inspiration for the kinds of stories possible with the introduction of player choice. Yet while Evelyn Fishburn compares the labyrinth to One Thousand and One Nights she finds the use of the endless story, even in an inexplicably brutal story like Borges's "The Secret Miracle,"[39] to be "an invitation to consider the magic of the story, as opposed to the horror of its reality," (151) because the infinitude of a story is bigger than literal time. Borges himself describes his stories as similar to *One Thousand and One Nights* because they "try to be entertaining or moving... not persuasive" (X).[40]

Yet despite its position as a video game, often considered a frivolous diversion or past time, how could we argue that *Binding of Isaac's* stories are not "persuasive?" The entire purpose of the ludic loop is to persuade the player to play again, have a conversation with their past self, learn more about the maze and apply their new knowledge to unraveling it further. The player of a ludic loop game like *Binding of Isaac* is not "the King," a passive audience member in need of entertainment, nor are they Scheherazade, living within imagination to escape the present: no, they are analogous to *One*

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[39] In which the storyteller extends their life by a mere 2 minutes by telling their story.
[40] Borges, Jorge Luis. *Doctor Brodies Report*. Translated by Norman Thomas di Giovanni. Bantam Book, 1973.

*Thousand and One Nights'* non-fictional authors, who, over the centuries, continually told and retold these stories, preserving, updating, and enhancing them. Each run in *Binding of Isaac* is an opportunity to retell a story, now with more experience, more expertise, in the exercise. The story of *One Thousand and One Nights* is one of stagnancy, of maintaining the status quo as long as one can with diversions, but that's the exact opposite of how one is meant to explore *Binding of Isaac's* labyrinth, which demands they constantly change themselves with every loop, adapt to the needs of the maze to succeed.

In this sense, Isaac is not merely an Asterion-figure: immortal and trapped in an unchanging labyrinth, welcoming death purely because it's the only change left to undergo. As such, the game cannot end with his demise. Instead, when the player finally finishes the game, defeats the last boss, and "completes the story," *Binding of Isaac* does not offer them the satisfying conclusion of Isaac's escape from his mother, but a new story, because while the game has limits to how much it can change, the player does not. Isaac's father's suggestion that "You're the one writing it, it doesn't have to end this way" is an open invitation to the player to reconsider the message of the game: *Binding of Isaac* is both the story of Isaac, a fictional boy evading his mother, and of the player, a non-fictional person who learned to play the game and complete it, growing and changing along the way. In the beginning, both continually fail together, but by the end of so many ludic loops, they assume the mantle of co-author, capable of overcoming the game's challenges and imagining a future beyond loops and labyrinths.

*Binding of Isaac* reveals the purpose of the ludic loop: it's not to be trapped in the maze

forever or to be endlessly entertained, but to use a paradoxically dynamic *and* unchanging

environment as the backdrop to the player's own experiential growth. Early examples of the ludic

loop like *Pac-Man* and *Tetris* explore these themes, and in their loops we find their purpose.

Meanwhile, later examples like *Rogue* and its descendants offer multicursal variations on similar

ideas, and in their infinitude, the player finds impressions of similarity across loops rather than literal

repetition, but their ludic loops ultimately contain the same soul as *Tetris*. Despite endings like

*Binding of Isaac's* and *Hades*', ludic loop games eschew traditional stories: the important narrative isn't

why Pac-Man or Isaac are in the labyrinth, or if they got out, but what the player can graft onto their

experiences. These characters are player-avatars in the most literal sense: the less specific they are, the

more the player can focus on themselves.

Ludic loops have the dramatic ability to reveal the player to themselves. Borges seemed to

know this well. In "The House of Asterion," Asterion's favorite game is not a physical or mental

sport, but self-reflection. He pretends the "other Asterion" has come to visit, and shows him around

his labyrinth, his home, and the two laugh and enjoy each other's company. Ultimately, this is the

purpose of ludic loops: to play the same game, explore the labyrinth, with *ourselves*: as each traversal

of the loop changes us, and each return allows us to have a conversation with our past self, and put

that knowledge to use to venture further into the maze. The shape of that maze is not dictated by

lines of code or hidden monsters, but the internal workings of its explorer, who projects onto it the

possibility for change otherwise absent from endless nothing, and in the process, creates meaning

where there otherwise is none.

# Chapter 4 - Existential Loops

On the week of March 23, 1992, millions of people tuned in to their local television stations to watch the latest episode of *Star Trek: The Next Generation*. Perhaps they hoped to see Captain Jean Luc Picard and his crew discover a new alien life form or unravel some interstellar mystery, but instead the cold open greeted them with a scene of panic. Something was wrong. The screen shook, crew members shouted about casualties and system failures, and Picard frantically ordered "All hands abandon ship!" but it was too late: and audiences watched the interstellar spaceship they spent five seasons aboard explode. To add suspense, the episode then cut to its opening credits and a commercial break. In a 45 second cold open, *Star Trek's* writers had managed to do what Romulans, Klingons, and Borg were unable to do in over a hundred episodes: defeat the Enterprise.

To their surprise, when viewers returned from the commercials, they saw not the wreckage of an explosion or survivors in escape pods, but four members of the ship's crew silently playing a game of Poker with each other. As the story progressed, the audience, and the characters, learned the Enterprise was trapped in a "temporal causality loop." Each repetition of the loop ended with the spaceship's destruction. While characters did not remember events between loops, echoes of their past selves, their past lives, reverberated across the cosmos. In each successive loop, the crew figured they were in a temporal anomaly quicker, until they finally had time to send a message back in time

to themselves and avoid destruction altogether, saving not just themselves, but another Star Fleet crew who had been trapped in the loop for over 90 years.

To sell the concept of a time loop, "Cause and Effect" has repetitive scenes where characters have similar, albeit not exactly the same, dialogue. *Star Trek: The Next Generation* episodes have five acts divided by commercial breaks, and the first three acts of the episode all begin more or less the same: with a game of poker. In the first act, Beverly Crusher wins the game, taking a huge pot from Commander Riker. In the second act, events continue as normal until Riker is about to raise a large amount but looks into Crusher's eyes and can tell she will call his bluff. The pair confusedly look at each other, both saying they had a "feeling" about the game. In Act 3, Crusher correctly guesses every card before it's turned over, cluing everyone in on the fact that something is amiss. In a sense, the audience views the events of each act like a person might rewatch a football game they saw last week: they already know the outcome, and know what play comes next. From the vantage point of any time other than the "present," the entire game becomes trite because its excitement is derived from its sense of unpredictability. "Cause and Effect" emulates that feeling and is a fondly remembered episode because the viewer picks up on the differences between each loop, allowing a mystery to be solved despite the recurrence of the same events and dialogue.

"Cause and Effect," while not the first piece of media to feature temporal repetition, is an excellent example of the topic of this chapter: existential loops. In the previous chapter, we discussed many games with ludic loops, but for most, these loops carry little to no narrative significance, or if they do, as is the case in Hades, they mostly serve as a way for characters to grow and change over

time. The key games and media we're concerned with in this chapter are more transcendental in nature. In these stories, the end of the loop is not just a fateful resetting of events, but the inevitable, catastrophic, and apocalyptic end of the characters and their worlds. These games are adventurous mysteries where it is not gameplay prowess that reveals the path to victory, but narrative knowledge discovered over successive attempts. Knowledge which, when applied correctly, can change the "inevitable" end of the character's universe.

The use of poker, a game of chance, to signal the breaks between loops in *Star Trek* is not an idle coincidence, but grounds the repetitive nature of the Enterprise's misadventure. Malaby defines games as a "domain of contrived contingency," and contingency is the one thing the members of the Enterprise lack. Their future can be predicted with certainty; they will all die in a fiery wreck in a few hours. The Enterprise's crew realize this, and every time they experience *déjà vu* they end the game, unsettled by the lack of meaning it carries when repeated. By using a game to foreground the events of the episode, "Cause and Effect" acts as a precursor to the video games we will discuss this chapter. It is somber, existential, and offers no happy ending. Sure, the Enterprise only lost 17 days of time to the loop, but their sister ship emerged a century later, an entire lifetime removed from family and friends, everything they ever knew. No one "wins" the game of existential loops. When the events of a game are sure to play out again and again, the player and main characters see their world, their way of life, everyone they know, all perish again and again. This trauma forces them into an existential state of mind. Darkness pervades these narratives, not just in their potentially grim conclusions, but in the player's path to upend them. In this chapter, we will consider how these games, which I

describe as "Existential Loop Games" communicate different notions of time from the traditional

linear model.

The existential loop game distances itself from roguelikes and arcade games in their

disposition toward the temporal anomaly. In *Pac-Man* or *Tetris*, the player needs no narrative

explanation as to why they've suddenly found themselves in the same situation again. In *Spelunky* or

*Binding of Isaac*, the player-character is unaware they are trapped in a temporal labyrinth, only the

player is privy to that information. Even in a more narratively straightforward game like *Hades*, in

which every loop and failure is canonical to the game's narrative, the loops cause no characters to

have an existential crisis. However, in each existential loop game the cause of the loop is explicit:

some magical effect, godly intervention, or science fiction contraption affixes the player-character to a

time and place, and they are unable to escape. Noone else can escape either, as in all the games we

will discuss the player's failure is society's failure: everyone dies with the player at the end of the loop,

whether by a godly decree, falling moon, or exploding star. Finally, the player-character of these

games is aware of their predicament. They canonically take notes about the temporal mystery they

find themselves in, carry items and knowledge back in time with them, and remember what no one

else can: the fleeting nature of life, how easily it can be snuffed out. Yet despite their bleak settings,

all three of these games offer messages of hope, of overcoming the meaninglessness inherent in a

story about the inevitability of death.

A good primer for existential loop games is Anna Anthropy *queers in love at the end of the*

*world* (*queers in love*), a text-based game where the player only has ten seconds to select dialogue

options before "Everything is wiped away." Those 10 seconds are not spent seeking a way out of the loop but accepting it and spending what time the player-character has with a loved one. Instead of focusing on the destruction, Bo Ruberg reads *queers in love* as an example of "permalife"[41] which, despite the 10 second timer, transcends time: "for the queer lovers to have each other, is to have everything — to have all the time, to be permanently alive with one another" (169). Claudia Lo also reads the game has privileging a queer temporality by making "constant reference to a happiness and satisfaction rooted in the here and now, a utopia of these two characters' creation that is unintelligible by both the standards of heteronormative society and conventional gaming logic" (191). *queers in love* grounds its queer temporality in the fact that escape is *not* part of the game's temporal equation. The game will end in 10 seconds, so instead of clamoring for escape, the player must accept death and repetition and enjoy the pleasure over the pain of destruction. While *queers in love* is an existential loop game, it dramatically differs from the three games we will discuss in this chapter because they are consumed with escape and their characters are burdened with the responsibility to fix time. Yet, as we will see, despite not featuring queer characters or queer pleasures, these games disrupt chrononormativity in their own unique ways.

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[41] A play on the "permadeath" we described last chapter.

Majora's Mask

The most familiar, iconic, and disseminated image from *The Legend of Zelda: Majora's Mask*

(*Majora's Mask*) is not of a fight between Link and a nemesis, the use of a unique item the hero finds

on his adventure, or some beautiful vista of Hyrule, but a simple black screen with large letters

declaring "Dawn of the Final Day -24 Hours Remain-." *Majora's Mask* may have been released on the

underperforming Nintendo 64, but it certainly managed to leave an impact on popular culture. In

recent years, the aforementioned image can be found copied and proliferated hundreds of thousands

of times in the lead up to important elections, sporting championships, and media events, shared by

eager individuals awaiting the end of something important to them. While the image has found new

life as a meme, its playful recycling belies the dark temporality that haunts *Majora's Mask*, in which

Link continually relives the same three days over and over attempting to save the aptly named

"Termina"[42] from imminent destruction by way of an anthropomorphized falling moon.

Accompanying the simple screen is the loud and bassy sound of a large stone moving,

indicating the slow, but inevitable, turning of time. A similar sound is found in the clock tower at

the center of Termina, where Link starts each time loop. At the beginning of each day, Link is

warned about how much time he has left, and considering the player is likely to reset the clock many

times over their playthrough, they will see the image denoting the "Dawn of the Final Day" dozens

of times. Unlike the arcade games or roguelikes we covered in the previous chapter, we don't greet

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[42] Eiji Aonuma, the director of the game, states that parallel to "terminal" is meant to describe "a place where people come and go" (Nintendo Dream 2011) and we'll get into that reading later in the chapter, but "terminal" as in "the end of something" works exceedingly well for an understanding of temporality in *Majora's Mask*.

these reoccurrences with glee, or as an opportunity to improve our skills, but as a grim reminder of

our short temporal existence, and the fact that, try as we might, we can't escape the weight of time.

While Link ultimately saves Termina, *Majora's Mask* remains a dark and existential game about

doggedly fighting foes just as metaphysical than *Zelda* players are used to: time and death. In its

existential loops, we find interesting opportunities for the game to develop relationships and ideas

that other Zelda games, by nature of their more linear construction, are unable to explore.

Even before *Majora's Mask* introduces the player to its central time loop conceit, it presents

itself as a game with peculiar notions of temporality. A direct sequel to its sister Nintendo 64 game,

*Ocarina of Time*,[43] which we discussed at length in Chapter 2, *Majora's Mask* tells the story of the Link

who saved Hyrule as an adult, but now lives on as a child, or as Zelda put it in *Ocarina of Time* "the

way [he is] supposed to be." In this new timeline, Link abandons Hyrule in search for Na'vi, his

personal fairy and friend from the first game, far from those who made him a "legend." The Link the

player embodies in *Majora's Mask* is already a hero, has already lived an adult life, saved the princess

and his home from evil, and yet he returns to childhood. So, temporally displaced from any sense of

cyclical-domestic normalcy, he has no choice but to leave. In his search for Na'Vi, he hopes to find

the only other individual who remembers his past life and deeds. As we've discussed, *Zelda* games

tend to operate under a wonky temporal framework, but *Majora's Mask* is perhaps the oddest of the

bunch, which serves as a fruitful prelude to its peculiar setting.

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[43] The two are built with the same engine and have essentially the same visual aesthetic and gameplay.

*Majora's Mask's* world and user interface is constructed, first and foremost, to convey temporality. The most blatant new inclusion to the UI is clock, housed in the center of the screen under Link, an area empty in *Ocarina of Time*. The clock takes the form of a semi-circle with twelve fading radial lines pointing towards a square at its center. The square denotes which day it is: "1st," "2nd," and "Final." For half the day, from 6am to 6pm a symbol of a glowing suns takes the form of clock hand, relaying to the player the current time. For the other half, the symbol is replaced by a crescent moon, symbolizing that night has fallen on Termina. The in-world clock moves at a much faster rate than the real-world clock, as the game's 72-hour loop only takes 54 minutes of real time to pass, or one hour in-game hour every 45 seconds. The player must always retain awareness of this clock, both because it tells them how much time they have left to act in the current loop, and because Termina's world is set up for various events to happen like clockwork. For instance, on the night of the first day a UFO (yes, a UFO) attacks the Romani Ranch, at 9:30pm on the second day Link can overhear an important conversation at the Stock Pot Inn, at 12 a.m on the final day the "festival of time" begins and the stairs to the top of the clock tower open, allowing Link to face off against the game's final boss. When the clock strikes 6am on the final day the moon crashes into Termina, the resulting destruction, reminiscent of a nuclear explosion, kills Link and everyone across the land, resulting in a Game Over. Like *Ocarina of Time* before it, *Majora's Mask* is not just an adventure across space to new exotic locations, but across time, where careful attention must be paid to when the player can and can't act.

Every loop in *Majora's Mask* begins in the same place: the large clock tower at the center of "Clock Town," itself the center point of the entire map of Termina. From the perspective of the game's map, the land of Termina resembles a clock itself. The clock tower is the tallest structure in the game and visible from most places on the map. It acts as a thematic reminder of the game's primary theme: the undeniable passage of time. However imposing the clock tower might be from a distance, its innards are doubly so; large wooden wheels loudly grind and turn to keep the clock moving, on the base floor water runs through the building to turn a wheel, giving the clock its energy. The clock tower does not just act as a representation of time the player can forget once they leave its belly, as the game's dramatic conclusion occurs there at well. Unlike most games, the player reaches this conclusion during the introduction, as they must face the game's final boss at the end of the first loop to retrieve the *Ocarina of Time* and reset the cycle with it. Moreover, when the moon does destroy Termina, the majority of the accompanying cinematic displays the destruction of the clock tower, the first object the moon makes contact with. Thus, the cacophonous clock tower is always present at the beginning and end of Link's adventure. Through it, *Majora's Mask* reminds the player what it wants them to think about: the ticking clock marching toward Termina's doom.

Beyond literal clocks and its user interface, *Majora's Mask* communicates the passage of time in a few other key ways. Most threatening would be the large moon which hangs over Termina. It isn't enough to simply have the impending destruction of a falling celestial body reside in the sky, *Majora's Mask*'s designers took the idea of the image of a "man on the moon" literally, and gave Termina's moon a human face bearing teeth, an ugly grimace, a large nose, and sunken glowing

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yellow eyes. While the moon is already unnaturally close to Termina at the start of the cycle, by the third day it dwarfs everything else in the sky, the player can't help but see its menacing visage. We've already mentioned the black screen that accompanies the dawn of each day, but prior to that screen the game communicates the passage of time through a loudly clanging clock as the player's screen (which they can still interact with) gains an increasing large black bezel with each gong, as if the terminal nature of *Majora's Mask* collapses in on not just the game world, but the player's television. At no point in *Majora's Mask* is the passage of time conveyed in a non-serious way: it always reinforces the existential threat to Termina Link quests to resolve, whether by anthropomorphizing a falling moon, halting play to tell the player how much time remains, or centering the game world around a literal clock tower.

In Chapter 1, I pointed to the ways that games require clocks to function, but few take the form of a clock quite like *Majora's Mask* and the other existential games in this chapter. Nearly every hour of every day in Termina *something* is happening. If you removed the in-game clock, an experienced player could tell what time it is simply by observing the world around them. The player's role in these clockwork mechanisms is to learn how they function and disrupt the game's programmed routines in ways that advance Link's heroic interests. While in "narrative time machines" like *Ocarina of Time* and *Chrono Trigger*, the player travels through different eras and time periods on their journeys, playing with the narrative implications of time travel, *Majora's Mask* more thoroughly integrates a dimension of timeliness into its design, in a sense using "time" the way most games think of "space." The Link of *Ocarina of Time* does not need to be particularly conscious of

what time of day it is in game, and nothing meaningfully changes from one day to the next. His

adventure to defeat Ganon could take one day or ten thousand. Meanwhile, the Link of *Majora's*

*Mask* is absorbed in a unique temporality, the puzzle it represents is the primary point of intrigue the

game offers the player.

Most readings of *Majora's Mask* attempt to make sense of its striking temporality. Larissa A.

Garski, et al. argue "No video game captures Kübler-Ross's five-stage journey through grief better

than *Majora's Mask*" and that Link ends the narrative as "not just the Hero of Time, but the Hero of

Loss." While I'm not particularly interested in grafting psychological theories onto a video game for

this project, the five-stage journey of grief is clearly a temporal exercise starting with loss and ending

in acceptance and resolution. By using it to read *Majora's Mask*, these authors situate the game's

meaning around its sense of temporality. Similarly, Skott and Skott-Bengston contend the game

incorporates "an encrypted phantom of past trauma" (609) to haunt the text and use its connection to

the past to argue it's a horror game "in-distress." While, as we'll see, I disagree with their argument

that the game "constructs carcerality, and the violence it inflicts, rending individuals not only

invisible but socially non-living," because the game's narrative direction is firmly rooted in

empathetic relationships with the game's large (for its time) cast, their efforts to define *Majora's Mask*

around concepts of incarceration again try to construct meaning from the game's unique

temporality. Unfortunately, while these readings explain *Majora's Mask* in interesting ways, neither of

them directly engage with the concept of "time." Instead, they talk around time by defining it

through unspecific theories from social studies. In this section, I hope to attend to what the game's

temporality means apart from discreet theories we can place over it.

Time is the central barrier to most of Link's objectives. For instance, a critical temporal

problem the player must solve is retrieving their horse, Epona. Epona has been sold to the Romani

ranch, but the road to the ranch was blocked off by Skull Kid, the game's primary villain, with a large

boulder. A man diligently works night and day with a pickax to remove the rock but does not

complete the job until the third day, at which point the Romani sisters are distraught and their cattle

have been taken by strange UFOs. In their distress, they won't talk to Link or teach him how to call

his horse. Link knows where Epona is, but not how to release her. In order to retrieve the horse and

learn the song which summons her, Link must arrive to the ranch on the first day, prior to any extra-

terrestrial shenanigans.[44] To do this he must use a "Powder Keg Bomb," a powerful explosive which

can remove the massive rock. Unfortunately, Link is not strong enough to lift the bomb: he must

acquire the "Goron's Mask" in order to carry it. Even after acquiring the mask, Link then needs to

procure the certification from one of the two Gorons who sell the kegs. He can only gain this

certification by resolving the Goron home's eternal winter and blowing up the rock blocking the

Goron's racetrack with a lit keg. Fortunately, Link's certification travels back in time with him, so

after he completes the quest, he can go back to the first day, purchase a Keg from Clock Town's

Powder Keg salesman, blow up the rock blocking the path, and meet with the Romani sisters before

they are accosted by ETs. The younger sister, sensing a bond between Link and Epona, teaches him

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[44] He can, of course, stay and fend off the aliens that night should he choose.

the song which summons her. Epona then serves as the "key" which unlocks the game's final two areas. Many of the game's challenges are just as temporally rich as the quest to get a horse. In them, the player must be temporally aware. They must understand when certain events occur on each day, what they can do regarding those events, and plan their traversal of Termina accordingly.

The cause of Termina's maladies is the strange and powerful titular item, "Majora's Mask." The mask, its wearer Skull Kid, and his two fairy companions Tatl and Tael, are the first characters Link is introduced to at the outset of the game. They ambush him as he rides through the foggy "Lost Woods," a liminal space between worlds. They steal his horse and the *Ocarina of Time*, riding off and leaving Link even lonelier than he was at the outset of his adventure (recall: he is searching for his fairy companion Na'vi). When he finally catches them, the Skull Kid, using the power of Majora's Mask, painfully transforms Link into the humble form of a Deku Shrub. The Skull Kid, ever the trickster, laughs at Link and tells him that he'll "stay here looking that way forever!" But Tatl, who visually resembles Na'Vi, gets left behind with him. She can't catch up to her found family without some aid, and thus prods Link to pursue them. After a short tutorial, at the end of which he finds the corpse of a Deku Shrub (indicating Link is cursed to take the dead Schrub's form), Link enters a warped room. As he walks forward the floor twists into the ceiling, on the other side of the hallway is the clock tower where Link's journey, and the existential loop he will repeat dozens of times, begins. The door shuts behind him, unable to be opened again. This introduction is the only part of *Majora's Mask* that isn't repeated every time Link resets the loop. It establishes the major characters of the

game's plot, the mysterious power of Majora's Mask, and the importance of "masks," a thematic pillar of the adventure.

In the clock tower, Link meets the ghoulish "Happy Mask Salesman," who darkly introduces himself by asking: "You've met with a terrible fate, haven't you?" Taken in the moment, we can read the Mask Salesman's question as a comment on Link's new Deku Shrub form, the curse he cannot remove, but in the greater apocalyptic context of Termina, the question hangs as a thesis statement over the entire game. Not only has Link already finished one melancholic adventure and lives on as a lonely adult in the body of a child, but now he finds himself trapped in a terminal world he cannot save. Fate, as it were, conspires against the hero: his quest cannot be completed in the meager amount of time he has.

In most *Zelda* games, no matter how dark their subject matter, "destiny" is always on Link's side. In *Ocarina of Time*, Link is called "the chosen one," the only one worthy of the title "Hero of Time." In her first encounter with him Na'Vi asks "Can Hyrule's destiny really depend on such a lazy boy?" Zelda, likewise, is described as the "Princess of Destiny" and has a dream where a ray of light, specifically identified as symbolizing Link, saves the kingdom. Moreover, when Link first becomes an adult, in order to progress the plot, he must answer "Yes" to the question "Do you understand your destiny?" While *Ocarina of Time* can be melancholic, at every step of the way Link is assured that he is the hero who will save Hyrule from despair. In *Majora's Mask*, he has no such comfort. The Hero of Time's future is filled with failure and perpetual setbacks in the form of resetting the clock, each new loop signaling another failure. Thus, his "terrible" fate is more than a momentary setback or a curse

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upon his body, but the suggested dissolution of that metaphysical narrative device which always

ensured his victory: fate. In *Majora's Mask* it is time and fate, not villains or monsters, that are central

obstacles the hero must overcome; their antagonism is far more acutely felt than a hostile blade by a

hero used to the confidence afforded by destiny.

The Happy Mask Salesman, so off-putting Tatl hides behind Link when he appears, does not

offer our hero the ability to escape Termina, only the chance to return to his natural body. He makes

a deal: if Link and Tatl can procure the "precious item" that was stolen from them (The Ocarina of

Time) and the "precious mask" (Majora's Mask) the "imp" (Skull Kid) stole from him, he will return

Link to normal. He believes that for a hero of Link's caliber, the task should be simple, but of course,

nothing in *Majora's Mask* is.

On the evening of the third day, with the moon bearing down on Termina, Link, still a lowly

Deku Shrub, confronts the Skull Kid. In his meager form, Link is unable to complete the Mask

Salesman's request and recover the mask, though he does steal the Ocarina. When he picks it up, he

has a vision of a past life, where Zelda, in her only appearance in the entire game (despite her name

in the title), teaches Link the "Song of Time" the same way she did in *Ocarina of Time*. When he plays

the song, he finds himself back in the clocktower on the first day, temporally just a moment after his

original conversation with the Mask Salesman. The Mask Salesman, seeing the Ocarina, believes Link

has completed the quest and teaches him the "Song of Healing," a somber melody which puts

tormented souls to rest. When Link plays the song, not only does he revert back to his human form,

but a mask with the face of a Deku Shrub lies at his feet; when put on, the mask turns Link back into

a member of the short-statured race.

Masks are traditionally used for elaborate performances or to conceal one's identity, but the

Song of Healing's function throughout *Majora's Mask's* narrative suggests masks are a specifically

temporal creation: gateways into the past. The Mask Salesman says the melody "heals evil magic and

troubled spirits, turning them into masks." So, we're not meant to understand the masks as mere

magical items, but distillations of past trauma. Aonuma explains that the masks "contain the

memories of people who have died."[45] Their pain is not just evident in background stories the player

can skip: every time they put on one of these "transformation masks" Link shudders and screams out,

as though the mask painfully fuses with his own body. The use of these masks is meant to be

foreboding and wrong, as though some black magic binds Link's essence with that of the mask.

The Deku Shrub Mask Link acquires upon playing the Song of Healing contains the spirit of

the Deku Shrub corpse he saw earlier. When he plays the song of healing, he puts that spirit to rest

by binding its agony to a physical object. *Majora's Mask* doesn't explain that the first mask comes

from a dead Deku Shrub until later, and even then, it can be easy to miss. The connection to dead

spirits becomes clearer at later points when Link acquires the Goron's Mask by putting at ease the

restless spirit of a Goron hero at their grave and the Zora's Mask by playing the song for a dying Zora

musician: upon the song's completion the mask all that's left of his body. Later in the narrative, Link

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[45] Aonuma, Eiji. "Zelda Producer Eiji Aonuma Talks Creating Majora's Mask And His Personal Hobbies." *Game Informer*,
    Feb 21, 2015.

meets the "Deku Butler" while wearing the Deku Shrub mask, and the Butler remarks that he reminds him of his son. Meanwhile, Goron and Zora characters are constantly confused when Link dons their respective race's masks, believing they are talking to someone they know. Thus, Link does not just embody random members of these various races; he embodies the visage of real characters who lived in Termina. Importantly, these masks are not just oddities on Link's quest: transforming into these characters and using their unique abilities and identities, is necessary for Link to finish his adventure. To solve their time loop predicament, the player reaches into the past, plucking the spirits of the dead and giving them another chance at life, hoping to alter the fate of the living with their memories.

After teaching Link the "Song of Healing" the Happy Mask Salesman is disappointed to learn that he does not have the Majora's Mask in his possession. His description of the mask and its powers is steeped in temporal language:

> It is an accursed item from legend that is said to have been used by an ancient tribe in its hexing rituals... the troubles caused by Majora's Mask were so great the ancient ones, fearing such catastrophe, sealed the mask in shadow forever, preventing its misuse. But now that tribe from the legend has vanished, so no one really knows the true nature of the mask's power.

Juxtaposed with the masks Link wears, with which he takes the form of the recently deceased, Majora's Mask contains an evil spirit that has existed for longer than anyone can remember; the Mask Salesman can only point to ambiguous "ancient ones" to explain its existence. Considering the game's major theme of preordained doom, as represented by the falling moon, Majora's Mask acts as a mysterious personification of malicious destruction. Unlike Ganon, the most common villain in

*Zelda* games, who seeks to usurp the natural order so he might control Hyrule, usually destroying

most of the land in the process, Majora's Mask has no motivation for destroying Termina. In this

sense, while it has a personality and agency within the game's narrative, it's ultimately as

predetermined in its actions as the moon helplessly falling into Termina. It causes chaos and

desolation because it's destined to do so. The only solution the "ancients" could muster was to lock it

away and hope no one ever found it.

The player enters this world with the mask's "destiny" fulfilled. Prior to the events of the

game, Skull Kid (possessed by the mask) cursed each of the four major regions of Termina and

trapped the primordial giants who protect Termina in their respective temples. The Southern

Swamp, home to the Deku Shrubs, has poisoned water and its princess kidnapped. "Snowhead,"

home of the Gorons, is stuck perpetual winter when it should be spring. The Zora inhabitants of

Great Bay are afflicted with warm water, disrupting marine life and causing the water to become

difficult to navigate. Finally, the ruins of Ikana Kingdom to the east do not need much help to

despair, as the macabre history of the canyon has left the canyon primarily populated by the undead.

In each of these areas, Link must overcome unnatural stasis, whether in the form of environmental

catastrophe, poison, or undeath, to bring peace to their people and free their respective giants. Once

each giant is free, they join forces with Link to prevent the moon from crashing into Termina.

Link isn't temporally helpless on his journey, as the game offers the player a few ways to

manipulate the in-game timer. Of course, they can play the "Song of Time" to reset the in-game clock

to 6:00 a.m. on the first day. If they play the "Song of Time" backwards, the game rewards them with

the "Inverted Song of Time" which halves the speed of the in-game clock. If they play the first three notes of the "Song of Time" twice (rather than the whole six notes), they play the "Song of Double Time" which will skip the in-game clock to the beginning of the next nightfall or the dawn of the next day, whichever is sooner. These manipulations, which alternatively give the player more time to complete tasks or allow them to skip ahead to events they are interested in rather than waiting around for them to happen, play a crucial role in how *Majora's Mask* feels to play. With them, the player feels less like a traveler thrown to and fro by the whims of time like the inhabitants of Termina, and more like an active participant in the unique temporality of the region.

Unlike a film like *Groundhog Day*, or the other two games we will discuss in this chapter, in *Majora's Mask* the player is not tasked with determining the correct steps to live a "perfect day" which will break the loop. They have no hope of freeing all four giants in one 72-hour period, even with temporal help from the game's magical systems. Instead, adding to the unease and melancholy of the game, the player must solve the problems of each region, free each giant and learn the song to summon them, and then rewind the clock, undoing all their progress. Every area inevitably returns to its misery, as it's the only way Link can save both each region and the entirety of Termina from its apocalyptic ending at the same time. Fortunately, Link retains some amount of progress each loop. While he loses all his money, any temporary items (such as arrows and bombs), and any relationships he built with other individuals, and every environment resets, he keeps key items, in particular

masks, when he resets the clock. Also, the giants seem to remember Link in-between time loops, and come to his aid on the final day regardless of whether Link freed them in that cycle.[46]

Even though Link cannot forge sustained relationships with any characters *Majora's Mask* is a deeply personal game. Its myriad of characters, each on a programmed "script" the player learns across their many cycles, are the primary draw of the game. Compared to its direct predecessor, *Ocarina of Time*, *Majora's Mask* is relatively scant on "content;" whereas *Ocarina* has twelve dungeons, the marquee locations in any Zelda game, *Majora's Mask* only has four. The game makes up for this deficiency by significantly increasing the number of named characters, as it has almost twice as many as its predecessor. Unlike *Ocarina of Time's* background characters, who primarily serve to add color to its world, most of *Majora's Mask*s characters have secrets the player discovers.

For instance, one of the most emotionally impactful moments in the game comes from the long quest to reunite Kafei and Anju, two star-crossed lovers. The two were engaged to be married, but Kafei disappeared and no one can find him. The player is tipped off that something is amiss when the postman delivers a letter to Anju, the innkeeper at the local inn, and despite her insistence, he won't tell her who it is from. If Link has obtained Kafei's mask[47] from Kafei's worried mother, Anju will confide in him that she loves Kafei, but her mom plants ideas in her head that he ran off with her best friend. She gives him a letter to deliver to Kafei via the postman. If Link follows him,

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[46] It is possible, considering the game makes it easy to re-challenge its bosses on new cycles by presenting their remains at the start of the temple, that the developers intended for the player to have to free all four giants before the climactic battle with *Majora's Mask* on the third day, but decided against it late in development.

[47] Most of the game's masks function just like a mask would in real life and do not transform Link into deceased individuals.

they see him deliver her letter to a young boy. If they follow the boy, they can confront him to learn that he is actually Kafei, cursed by Skull Kid to live in a child's body. In his shame, he hides in the back room of the shadiest store in Clock Town. To top it off, as part of their nuptials, the pair were to exchange "Sun and Moon" masks, signifying their union, but the local thief stole the sun mask, and thus Kafei's ability to prove his love for Anju.

Reuniting Anju and Kafei is one of the most involved side quests in the game. Link must learn the hideout of the local thief, sneak in and steal back the mask, deliver messages between the pair assuring them each of their love for one another, and relieve of the Postman of his duties so he can attempt to flee the falling moon. Nearly every aspect of the quest is timed to a specific moment over the game's 72 hours and at most steps the player can encounter fail states that halt the progress of the entire quest. For instance, in the evening of the first day, the local thief steals an item from an old lady, if Link prevents this crime the thief won't accidentally lead Kafei and Link back to the lair on the third day. You may think that, because this quest is so complicated, that the reward for completing it would be enormous, but both of the primary materialistic rewards for its completion are headwear which serve little in game purpose. Though, behind the wall of time sensitive activities does wait sweet narrative payoff. At 4:30 am on the final day, Anju and Kafei reunite. Kafei's curse unbroken, he appears to her as a child. They exchange their masks and say their oaths, creating the "Couples Mask" which they give to Link, the sole witness of their union, as a symbol of their eternal love.[48] Only an hour and half of in-game time before the moon destroys all Termina, the pair

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[48] And eternal it is, as the mask, like all masks in the game, stays with Link when he resets the loop.

embrace each other and tell Link "We shall greet the morning... together." This temporary scene of touching affection in the face of death, reminiscent of *queers in love*, is only visible after three days of arduous chores, but gives the player one of the most narratively rewarding moments in the game, as perhaps no other mask questline displays so much hope in the face of death.

*Majora's Mask* is not an existential game solely because Link and the player must continually relive the same three days to stave off the destruction of Termina, but because almost every character in the game sees what they see: the moon is falling and will kill them and everyone else. Each character responds in their own way, and in engaging with each their responses, the player sees a myriad of ways people might respond to death. At the Romani Ranch, the stylishly mohawk'd "Grog" expresses great sorrow because he won't get to see the chicks he tends to grow into chickens. Grog's fear of death is manifested in a desire to raise a future generation, but with the help of a mask, Link can fast-track the chicks' development, and in-turn Grog accepts death, saying "I don't have any regrets about anythin' anymore. I'm perfectly satisfied." Other characters weaponize their ignorance, attacking people who believe the moon will fall, symbolizing a desire to avoid the thought of death as long as possible. Not all characters realize their dire fate, but even among the genuinely unaware an air of despair hangs over Termina, like in Pamela, a young girl, and her father. The father, a researcher into the undead of Ikana Canyon, is cursed and disfigured, an abominable half-undead creature and locked in their basement. Pamela cannot escape, for other undead monsters surround their house. Like many of the game's cursed characters, Link can heal him for a time with the "Song of Healing", but if he then resets the loop, they return to their predicament. In each afflicted

character the player meets, they're forced to contemplate mortality, and because they're bound to meet the same afflicted characters again and again, *Majora's Mask* becomes a meditation on existence itself, the short time Link has in this world a microcosm of the brevity of life.

The ending of *Majora's Mask*, like the ending of most existential loop media, subverts the expectations set up by the game's events and tone. Whereas Link has come to know Termina as a place of continual impending disaster, the narrative's final moments invest in giving the player something to be hopeful for. When Link confronts Skull Kid and *Majora's Mask* atop the Clock Tower after freeing each of the four giants from their dungeons, they come to Termina's aid grabbing hold of the moon and holding it in place. With the moon now neutralized Tael and Tatl get into an argument about Skull Kid's role in the disaster. Tael, who has been the subject of Skull Kid's abuse for countless temporal loops, argues in favor of forgiveness, remarking that Skull Kid was lonely, and needed companionship.[49] Tatl and Tael vow to be the best friends to him that they can, but the mask has different plans. It describes Skull Kid as a "useless puppet," discards his body, and flies into the moon's mouth, supercharging its descent to such an extent that the giants cannot hold it back.

Link hitches a ride through a beam of light into the moon, but rather than be greeted with a bombastic boss fight, he finds only a large grassy field with a single tree. Underneath the tree, five children in masks play. The four of them run around in masks reminiscent of major bosses Link defeated on his journey. If Link talks to them, they ask him for masks he received on his journey. If

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[49] If, in another timeline, Link speaks to an elderly lady at the right time she explains the story of the four giants, friends of Skull Kid, who went to their respective ways leaving him behind, and Skull Kid comes across as a sympathetic character.

he plays hide and seek with them and has collected every mask in the game, they all disappear, leaving only a lonely child wearing *Majora's Mask* sitting under the tree. Like Skull Kid, the child remarks that "Everyone has gone away," and asks Link to play. He gives Link the new "Fierce Deity Mask" which transforms him into an adult again.[50] He then faces off against *Majora's Mask*, and easily defeats its monstrous form with his newfound power. The Fierce Deity Mask can only be obtained if Link has met nearly every character in Termina, and if, in at least one loop, satisfied whatever quandaries might be afflicting them. Just as each of the other transformation masks contained the memories of dead individuals, Aonuma suggests "that the memories of all people of Termina are inside the Fierce Deity Mask." In a sense, the pain and relief from every loop, however many times Link and its unknowing inhabitants have relived the same day, find their way into the mask, which channels their sorrow, passion, and ultimate relief into a manifestation of power. *Majora's Mask* suggests a spiritual level of connection between its characters and all life in Termina, one not dismembered by the temporal loop, but bolstered by it, a kind of connection which *Outer Wilds* will expand on in its quest to depict a similar "deity."

The child under the tree most directly reflects the lonely life of Skull Kid, who causes all sorts of mischief due to his outsider status. Yet considering that the child's gift to Link is a chance to become an adult again, if only for one boss fight, it appears as though Link has entered *his own* subconscious. Link and Skull Kid have a lot in common: they were both abandoned by their

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[50] Acquiring every mask in the game is not necessary to finish the game, but the designers reward players who have recovered them all by making the final boss fight significantly more difficult without them.

companions, both are outsiders exiled from the place they call home, and both wield outsized power. Recall that at the start of *Majora's Mask's* narrative, Link searches for his absent friend Na'Vi, the only person who remembers his journey in *Ocarina of Time*. So, the lonely child under the tree is not just a representation of Skull Kid, but of Link himself. His time in Termina offers a chance to find the validation and praise he could not receive in Hyrule, because all his heroic deeds took place in a future that would never occur. Meanwhile, upon defeating Majora's Mask, the people of Termina see Link descend from the moon onto the clock tower, and as the moon is whisked away to where it belongs, they cheer for him and the giants. For perhaps the first time across both *Ocarina of Time* and *Majora's Mask* playtime, the player genuinely feels like a triumphant hero rather than a reluctant one.

As the moon departs, the game inverts the temporal paradigm that defined the player's journey literally and figuratively. Rather than a black screen with pale letters denoting how much time remained until the destruction of Termina, a white backdrop with black letters simply declares "Dawn of a New Day." A "New Day" for Termina of course, but a new day for Link as well. Link awakens on the ground next to the Skull Kid and the four giants, with the Skull Kid realizing they didn't forget about him and still thought of him as a friend. Link, who Na'Vi left wordlessly, likely felt the same way as Skull Kid, wondering if he had any friends at all. The giant's reassurance that they are still Skull Kid's friends reassures him that Na'Vi, still out there somewhere, thinks of him the same way. Skull Kid reaffirms this by telling Link "Friends are a nice thing to have" and asking "Could you be my friend, too?" Ultimately, while the heart of *Majora's Mask* is Termina's residents, Link's repetitive journey across time has been as much about his own regrets and sorrows. The

game's cheerful ending of friendship subverts its often-menacing tone, asking Link, and the player, to be the good in a world on the brink of destruction.

The Happy Mask Salesman confirms this understanding of the existential loop. Now owner of the inert *Majora's Mask*, he sets off to leave Termina, but not before turning to give some sagely advice: "Whenever there is a meeting, a parting is sure to follow. However, that parting need not last forever. Whether a parting be forever or merely for a short time... That is up to you." To the degree that Happy Mask Salesman is knows of the game's broader narrative, this advice makes almost no sense. He only interacts with Link at the outset of his journey. Yet his proverb ties together *Majora's Mask*s major themes and explains what Link's journey was ultimately about.

The world of *Majora's Mask* is paralyzed by stasis, most obviously represented in its odd temporal looping, but evident across its structure. Each transformative mask Link wears is cursed with the spirit and memories of someone who perished too soon. When wearing them, Link prolongs their lives, if in a distorted fashion. The major areas of the game, from the Ikana Canyon ravaged by the aftershocks of war, to Snowhead Mountain with its endless winter, suffer precisely because they cannot change. Most of Link's side quests, like those with Anju, Kafei, and Grog, revolve around giving people scared of the upcoming lunar apocalypse a chance to break away from stasis, whether through expressing love or simply watching chicks grow into chickens. Link himself is also trapped in a kind of stasis: he lives as a child, a symbol of change and growth, but in his sorrows as the mournful "Hero of Time," continues a static life in exile, pursuing an old friend he cannot find, and perhaps never will.

The Happy Mask Salesman's advice cuts through each of these narrative layers by asserting that partings are a fact of life. The joy of meeting someone, of spending time with them, always ends in separation, sometimes death. Link and the residents of Termina all hold memories of the past so tightly, they inevitably become trapped in an unchanging nightmare. The inability to accept change defines their perpetually imminent destruction, but with the dawn of a new day they are free to celebrate, change, experience the world in a fresh new way. The Happy Mask Salesman notes in his final line of the game, "you sure have managed to make quite a number of people happy," and the end credits show it. A rainbow, the remnants of the Moon's departure, streaks across the sky of Termina as the player gets a glimpse into the lives of the people they helped, including the marriage ceremony of Anju and Kafei. Each resident is happier and livelier than during their three days of perpetual stasis. The game ends in the forest where it began. On a stump Skull Kid carved out an image of him, Tatl and Tael, Link, and the four giants, showing that he took the Mask Salesman's advice to heart. He may have parted from Link and the giants, but it's better to celebrate the relationships they had rather than miserably wallow in the pain of their parting.

*Majora's Mask's* structure and ending showcase the power of nonsequential and queer forms of time. In its repeating three-day structure, the game rejects "chrononormativity," which Elizabeth Freeman describes as how "Manipulations of time convert historically specific regimes of asymmetrical power into seemingly ordinarily bodily tempos and routines, which in turn organize the value and meaning of time." Link begins *Majora's Mask's* narrative already outside any normative notion of time, he sacrificed the ability to grow into a productive adult, with the ordinary rhythms of

any other Hylian, when he saved the kingdom from Ganon. He embarks on a "secret and personal journey" to find Na'Vi, which could be construed as an attempt to reclaim the sense of chrononormativity he lost. Termina is a twisted version of chrononormativity, as an asymmetrical power (Majora's Mask) imposes an orderly march toward destruction. Link's quest initially seems to be to reinstate a chrononormative sense of time into Termina, but to fulfill that goal he must queer the tempo of time by slowing, accelerating, and resetting time. Each time the player interacts with time in such a manner, they prove it to be malleable, to contain many different values and meanings, not just the normative. Thus, by the time Link does return Termina to its rightful temporality, it may have resumed some sense of the "normative" but he, and the player, understand that this kind of temporality as only one of many. An acknowledgement of queer time allows Link to move on from the role of "tragic hero" he had at the conclusion of *Ocarina of Time* and look forward to a future of his own design, free from the binds of chrononormativity.

The simple presence of a time loop does not make a game "existential" in nature, it is this final ingredient, a powerful response to the dread the loop instigates, that defines the existential loop game. In the case of *Majora's Mask*, its lesson is to embrace queer time and accept the importance of change: partings may be bitter, but their duration is not beholden to the logic of chrononormativity. Both *The Forgotten City* and *Outer Wilds* come to similar conclusions regarding "change" as their stasis resolves, but as we'll come to see, they not only take different paths to get there, but the meaning of "change" differs radically between them and *Majora's Mask*.

The Forgotten City

If *Majora's Mask* is defined by the hero's preexisting emotional baggage, *The Forgotten City* is defined by a lack of a personal history for the main character. The player can give them a name, gender, and generic background,[51] but otherwise they start the game as nobody. Stranded in the woods with no memories, they meet a strange woman named "Karen" who explains she can help, but first they've got to go into some nearby ruins to retrieve "Al Worth" who wandered in there. When the player wanders into the ruins, they find Al, or rather what remains of him, as he's hung himself. Of far more intrigue is his body, which has turned to solid gold. The player finds a plaque in which he etched a message, explaining he spent a "lifetime in this place, going around and around in circles, searching for a way out... here there are only two options: death, or that godforsaken doorway into the past." He warns the player "Better to end it all now, than find out what awaits you beyond that portal," though, this warning only serves to intrigue the player. On the path to the portal, they move through the remnants of an ancient underground Roman city, like Al Worth, the ruins are filled with golden statues, most frozen in a state of panic like the victims of Pompeii. Guided by a whispering voice, they find the cursed portal in a shrine to Proserpina, goddess of spring and fertility. Stepping into it, transport not to a different place, but a different time: the distant past when the Romans ruled the world.

This portal is not a narrative time machine like we discussed in chapter 2. Instead, it is a portal to some cruel god's playroom. The eponymous city sits in an underground cavern with no

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[51] Archaeologist, Soldier, Fugitive, Amnesiac. Each confers a minor gameplay bonus.

route toward escape; everyone here is trapped. To make matters worse, the people are forced to follow the "golden rule:" "The many shall suffer for the sins of the one." The rule is "golden" in the most literal sense, if *anyone* sins, everyone is turned to gold. The current citizens of the city have not witnessed this event, but the evidence is all around them. Just as the player saw golden corpses in the present-day ruins, the citizens are surrounded by gleaming statues, indicating that people lived here before, someone among them sinned, and a gold death was their punishment. Moreover, these statues which come to life when one sins and shoot arrows at citizens, turning them to gold. So far, as in, before the player-character showed up, these residents have managed to avoid sinning, but they won't for long. The player meets with the leader of the city, Sentius, who warns them that someone will soon commit a sin. The player's first quest is to weed out the potential sinner and stop it from happening. Unfortunately, as Al Worth warned, this is a fool's errand. The player cannot keep everyone virtuous forever. They, or someone else, will eventually sin every loop. When that happens, Sentius runs to Proserpina's shrine and recites a prayer, killing himself and re-opening the temporal portal. When the player steps into it, they reset the loop and everyone's memories, and can try to solve the puzzle box again.

While certain moments of sin can derail the loop, they aren't particularly disruptive for the player, and act like the falling moon in *Majora's Mask*, an inevitable event the game crawls toward, rather than something the player must predict and counteract. The person ultimately most likely to break the rule is the player themselves, who must avoid all stealing, lying, threatening, or killing. Unlike *Majora's Mask*, *The Forgotten City* lacks a bevy of timed events where the player-character must

be in a certain place at a certain time to reveal some truth about the world. Time is less crunchy in *The Forgotten City* compared to *Majora's Mask* or *Outer Wilds*, and with a few exceptions, timeliness is unnecessary. In fact, the game does not even display an in-game timer to help the player make heads or tails of when events happen. Thus, unlike the other two existential games in this section, time may be an important narrative and thematic device that defines the player's experience of *The Forgotten City*, but it isn't a crucial part of how they play the game. What it lacks in game mechanics, *The Forgotten City* makes up for in the puzzling historical layers it presents to the player, which serve as the backdrop to making the game's loops more interesting.

*The Forgotten City*'s impossible task of making humans sinless is a red herring for the real mysteries it hides. Like in *Majora's Mask*, the player cannot simply win through decisive external conflict (i.e. beat up the bad guy) and resolve the time loop. At first, the player is presented with no clear path to saving the city's residents, who live in perpetual fear of the golden rule. The only thing they can do is get to know each character, what problems they face, and start mapping how they relate to each other. It doesn't take long to see that the citizens have more problems than being turned to gold. Among others, Sentius's daughter Sentilla is missing and her lover Ulpius is about to commit suicide when the player starts the loop, the local architect, Vergil, has anti-gay hate speech scrawled on his workshop, an unnamed assassin invades the city looking to kill a character, and an election will be held that evening. If Sentius loses the victors will attempt to execute him, if he wins, the losers will try to murder him. Every time the player starts a new loop, they talk with these characters, and learn a little more about the strange world they inhabit.

Initially, the puzzle pieces don't seem to add up to anything. Sure, gossiping with some members of the city to uncover details regarding the various characters is intersting, but even if the player solves one of their problems for a loop, someone else will sin and they'll have to start all over again. Each effort is increasingly futile when they don't manage to change the end result. Upon such a realization, the player has a few options: they can continue trying to construct some kind of "perfect day" that will satisfy everyone in the town, or they can try to find a less scrupulous way out of the city. The quickest way to end the game early is to create a temporal paradox. If Sentius never opens up the time portal, the player can never have been transported back in time. Thus, killing Sentius creates a paradox, thrusting the player back to the present. In this reality, since the portal was never opened, Al Worth is still alive, but even after convincing him of everything that happened, the player-character and him are still trapped in the underground, destined to die there. To unlock two, slightly better, alternate endings, the player must find a secret path leading out of the city. In one, they kill Sentius and tell Al about the path, the pair escape back to Karen together, and everyone in the city is turned to gold. In the other, the player manages to get some of the residents to the secret path before killing Sentius, allowing them to escape the golden rule. None of these endings are satisfying though, as *The Forgotten City* is primarily a game about talking to people, so leaving most residents of the city dead, some of which the player has probably come to like, leaves a bad taste in the mouth.

The path to the canonical, or "good," ending of *The Forgotten City* requires the player to engage thoroughly with the illusory nature of time. Overlooking the city rests a great temple to an

unknown god. The identity of this god is unknown to the city's residents, and initially, to the player. Whoever it is appears responsible for both creating the "golden rule" and administering its punishment, as their booming voice accosts the entire city whenever a sin is committed, thundering "The many shall suffer for the sins of the one." Access to the all-important temple is impossible: its only door is locked. The only potential hint to the player is a monument in front of the entrance missing four plaques. Each of these plaques is hidden within the game world, requiring the player to not just complete one side quest in a loop, but a variety of missions in order to procure them. Some of the plaques can only be acquired by breaking the golden rule first, but fortunately, the player retains them in-between loops. Beyond the plaques, the player must also learn the name(s) of the god tormenting these people. Yet how they acquire each plaque and learn the god's name is only as important than what their existence implies.

Each plaque represents a people-group and culture which existed in the city. The first plaque represents the Romans, the current residents of the city. The plaque is locked away in a hidden Christian shrine. The player can either procure it by stealing Athena's "Golden Bow"[52] and using its magical properties to sneak into the shrine, or by curing one of the Christian characters of his rheumatism, at which point he will give them the key. What's interesting about the location of the Roman plaque is how it points forward, rather than backward, in time. *The Forgotten City* takes place only a few months after the great fire of Rome, which, according to historical tradition, was blamed on Christian malefactors by Emperor Nero. As a result, most of the characters in the game harbor

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[52] Turning out the lights so as to avoid anyone witnessing the crime.

suspicion toward Christians, and those Christians in the game hide their faith from others. Its through uncovering their faith that the player advances the game's narrative.

Despite the emphasis on the Christian Religion, "Yahweh" is not the god tormenting these people, as the Roman plaque gives an important hint to the player: it reads "PLVTO DIS PATER," the names of the Greek and Roman gods of the underworld. The Christians stole the plaque and hid it away because it honored gods other than their own. We could imagine, that if more time had gone by, and the people of the Holy Roman Empire found themselves in the golden city, that another plaque might be made to honor Christ. Perhaps then, another people group, perhaps secret followers of Islam, would steal away the Christian plaque to honor their god, and the cycle would start anew. In the present time, the player discovers the name of the god tormenting them: Pluto, but this knowledge is not enough, inserting his plaque into the monument and speaking his name at the entrance only unlocks the first of four doors. They still need to obtain the other three plaques and discover the other three names of "god." This first clue raises concerns about the world the characters inhabit, because Pluto isn't just any god, he's the god of the *underworld*. The local priestess helps the player-character come to this conclusion, by prodding them to ask around for people's last memories, and for most of them, they were in life-or-death situations, the implication being that those experiences didn't end as happily as their conscious existence implies, and they are not in an ordinary city, but the underworld.

Each plaque the player finds after the Roman one points further back in time, emphasizing a kind of "deep" time comprised of layers of theology and culture rather than a historical linear

understanding. The player is most likely to find the "Greek" plaque next, which is found in the cage of the city's only prisoner, Duli, who is kept there because Sentius believes his mental disability means he cannot be trusted not to break the golden rule. To free the character and obtain the plaque, the player must go through a long series of convoluted events to elect a new leader, the simple farmer Galerius, who frees Duli. The plaque reads "Hades, Lord of Many," which suggests that before Romans believed the city was constructed by Pluto, the Greeks were there, and believed they were under the thumb of his Greek counterpart. Within a few minutes though, Duli commits a "sin," and the player is back to square one.

Alongside the golden statues, the Greek plaque is a potent indication of a more nuanced history to the city than its Roman citizens let on. History in *The Forgotten City* is not just presented in a nonlinear fashion through its looping gameplay, but in its representation of a city built atop another city. Before the Romans, the Greeks were felled by the Golden Rule. Fortunately, one survivor from those times remains. If the player ventures into an underground cave system taking them beneath the city, they find the "The Hermit Philosopher." Styled after Diogenes, The Hermit Philosopher engages in a Socratic conversation with the player about the nature of right, wrong, and the golden rule they've found themselves under. After a rousing discussion, the Hermit explains they were a member of a Greek dozen who escaped Hades' wrath, and he was in possession of another plaque, this one bearing an Egyptian inscription, but the game's one Egyptian character, Khabash, came through the area a few weeks ago and stole it.

As the player delves deeper into the ruins, the traditional Greek architecture gives way ancient Egyptian designs. Eventually, they find Khabash, who freely gives them the Egyptian plaque. He wants the plaque, honoring the "true gods," restored to the monument. Khabash is upset, noting how the Greeks stole, and subsequently bastardized, many elements of Egyptian theology, "Osiris" became "Hades" and "Kherty" because "Kharon." His only solace is that the Greeks have now been replaced like his people were. Yet like the Christian characters, Khabash also holds the plaque of an older, unnamed God, and throws it into a deep hole, disposing of evidence of any history prior to his people's, history which might disprove the supremacy of his religious beliefs.

After jumping into the hole after the tablet, the player finds themselves in Sumerian ruins. It appears the Sumerians were the first people to be trapped in the underworld. The player again finds golden statues and messages insinuating that the Sumerians met the same fate as the Egyptians and Greeks. *The Forgotten City* essentially layers four different eras of cultural time on top of each other, with each new generation composed of a new people-group and religious disposition toward the god who imposes the game's golden rule. Time in *The Forgotten City* is represented both in the cyclical way the player experiences the city and its inhabitants, but also in a geological descension. The game draws fruitful parallels between geological time and cyclical time. Just as the player continually resets the underworld's clock, the religious members of the underworld theologically reset their beliefs: a theory of cultural change the game's dialogue constantly reinforces. Regardless of the real-world differences between these cultures and religious beliefs, in the fictitious realm of *The Forgotten City*, all religions inevitably collapse in on each other, and when they replace the next, it's simply a

changing of the guard, not a meaningful religious revolution. This idea is aided by the unerring truthiness of all the game's religions: there is a true "god," the one who created this place and enforces the golden rule. The one the player is about to meet.

Upon obtaining both the Sumerian plaque and the name, the player can return to the temple at the hill, insert the plaques in the monument, speak the god's four names, Pluto, Hades, Osiris, and Nergal, and gain an audience with that figure. As the player advances forward, they do not find a grand ancient temple or a Babylonian garden, but a space ship overlooking Earth. The "God of the Underworld," identifiable by the low booming voice the player has heard admonish them for breaking the golden rule, appears human, albeit with glowing blue eyes, and sits upon a futuristic throne. Impressed that the player restored his monument, he grants the player the opportunity to ask questions. From here, the player has two options to obtain the "best ending" of the game. In one, guided by their earlier conversation with Diogenes, they philosophically convince Pluto that he himself is not following the golden rule, and he releases them all from the curse.

In the other, the player abuses the time loop itself to persuade Pluto to let them all go. Throughout their journey, the player-character has been guided by a strange whispering voice, but it is only in this chamber that they discover the identity of that voice: Proserpina. She stands encased in glass at Pluto's side, and the god is unaware Proserpina is conscious or able to communicate with others. Pluto explains that this entire "underworld" is a wager and experiment set up by the being humans call "Jupiter." Proserpina, unlike the rest of her "godly kin,"[53] did not want to abscond from

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[53] A race of technologically superior beings from "Elysium."

humankind, and gave up her immortality to be like humans. Pluto, in love with her, put her in suspension to preserve her life, but Jupiter denied his request to take her back to Elysium because she was human, and thus not worthy. To take pity, Jupiter told Pluto if a city of humans could go an entire year without sinning, he would allow Proserpina and the city's citizens access to Elysium, setting up the golden rule and central conceit of the game. At this point, if the player then takes out their bow and arrow, shoots Proserpina, takes her crown, and resets the loop, they can display her crown to Pluto, convincing him that he's stuck in a time loop. Forced to admit defeat, he gives the citizens of the city their freedom. Like in most existential time loop media, the presence of a time loop initially causes despair in those inhabiting it, as we see in the case of the suicidal Al Worth at the beginning of *The Forgotten City*, but through determination, and using the time loop in a creative manner, the player can escape the loop.

Both *Majora's Mask* and *The Forgotten City* treat their game worlds as liminal locations. In *Majora's Mask*, Termina is an ambiguous "nowhere" somewhere past the Lost Woods, explicitly not part of Hyrule (the location of most of the *Zelda* games). In *The Forgotten City*, the eponymous city is, in fact, the underworld. Populated with the dead, it's a location distinct from the "real world." While these existential loop games comment on the cyclical nature of contemporary life, like many other loop media, they deliberately place the primary character outside their comfort zone, in a place foreign to them, to better draw out the themes their interested in exploring. In *The Forgotten City's* case, the loop serves as an opportunity to discuss the fickle nature of human morality and the cyclical nature of human culture. We've already discussed the latter at length. Regarding the former, the

game's philosophical underpinning is critical of any form of morality. Even Pluto, a centuries old "god" in human eyes, cannot maintain a consistent moral framework. He explains to the player that he simply wants humans to follow the golden rule of "do unto others what they would do to you" but when confronted about whether he would like to be put under the eye of a more powerful creature turning him to gold if he, or anyone in his cohort, makes a single mistake, he relents, admitting that he's not sure a concrete system of morality exists, and if one does, no one can follow it. The player, and the game itself, are absolved from the need to take a strong moral stance, as they take the position of critic. As a result, *The Forgotten City* is fundamentally a query into the difficulty of setting up a moral framework in the first place. The player is never challenged to create something better than Pluto, only to disturb his understanding of morality enough to let them all go. Ultimately, *The Forgotten City*'s moral center is flexible, rather than fixed. It suggests some courses of action are better than others, but its final thesis can be boiled down to: "it's human to make mistakes."

This moral critique is a direct result of the temporal looping structure the game employs. The player makes mistakes, or sees others make them to push the narrative forward, and the result of those mistakes is abject punishment of all citizens of the city. In this framework, time ceases to exist linearly, and so too does cause and effect, which most morality systems, particularly the game's "golden rule," adhere to. The concept of morality is dubious when one can simply rewind time every time a mistake is made, effectively erasing that mistake from living memory. The player-character, having escaped the confines of time-bound morality, can then convince even the god of the

underworld their morality system is inherently flawed, with the light suggestion that any consequences for immoral action are ultimately futile.

What makes *The Forgotten City* such an interesting game from an existential perspective is how much its central conceit undermines its primary philosophical arguments. Any system of morality seems trite to an individual forced to relive the same day ad nauseum, and yet the game is insistent that some form of morality needs guide human (and non-human) action. In all their many dialogues, the characters rarely, if ever, throw up their hands and say it's all meaningless, or come to any moral conclusions meaningfully greater than the "golden rule." The limited imagination of the game's characters, including the protagonist, seems to disregard the perpetual day they are stuck in. A fact excellently illuminating by the two other characters of the game aware of the loop: Al Worth and Sentius.

While Sentius plays dumb for much of the narrative, if the player finds his hidden daughter, he ambushes them and reveals that, like the player, he remembers every loop. Yet he's content to live like the Caesar of his own personal Rome. He describes himself in a hubristic light: "I have become, in effect, as immortal as the gods." In Sentius, we find the breakdown the perpetual loop causes on a system of morality, and the results are damning: living for solely himself, Sentius doesn't see the suffering of others as meaningful. No one's wants or values, even his own daughters, mean anything to him as long as he can keep living out his "perfect" day. Essentially, he objectifies all others since they reset and he does not. Al Worth came to a similar conclusion, but responded in a different way: killing himself. Sentius describes Al Worth as a moralistic figure eventually went mad at the never-

ending day, at the impossibility of stopping everyone from sinning, the evidence of which we see

from his corpse in the game's opening. Sentius and Al Worth show the temporal loops effect on

systems of morality: it corrodes them, and those living through the loop can only choose to embrace

the meaningless or find an escape. The player's intervention does not dispute Sentius or Al Worth's

responses to the loop, but instead finds a way to end the loop, and the moral quandary it creates, in

the first place. They find this not because the player-character is more moral than these two, but

because they are more curious. Sentius applauds the player for their willingness to bend the rules to

learn more about this place, something Al Worth was unwilling to do, but he fatally[54] underestimates

the player's resolve, believing the gods don't care about any of them. Sentius is partially correct, as

we've discussed Pluto sees himself as far above his human subjects, and only lords over them to win a

bet. The player convinces Pluto to release everyone only after either showing him the futility of his

experiment (i.e. proving he's in a loop) or morally convincing him that he's not as superior to

humans as he thought. In either case, it's not the player's moral character that proves convincing, but

their ability to "game" the conversation in their favor.

*The Forgotten City* is explicitly a game about philosophy, hinged on an interesting premise

and filled with characters obsessed with morality, but it fails to seriously contemplate the effect its

temporal machinations have on its philosophical underpinnings. While it pays lip service to the

destructive possibilities a time loop could have on an individual (ala *Groundhog Day* and *Russian*

*Doll*), it doesn't comment much on the effects temporality has on philosophy or morality. In the

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[54] For him, anyway, as Pluto punishes him harshly in the canonical ending.

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world of *The Forgotten City*, the time loop is simply a magic trick used to frame the player-character's elevation above the world of ancient gods and men. Yet from their higher vantage point, they are still less philosophically developed than Diogenes, and despite ostensibly 2300 years between the two, the game suggests little has changed in human attitudes toward morality in that time. The player does not bring with them any modern ideas to unravel the morals of the past, so the game's saccharine canonical ending, in which the citizens of *The Forgotten City* forge new lives in the modern day and thank the player-character for their contribution to the cause, feels unearned. The player does not engage *The Forgotten City* on its narrative terms as a game about philosophy and morality, but only on its mechanical terms, as a game about unwinding a rube goldberg machine of a time loop to reach an ending where they convince Pluto to abandon his project.

     *The Forgotten City*, thus, unintentionally shows a limitation of the existential loop game. Unlike *Majora's Mask*, which underpins its loop with a sense of nihilistic fatalism rooted in emotion, *The Forgotten City* is firmly a "thinking game" about the communication of thoughts and ideas. In some respects, it absolutely succeeds, such as in its depiction of deep time through the various cultures of the underworld, but because the player can only absorb the game's philosophy, never meaningfully add to it,[55] it fails to allow the player to meet the game on its own terms. *Majora's Mask*, *queers in love*, and, as we'll see, *Outer Wilds*, engage the player on an emotional level, which fundamentally eschews the issue *The Forgotten City* has of making the time loop matter on a metaphysical scale: because we're taking from these games a greater emotional and spiritual sense of

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[55] Which, to be clear, is reasonable given the technological limitations of our time.

relation to the world around us, rather than a literal or ethical one, these games are free to leave themselves open to interpretation, let the player graft meaning onto their loops, not from the droll exposition of dry philosophy, but the implication of ideas and emotions left unsaid.

Outer Wilds

[I recommend the reader play *Outer Wilds* before reading this]

While the concept of time is the driving factor of the existential loop games we've discussed thus far, it's difficult to say these games engage with it *literally*, second by second. In *Majora's Mask*, three days and nights pass by in just under an hour of real time, and *The Forgotten City* generally lacks timed events. In the former, time is stretched and distorted, taking on a dream-like quality. In the latter, time is presented as a mental exercise to contemplate, not moment-to-moment hurdles for the player to overcome. *Outer Wilds* distinguishes itself from the crowd of existential loop games by making the literal passage of time for the player the central obstacle to their progress.

In *Outer Wilds*, the unnamed player-character is a member of the second generation of astronauts from the tiny planet of Timber Hearth. The game starts on the evening of their first spaceflight before they leave home to explore the reaches of the solar system and its collection of planets. Across the solar system are members of "Outer Wilds Ventures," the first generation of the space program. Most of them are still alive, but for one reason or another they're stuck in their current location and can't return home. The player-character steps into their spaceship ready to meet

their heroes, explore the ruins of a long-gone alien civilization, and uncover the secrets of the universe. Despite its upbeat narrative construction, two other things are likely to sticky out to the first-time player: the imaginative and dynamic nature of the game's universe, which is in constant flux, and its transient existence: 22 minutes from when the player takes control of their spaceship the sun goes supernova and everything is wiped away.

Like *queers in love's* 10-second timer, *Outer Wilds'* time loop is brutal and uncompromising: in 22-minutes the sun *will* explode, nothing the player does can stop it. Instead, in 22-minute increments, the player unravels other mysteries: why are they continually resetting back to the same point in time and space whenever they die? Who were the Nomai, a long extinct race of technologically advanced aliens obsessed with this location? What is the "eye of the universe" the Nomai keep talking about? How can the player end the time loop? *Should* the player end it? None of these motivations are expressed by the game's silent protagonist, only inferred by the player's own budding curiosity to unravel the mystery at the center of the game.

Littering the game's planets are many clues as to the nature of this place, but putting together the puzzle pieces requires cross-reference information from many different areas. The player-character's most useful tool, besides their spaceship, is their translator, the first of its kind, which can decipher the ancient texts of the Nomai and reveal both why they came to this backwater solar system and what happened to them. To progress through the game, the *Outer Wilds* player must master three distinct layers of knowledge and skill. The first is mechanical ability: controlling their spaceship, jet pack, and tools to make smooth landings, reach obscure locations, and stay alive in the

harsh reaches of outer space. The second is immediate knowledge of the player's surroundings. Each

location, whether planet, moon, or satellite, operates under its own spatial logic, requiring

specialized knowledge to explore without meeting an untimely death. The third is historical

knowledge, cross matching the Nomai's logs and written conversations to discern their technological

capabilities and the theoretical concepts that underpin them, the location of important artifacts, and

their spiritual beliefs. The beauty of *Outer Wilds*, from a gameplay perspective, is in how these skills

are often layered over each other. The player dons many hats; explorer, cartographer, philosopher,

historian, swapping them multiple times a minute to peel back the game's secrets.

     *Outer Wilds* does not make investigation easy. No two places in the solar system are quite the

same, and their differences reflect different ways of experiencing time. Perhaps the most

straightforward example is the "Hourglass Twins." A pair of binary planets in close mutual orbit.

Like their name suggests, they physically represent passage of time. At the start of the loop, the "Ash

Twin" is a giant ashen mass, while the "Ember Twin" is a hollow Mars-like planet. Over the game's

22 minutes, the gravity of Ember Twin pulls the ash off Ash Twin, eventually filling the its hollow

core, and revealing the rocky interior of the latter. Early on in any given cycle, the player may explore

the Ember Twin's interior, but late in the cycle, that area is unreachable due to the ash.

Compensating this loss, new areas upon the Ash Twin previously covered reveal themselves. In the

Hourglass Twins, we find a depiction of time as linear. While theoretically cyclical, their loop does

not extend past the 22-minute mark, so for the player the Twins function as a clock on the player's

22-minute loop, the fuller Ember Twin, and the more denuded Ash Twin, the less time they have to explore.

Brittle Hollow, a blue and jagged planet, also changes linearly over the game's 22-minute loop, but rather than the consistent rate of the Hourglass Twins, its change is abrupt and chaotic. Composed of a rocky crust, and hollowed out by a black hole where its core should be, Brittle Hollow slowly comes apart as its bombarded by rocks from its volcanic moon. These rocks have a slight bit of variation as to where they land, destroying bits and pieces of the planet and sending them into the black hole at variable rates. By the end of the loop, Brittle Hollow is barely a planet at all, having lost most of its mass to volcano's influence. If the Hourglass Twins are a sterile clock, insofar as they visually and ludically display the consistent passage of time, Brittle Hollow is a "clock" in how it visualizes the natural decay of objects, which may happen suddenly and without warning, but always occurs none-the-less. As its surface is destroyed, vast swaths of its underground cities and buildings become available to the player for exploration, but such exploration is dangerous, as the player never knows how long they have to explore and are often unceremoniously sent into the black hole below. Like the Hourglass Twins, how far the player is into the cycle has a profound effect on their exploration of Brittle Hollow.

Not all the game's astronomical bodies are planets. The Interloper, an icy comet with an impenetrable exterior, is much more difficult to access than simply landing on it. At most points in the solar system, the entrepreneurial player is naturally thwarted by its frigid exterior, with no path into the center of the comet, where further mysteries might be uncovered. If they reside on its surface

as it reaches its closest point to the sun though, the ice melts long enough for the player to sneak through the cracks and explore the interior. Two minutes before the sun explodes, The Interloper crashes into the sun, destroying itself and anyone inside. The comet, in line with the dangers it unleashed on the Nomai, represents the potential for time to be disjointed and difficult to manage. It shows that temporal events are as much a reaction to external causes as they are "natural" like the cyclical Hourglass Twins or the decaying Brittle Hollow.

Not all temporal shifts in *Outer Wilds* are perceptible to the player. Timber Hearth is defined by lumbering progress, as across the 22-minute loop nothing in particular changes, butvidence of change can be found all over, particularly in the "Hearthians," the race the player belongs to, who were only just starting to exist as a species when the Nomai roamed the solar system, but who now have achieved space travel. In a traditional narrative sense, Timber Hearth represents a stable home, a planet for whom change is slow and imperceptible. At the beginning of the narrative, before the time looping begins, the player can explore their humble village, talk with its residents, learn their hopes and dreams. Perhaps it is for these residents, for this relative tranquility amidst the changing planets of the solar system, that the player-character strives to unravel the mysteries of the game. While never explicitly stated, these are the people who stand to lose upon the sun's erasure of their world, as, the rest of the system's planets are uninhabited.

The most chaotic planet in *Outer Wilds'* solar system is Giant's Deep, a dense ocean planet whose closest analogy to our own celestial bodies would be Jupiter. Giant's Deep initially appears to be a gas giant, as its atmosphere is obscured by a thick cloud of green gases. When the player gets

sucked in by the planet's gravitational pull, they find an ocean below populated by a few islands and many tornadoes. Unlike the other planets, gravity is so strong on Giant's Deep the player-character's spaceship cannot escape its gravity. Instead, they must ride up through the cyclones if they want to leave. The winds of Giant's Deep are strong enough to even even pull its floating islands into orbit for a brief period of time. One of those cyclones spins in the opposite direction, and instead pushes the player's ship into the planet's dense liquid core. Giant's Deep relays a chaotic temporal pattern, experientially obscure and unpredictable.

Giant's Deep's philosophical opposite is Dark Bramble. While Dark Bramble is deadlier than Giant's Deep, it's not because it constantly changes, but because its denizens abhor change. Dark Bramble is a physical anomaly, a strange, root-like structure bigger on the inside than the outside. Its entire interior is filled with a gray haze and its only noticeable landmarks are far off lights. Some of these lights are seeds which lead further into the bramble, toward potential answers to the game's darkest questions, but most are red herrings: the lures of giant angler fish. The angler fish are so large they can consume the player-character's ship in one bite. When they sense the player, they let out a strange scream and attack, often a terrifying death for first time players. The fish, while not immortal, seem to have always been here. They are functionally blind, but if the player-character makes a sound near them they are doomed to restart the loop.

It's not just the fish that seem to hate change. The strange, living planet of Dark Bramble seems to detest it as well. The logs of the Nomai reveal that when they arrived in the solar system, the planet came alive, stretched out its branches and pulled their flagship into its deadly mouth. Some of

the Nomai avoided a gruesome fate via escape pods, but others weren't so lucky. While *Outer Wilds* is defined by change, particularly the change caused by destructive power of a supernova sun, Dark Bramble suggests a hostility toward change and life itself. It is a place of blind and silent danger, peaceful so long as the peace is not disturbed. In Dark Bramble, the player-character can find the remains of the flagship, ultimately necessary to complete the plot. Unsurprisingly then, despite the hundreds of thousands of years between the Nomai's existence and the Hearthian's, the ship is exactly as it was when it was sucked into Dark Bramble, caught in an endless stasis. Dark Bramble is thematically the antagonist of both the Nomai, the player-character, and the central conclusions the game reaches: an entity which seeks to halt the progress of time and create a timeless expanse where nothing changes.

The construction of *Outer Wilds* is just as hostile toward change as Dark Bramble. Since the game world resets every 22-minutes, it could be argued that stasis has already won when the player takes control: the only question is how they will break the stagnation of the loop. It's here where *Outer Wilds* differs most profoundly from *Majora's Mask* and *The Forgotten City*. In *Majora's Mask*, the player undoes the temporal anomaly by defeating the forces of evil, repelling the moon, and letting time run its natural course. In *The Forgotten City*, the player bargains with "god" to end the senseless system of morality he lords over the city, thus allowing time to move forward. *Outer Wilds* offers no such simple solution for escaping its time loop: after all, the sun *is* going to go supernova at the end of the loop, so even if the player somehow finds a way to end the time loop, no rosy conclusion

awaits them on the other side, just their death and everyone else's. The sun is an inevitable force of nature, not a problem to be solved.

With spaceship eating angler fish, black holes, life obliterating ghost matter, and a violently exploding sun every 22-minutes, one may be forgiven for thinking *Outer Wilds* is a tense experience, but often the reverse is true. For instance, the game greets the looming supernova not with an alarming countdown, but the melancholic and slow tune "End Times" played over the cycle's final minute. Most other existential loop games play up the finality and horror of the end of the cycle: the player must run back to Proserpina's shrine in *The Forgotten City*, and if the player lets the clock wind down in *Majora's Mask*, they are greeted with a grim cutscene of the moon crashing into earth; everyone, including Link, is swept away in an explosion meant to evoke a nuclear bomb. In these games, the end of time and life is a terrible sight, its horror a signal to the importance of the player's quest.

*Outer Wilds*, from the start, takes a different approach: the supernova sun is not to be feared, not a specter hanging over every second of exploration, nor a timer they must consider every moment of their journey. Instead, while exploring the game's ruins, reading about the hopes and dreams of Nomai and unraveling the game's mysteries: on occasion the slow chords of the countdown emerge like a warm blanket to let the player know their exploration will have to start again back at home. While moments in the game do require careful timing, particularly piecing the mystery together and finishing the game, for the most part, the player's journey is characterized not as a race against time,

but as a slow and contemplate detective story, where direct action takes backseat to careful archaeological investigation.

So, what is the mystery the player uncovers as they play the game? On a macro level, it's the mystery of the Nomai, that strange ancient alien race whose writings, corpses, architecture, and technology can be found all over the solar system. Who were they? Why did they come here? What happened to them? What are these strange science projects they built? The answers to these questions show *Outer Wilds* is much more committed to interrogating the nature of time than even its metaphorical planets convey.

The details of Nomai's pilgrimage to this solar system are picked up in bits and pieces across the player's investigations. As previously noted, the player has a newly invented translator for deciphering the Nomai's many journals, logs, and conversations written on scrolls and walls across their encampments. The very act of reading these hieroglyphics defies an orderly, linear flow of language, as the Nomai's paragraphs/sentences are written in separate branches. One instance of text can branch into multiple different texts, which may have different authors commenting on the text, or may be different explorations on the same idea. Regardless, none are hierarchically more important than another. Some of these instances have few branches, and can be read rather linearly, others may have multiple branches, with each leading to multiple branches. *Outer Wilds* does not offer a "right" way to read the Nomai language. Like how the game expects the player to choose their own path toward discovery and exploration, so too does its linguistical system encourage a player-led, non-linear, approach to digesting information.

Translating the story into a linear monograph proves to be difficult. To help untangle the game's mysteries, I'm going to give a brief overview of the "major mysteries" catalogued in the ship's log, which updates across time loops when the player-character makes discoveries. First, some context: the nomadic Nomai people encountered a strange and powerful signal residing somewhere near this solar system during their travels. They dubbed the signal the "Eye of the Universe," discerned it to be older than the universe itself and treated it with god-like reverence. Seeking to commune with the Eye, the Nomai used their powerful warp core to teleport to the solar system, but upon arrival, their flagship vessel was pulled into Dark Bramble and (presumably) destroyed. Worse yet for the surviving Nomai, the Eye seemingly disappeared. An enterprising and scientific people, the Nomai set out to engineer themselves out of this problem, not by building a spaceship to leave, but strange machines to track down and observe the Eye.

At the heart of the game's mystery is the "Ash Twin Project." The Nomai discovered the black hole at the center of Brittle Hollow, and learned it led to a white hole on the outskirts of the solar system. Surprisingly, they found that objects which entered the black hole were spit out of the white hole moments *before* they entered, indicating time travel. They theorized that with enough power they could send information back in time, both in the form of digital data, and in the form of consciousness via strange statues which link with the nearest life form when activated. The player-character happened to be near one of these statues at the beginning of the loop, hence why their consciousness is continually sent back in time.

The Nomai's goal of sending information back in time was to use their "Orbital Probe Cannon," a device which launches probes into deep space, to find the Eye. The first thing the player sees when they "wake up" each loop is the cannon firing a probe into space and subsequently falling apart and crashing into Giant's Deep. The Nomai only had one probe, and since they had no clue where the Eye was, if they were to launch the probe they had an infinitesimally small chance of find it. So instead, they planned to start a time loop, sne the same probe out millions of times at slightly different trajectories until it happened upon the Eye, which would then allow them to mark the coordinates and stop the experiment. They theorized 22-minutes would be enough time to send the probe out far enough, which is the player is stuck in a 22-minute loop.

Unfortunately, they had no way of generating enough energy to activate the Ash Twin Project, that is until a clever Nomai suggested stimulating the nearby sun to go supernova, creating enough of an energy blast to start the project, send information back in time, and then, once the information was discovered, stop the project before the sun went supernova. The Nomai built every aspect of their science project, but when they attempted to make the sun go supernova, they failed. Before the Nomai could fix the issue, a strange comet (the Interloper) entered the solar system, and upon getting close to the sun, its core of ghost matter, a deadly material, ruptured and spread across the solar system, killing them all.

The player-character, again through a bit of happenstance, happens to explore the solar system on the day the sun would naturally go supernova, which creates the conditions for the Ash Twin Project to start up, as it's automated to work without outside intervention. Upon this

realization, *Outer Wilds* presents its myriad "endings" to the player, but most of these endings are deliberately unsatisfying. The player can permanently die by removing the warp-core power source from the Ash Twin project, assuring that no more information is sent back in time. They may also remove the warp-core and reach a place in the solar system safe from the supernova (either by distance or some quantum space travel) but fail to reach the Eye, causing them to be permanently estranged from the game's events. Finally, they can send a black hole through another black hole, create a time paradox, breaking the game and causing a game over. Of course, the player is unlikely to pursue these endings with much vigor, as the game encourages them to finish the Nomai's experiment, find the Eye, and commune with it. To do requires combining a basic understanding of quantum physics, the Nomai's forgotten past, and the unique properties of the time loop.

One of the oddest anomaly's the player is bound to run into is the Quantum Moon. Taking after physics experiments where electrons have the properties of wave forms until measured, the Quantum Moon, and its orphaned shards found on some of the game's planets, change location whenever the player stops looking at them. The Nomai believed the Quantum Moon was in fact the Eye of the Universe's moon and built structures upon it which aid the player-character in their quest. Landing on the moon proves to be quite difficult, since when as the player-character passes through the hazy gray gas that surrounds it, the moon ceases to be observed. They must use their trusty miniature probe launcher, which can take pictures, to take a picture of the moon, thus "observing" it, at which point they can land on it. The Quantum Moon, the last celestial body the player visits (besides the Eye) offer a malleable understanding of time. When not observed, it exists in orbit

around every planet in the solar system, including the Eye. In orbit of each planet, the Moon takes on different forms: covered in brambles around Dark Bramble, hosting trees and rivers around Timber Hearth, ashen and rocky around the Hourglass Twins. The Quantum Moon is a monument to the uncertainty of the present, of all the information we cannot know until it is in the past: observed and quantified.

If the player uses the Nomai's "Quantum Tower" to take them to the version of the moon orbiting the Eye, they encounter a living Nomai. Through rudimentary cross-linguistical communication, the Nomai, named Solanum, explains what she's doing on the Quantum Moon. Essentially, she came for a pilgrimage long ago, but it's unclear how much time has passed. It's implied that time does not pass while on the Quantum Moon and orbiting the Eye. Through Solanum, the player learns of Quantum Entanglement: since she was on the Quantum Moon, and thus in 6 locations at once when the core of the Interloper ruptured, five versions of her were killed,[56] only here, far enough away from the ruptured Interloper, does she survive.

Armed with this knowledge, the player can finally put together the pieces and finish the game. Deep within the recesses of Dark Bramble rests the mostly intact Nomai flagship, but inoperable due to its missing warp core. If the player goes to Giant's Deep's core, they learn the Eye was discovered on the 9,318,054th probe, and its coordinates are communicated via three hexagonal characters. The player then disables the Ash Twin Project by removing the core, and flies into the heart of Dark Bramble to the flagship. Doing so is not simple: as we previously noted, Dark Bramble

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[56] And indeed, her corpse can be on each other moon.

is the most dangerous location in the game, and the training wheels are taken off this time: since they've deactivated the time loop, if they find themselves as Angler Fish lunch, the player-character won't wake up at the start of the loop again. Still, the knowledge of the Eye is worth the risk.

At the ship, the player-character places the warp core inside the ship, inputs the coordinates into the machine, and warps to the Eye of the Universe. The Eye is a strange and unsettling place, reminiscent more of the ending of *2001: A Space Odyssey* than some idyllic heaven. The player-character can enter the Eye, ending the game. Throughout their journey to this point, the player has had to think about time in a profound number of different ways. They've experienced time as a cyclical, 22-minute, inescapable loop. They've wandered a solar system with planets which clock the passage of time as linear, disrupted, and chaotic. They've experienced the deep time of history in their archaeological exploration of the Nomai's past. They've engaged with the strange physics of quantum time and entanglement which obscure the Eye's location and necessitated the creation of the rube-goldberg-esque Ash Twin Project.

One may think that upon reaching the Eye, the player has already encountered all the different "times" they could, but it's here where the game pulls its final trick, and embraces time not as a physical phenomenon, but as a spiritual one. Falling into the Eye, all the uncertainty and chaos it represents seems to fall away, and the player finds themselves back in the museum they started their journey in. At the end of the museum, they find a miniature galaxy. Upon touching it, the camera zooms out to show they are just one galaxy in a sea of infinite galaxies. Then, each galaxy bursts and disappears and the player finds themselves falling into an endless forest. Pervading the forest floors

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are little floating galaxies. Here, the game plays all sorts of little temporal tricks on the player. They find an identical version of themselves walking in the woods. They find an odd tree which rapidly decays into a campfire each time they observe it. Time itself breaks at the end of the world, the end of the universe.

At the campfire sits Esker, the first member of Outer Wilds Ventures the player meets. Esker asks the player-character if they hear music, at which point they can take out their signalscope and seek out the sounds (which they've done throughout the entirety of the game to help navigate the solar system). Slowly, they find every member of the space faring crew. Across the game, these members have been identifiable at a distance, kept together by the music they play, despite being stranded on separate planets. They all play the same tune, all in different locations. It is finally here, in the Eye, perhaps in just the subconscious of the player-character, that they are finally reunited. At the end, a character only the protagonist has met, also reveals themselves, Solanum, the Nomai suspended in time on the Quantum moon.

Their playing, an emotionally resonant moment where the game's many melodies come together, feels like worship toward the Eye, the in game "god" of this universe. Their playing seems to conjure its final act, and a glowing blue ball of energy appears over the campfire. When the player enters the ball, the universe collapses in on itself, and then explodes. A fresh "Big Bang" to reignite the universe. The game's epilogue reveals an image of a universe renewed, fresh planets forming 14.3 billion years after the player-character's actions, with just a hint of the player-character's conscious experiences influencing the landscape. Here, the game posits some greater relationship between

matter and perspective. It's only when the Eye of the Universe, its seeming center and chaotic place of endless possibility, meets the singularity of a sole perspective that the universe can begin anew, ending the stagnation not just of the 22-minute time loop, but what the supernova that concludes the loop represents: entropy.

Simon Bowie, in "Postmodernism in *Outer Wilds*," argues this ending dispels notions of transhumanist philosophy and extols the virtues of posthumanism. He explains "By observing and becoming entangled with the Eye, the protagonist's individuated self is destroyed and the subjectivities of various characters are brought together to sing a new universe into existence: a literal example of cosmic resonance." Bowie focuses on the idea of "deindividuation," or the process by which an individual loses their subjectivity. He views the protagonist's decisions at the end of the game as a kind of "sacrifice" by which they express "an ethics beyond the subject that encompasses the whole cosmic environment and looks forward to the life and energies of future species." He sees the protagonists' decisions as affirming a kind of selfless abandonment of notions that the subjective individual and the objective world exist separate from each other. For Bowie, the actions the player-character affirms the decentering of "humans" (or conscious, subjective individuals) at the center of post-humanism.

Instead of decentering the individual, I find the game's ending reaffirms the importance of subjectivity. For a game so enamored with representing the technical concept of time, from black holes and white holes to quantum waves and paradoxes, the ending of *Outer Wilds* evokes a surprisingly spiritual sense of time. The player-character communes with god, and together they form

the spark which renews the universe. Here, the cosmic and physical nature of time, often characterized as rigid and distant from human concerns, is denied for a more personal, cyclical, seasonal, sense of time. Like trees sprouting up after a wildfire, the seeds of the interaction between the player-character and the Eye yield many descendants. This development is an extension of the game's own temporal form: presumably in some many billions of years, another traveler, hopefully one who hasn't had to go through the protagonist's gauntlet of challenges, will commune with the Eye and start another big bang, refresh the universe yet again. *Outer Wilds'* imposing of natural cycles on the universe's physical temporal structure isn't particularly unique among media, renewal and recycling are common refrains in media that deal with time. So, the end state of renewal is less important than the means by which that renewal is framed, through music.

Music is the gravity which thematically pulls *Outer Wilds* together. In the end, it's not the engineering prowess of the Nomai, strange astronomical physics, some player-led ludic challenge, or fresh archaeological find that spins the creation of the universe, but music. In *Outer Wilds*, music is used to represent unity. First, unity of conscious beings: in the final segment of the game, the player uses their signalscope to find the other members of Outer Wilds Ventures and bring them together. Once all in the same place, they play music, creating a symphonic resonance where different beings come together to communicate as one. Even Solanum, the Nomai pilgrim adds an instrument to the musical moment. Music also communicates unity of space. Despite the astronomical distances between *Outer Wilds* members, they can hear each other through their signalscopes and play music together.

Finally, and most importantly for our purposes, music in *Outer Wilds* creates a unity of time. In the present, it focuses and brings together individuals, each with their own personality and instrument, together they all experience the same temporal moment. Irrespective of history or future, they are one musical body for the time being. Music also unifies the characters between past and present: some of these individuals are dead, they lived in different eras of time, come from different generations and even species, Yet together, they are united in their expression of music. Finally, regarding the future, their use of music unifies and condenses all matter in the universe so it may be "refreshed" with energy and expand out again, obstructing the stagnancy of entropy. Music, and the spirituality it represents, acts as a counterbalance to the cold reality of the universe, an expression of warmth and "humanity."

The ending of *Outer Wilds* isn't just vaguely spiritual, it posits a potent and intrinsic relationship between the subjectivity of the individual and the material reality of the universe around them, and evokes that relationship by way of religious ritual (i.e. playing music to worship "god"). The universe cannot, and will not, reset unless an individual interacts in a spiritual manner with the "god" of this universe, and what else would we call a being consistently described as "older than the universe," which holds the power to destroy or pull together all matter and then disperse it again with unfathomable energy? The Eye, and the protagonist's interaction with it, does not suggest a post-human decentering of the individual, but a hyper centralizing of them instead. The Eye, conscious or not, is a distinctly separate being from the material universe it inhabits: it holds power over the universe, and exists separate from it (since it predates the universe). Meanwhile, it is not

some random planet or asteroid connecting with the Eye that causes the renewal of the universe, but the Eye making contact with a being, a conscious entity which can observe it, turning its "wave-sine" into an identifiable, collapsed reality rather than a chaotic expanse of possible outcomes.

Here, *Outer Wilds* suggests the concept of time, both at its most extreme possible beginnings, and its most extreme possible endings, only exist and make sense when experienced by an individual, not unlike how the quantum moon exists in many variations until observed. Without the subjective perspective of time, time itself does not exist. Change, what time tracks, only matters if there's someone out there to care about what's changing. Therefore, the universe can only exist if someone subjectively experiences it, which, rather than decentering the "human" perspective, centers it directly on subjective experience. The ending's spiritual and religious tone, a kind of "deus ex machina" (in the best way), does not do away with the individual, but universalizes their subjective experience through the reproduction of music. In music, the game implies, we can "deindividuate" while retaining our subjective temporal experience, which is only possible when facilitated by a god whose existence spurs worship.

By worship, I invoke the term's historical usage rather than the contemporary colloquial understanding of the term. While worship can be construed as singing songs to a god, it's better described as a devotion to the principles that god represents. In *Outer Wilds*, The Eye of the Universe represents different things to different people: to the Nomai it represents an answer to the mysteries of the universe; to the "Strangers," a race introduced in the game's DLC, the Eye represents a threat to the universe; to the Hearthians, the Eye represents connection to the natural world. Whenever a

group encounters the Eye, their response is devotion to the principles they believe it represents. The Nomai express that devotion in their complicated scientific projects to find the eye. The Hearthians, meanwhile, express their devotion through music. Even the Strangers, who concealed the Eye to "save" the universe from renewal, express devotion to it by centering their entire lives around preventing it from being observed.

The end result of this devotion is the player-character communing directly with the Eye, aided musically by representatives of each kind of worship they encountered across the game. The moment of musical expression is not simply a momentary song of worship, but the extension of every devoted action taken by these creatures over the fictional history of the game. Their actions, brought to fruition by the protagonist, gain substance because they were understood subjectively by an individual. The implication being that worship does not just bring the individual's subjective experience in line with the universe around them, but the universe itself into alignment, prepared for potent, destructive, and beautiful restoration.

Every existential time loop game seems to eventually center on the individual, the all-knowing creature who experiences the loop again and again. While sometimes they may fight against change, as in *Majora's Mask* where the hero staves off the cataclysmic end of the world, or to undo stagnation, as in *Outer Wilds*, it's ultimately up to the individual to make that crucial change, whatever it may be. In the loop, these games offer grim realities of a cosmic proportion: suns going supernova every 22-minutes, a god-given golden rule no one can keep, the supernatural collision of anthropomorphized celestial bodies. The subjective individual, small and insignificant in the face of

such calamity, initially seems woefully unequipped to do anything about the fate of these worlds. Yet they overcome nihilistic and uncaring problems not despite subjective experience but *because* of it. The only thing that changes between loops is player-character knowledge, or rather, their subjective experience of the world. Each of these games suggests that enough accumulated subjective experience is, on its own merits, enough to sort out and make meaning from the size and scope of the universe.

Often, meaning is derived from stable base: a religious or philosophical text deemed to be unerring, unchanging. Existential loop games challenge the idea that meaning can be taken from a sterile or fixed reality. In them, sterility leads to rancid stagnation, corrupted worlds from which meaning can only be derived from escape. Unlike loop-focused television series or films ("Cause and Effect," Groundhog Day, etc.), that escape is not framed as an appeal to some external moral or physical force, such as the individual changing themselves, but by directly engaging with the concept of time and its presentation in the game world. The player does not learn to conquer or dominate time, as they often do in rogue-like games, but work with time, through time, for time, to create the conditions for time to progress.

Existential loop games interface with time in a much more queer, real, and focused way than traditional game stories. The events of their narratives, like the composite mysteries of *Outer Wilds* and discovered in bits and scraps of archaeologically discovered texts, are not tracked linearly. In these games, time does not move forward at a steady pace, but at a stilted and disjointed rate, a decidedly queer notion of temporality. Freeman argues that in chrononormativity, the "naked flesh is bound into socially meaningfully embodiment through temporal regulation." Time loop games

reject such chrononormativity; in them, the "naked flesh," or its closest corollary, the player's avatar, is temporally bound, regulated to a specific place and time. Yet the binding is corrosive: the player-character's ability to meaningfully exist in the world is jeopardized by being bound so tightly to a single conception of time. Social meaning is usually so stifled by such strict temporal regulation as to be non-existent. It's only through queering time, imagining new ways to exist in the world, that both the player, and the player-character, can escape the confines of the time loop and the tying binds of normative temporalities. Importantly, returning to *Outer Wilds*, the objective measurement and dolling out of time as a resource and commodity creates the conditions for temporal restriction, but the subjective experience of time, released from the imposition of distinct minutes and seconds, frees the individual, and as a practical consequence, the world around them. It is only then that both find meaning in time. What meaning though, seems largely based on how the game loosens time's grip on the player-character, and what it wants to do when the loop is said and done.

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# Chapter 5 - Hourglasses, Stopwatches, Hyperclocks

Of all games, perhaps none have a strict adherence to "fairness" as competitive sports. In any sufficiently large spectator sport, the field is populated not just by players but referees, whose purpose is to enforce the rules of the competition. While their titles change depending on circumstance, referees can be found in boxing rings and on soccer pitches, from basketball courts to baseball fields. Referees have a difficult and thankless job; each decision they make will later be scrutinized by upset players and fans. For many, the referee's primary purpose is interpreting the actions of players and determining if they are fair. Such an understanding is wrong: the primary purpose of referees is to manage time.

The manufacturing of time is so important that, in most sports, a referee is tasked with minding the clock for the duration of the game. In a soccer match, the referee keeps track of how much time has elapsed, particularly stoppage time, and adds a nebulous amount of minutes to the end of each half. In American Football, referees start and stop the clock dozens of times a game. In a boxing match, the referee signals when rounds are over and determines when a boxer is "down," which initiates a timer to end the match. In perhaps the most time-conscious major American sport, basketball referees manage the "shot clock" whose invention necessitates a faster paced game with more action. The basketball player and referee work under many clocks at the same time: the game clock, the quarter clock, the shot clock, and the internal clocks of each player, since most coaches

manage how many minutes each player on their team plays to keep them at peak performance. Sports are not simply the competition between players, but the careful layering of clocks atop each other, each one dictating another aspect of the game.

Strangely, the referee also has the ability to suspend time, or stop the clock, usually in service of assessing a foul, removing an injured player from the game, or reviewing a previous play. At critical junctures, they may also futz with the clock, adding or removing time as they see fit. For a particularly potent example of such influence, let's consider a game between the Atlanta Falcons and Detroit Lions on September 24, 2017. Nearing the end of the game, the Detroit Lions, down four points and out of timeouts, marched down the field with little time remaining. At the one-yard line with 12 seconds remaining, Matthew Stafford took the snap and threw the ball to receiver Golden Tate, who lurched forward into the endzone with 9 seconds remaining. The referees raised their arms, the announcers shouted "Touchdown Lions!," and with the six points awarded from the score, it appeared as though Detroit had won the game in an improbable comeback. Scoring plays in the NFL, though, are reviewed automatically, and upon review, the referees decided Tate fell down a little too early, his knee hitting the ground before the ball crossed the goal line: no touchdown. Per the rulebook, any referee stoppage of time necessitates a "10-second runoff," and since 9 seconds remained on the clock when Tate was down, the game unceremoniously ended, the Lions barred from another attempt to reach the end-zone and win the game. Bitter fans booed the referees and dejected players headed to the locker room. Time just wasn't on Detroit's side that day.

Three years later, the Lions met the Falcons again, and again they found themselves down one score with only seconds to go. Stafford launched a pass to Kenny Golladay, who caught the ball inbounds near the goal line and was subsequently tackled. With the clock winding down, Stafford rushed down the field with his linemen to quickly spike the ball, but the referees called a timeout to assess whether Golladay actually caught the ball. After the game, Lions players expressed disbelief, thinking the same refereeing snafu had befallen them twice against the same team, but fortunately, this game played out differently, because Golladay had not scored a touchdown on the play they did not incur a 10-second runoff. The Lions got one more chance with 3 seconds remaining and made the most of it, scoring a touchdown and winning the game, avenging their loss from three years prior. Though, the sting of such the 2017 defeat was not so easy to lose, as one Lions player noted, ""Oh that (2017 game) was crazy. Let's not talk about that. We won. Let's leave it on a good note."

Both of these games were won and lost with margins of seconds off the back of arcane rulings as to when the referees should take time off the clock and when they shouldn't. The average fan likely has no clue these rules exist, that is, until comprehending their nuance is necessary to understand what just happened. Referees have such powerful control over the flow of time, at least as it within the confines of the game, because equity in sports is fundamentally linked not just to rules which dictate legal actions, but those which construct the temporal constraints of the game.

As opposed to traditional sports, esports rely on a computer clock, rather than human referee, maintains the flow of time. These computers play with clocks in a myriad of surprising ways, and if we were to describe esports as more "complex" than traditional sports, the primary culprit would be

the complicated and nuanced ways they play with time and the cascading consequences of such play. In the first two chapters of this dissertation, I described video games as "time machines" because players manipulate time in their play. In some senses, we might describe esports as "anti-time machines," because rather than manipulate time with their play, players strictly adhere to time dictated by external clocks. This chapter is about the clocks which govern the play of competitive esports. The construction of artificial time within these competitions plays an important role in the character of those competitions. Single player games, like *Red Dead Redemption*, have no need for an external time constraint on the player, but in multiplayer games players expect to not just play by the same rules as others, but within the same temporal constraints. In "Taking Turns," we will consider how turn-based games construct an alternate sense of time through a series of discreet states. In part 2, we will discuss "Hourglass Games," or those, like traditional sports, in which the competition runs for a set amount of time. In part 3, we will dive into "Stopwatch Games," or those where victory is not achieved upon the conclusion of an hourglass, but upon some other "win condition." Finally, in part 4, we break down perhaps the most temporally complicated esport, *DOTA 2*, which I describe as a hyperclock game, and discuss how, with so many clocks layered on top of each other, human beings have difficulty perceiving just how much is temporally going in any given moment of play.

Taking Turns

When you move your pawn to e4 to start a chess match, you probably don't think of yourself as playing a game based in time. After all, time appears to be absent from the game of chess: the

board is completely static unless acted upon and the game has no inherent windows of action requiring dexterity or strength. While competitive chess is played with external timers, casual players can play without a board or over the mail, so how can one say chess measures time? Well, as all games are processes of change, a chess match is indeed bound to time, just not in the way we are bound to it. Instead, the game of chess waits to be acted upon. Each act on the board is an increment of time. Every turn irrevocably changes the character of a chess match until a winner is decided. Importantly, a player cannot choose to "wait," or pass their turn, they must move their pieces, keep the game changing, keep the process moving.

The temporal process of every turn-based game inevitably resembles chess, not because chess has such profound influence over what came after it, but because turn-based games, definitionally, define time not in minutes or seconds, but in "turns." A turn is an interesting temporal concept because it is divorced from our experience of time. When describing "time" in terms of philosophy and physics, thinkers often fall into the camps of "A-Series" and "B-Series." The A-series theory views time as a relationship between past, present, and future, it argues a persistent "now" continues to move, that tenses of events continue to change. Whether or not the A-series is the genuine way we *should* understand time from a theoretical standpoint does not matter for our study, but it certainly is how turn-based games present time. Later, we will consider those games which present time more in the B-series mold by muddying the relationship between past, present, and future.

In turn-based games, "the present," or "now," is the current state of the board, "the past" is whatever actions lead to this point, and "the future" is every possible move that could occur from this

point on. A sufficiently powerful computer could imagine every possible move in a game, in essence visualizing all possible "futures" the game could take. Most human players, while not able to literally maintain a knowledge of every possible move, are able to consider many possible futures. The player takes actions to reach the potential future they view as most likely to bring them victory. As they are man-made, we could say that turn-based games are a ludic representation of the A-series understanding of time, they stop at every "now" to marvel at its complexity. Each chess game-state is a frozen reminder of "the past" and a potent opportunity to consider "the future." Throughout this section, we will consider how competitive turn-based games play with the concept of A-series time, expanding and contracting it to fit their goals.

The most popular turn-based esport is the virtual card game *Hearthstone*. Prior to a match of *Hearthstone*, players select a class (i.e. Mage, Warrior, Priest) and use that class's unique cards to construct a deck of 30 cards. In a match, players compete against each other with the goal of reducing their opponent's starting life total of 30 to zero. Like chess, during a player's turn only they may act. Unlike chess, they may take as many actions as they are legally able to. They may summon creatures, cast powerful spells, equip weapons, and attack. None of these actions have an inherent temporal quality: a card played quickly and a card played slowly share the same qualities. Though, the *sequence* of playing cards matters. For instance, if you have a spell that deals 4 damage to all creatures and a creature with 4 health, you probably want to cast the spell before you play the creature as to not kill your own ally. Nonetheless, the time between playing those cards can be as long as the player chooses.

The start of each *Hearthstone* turn marks the passage of time in two unique ways. First, the player draws a card, thinning their deck and giving them a resource with which to win the game. Second, the player gains one mana crystal, which gives them the ability to play more or bigger cards on their turn. The player starts with no mana crystals, and gets one on their first turn, meaning an 8-mana card cannot be played until turn 8. These start-of-turn changes dictate the "pace" of a *Hearthstone* match. A player must construct their deck with the idea of a "mana curve" in mind. In essence, they will typically want to play a 1-mana card on turn 1, a 2-mana card on turn 2, and so on and so forth. Some decks may choose to play a "lower" curve, meaning they play an excess of cheap cards in an attempt ensure they draw and play them on early turns, snowballing an advantage to win the game. Other players may choose to play a deck with a "higher" curve, as higher mana cards typically have more powerful effects than lower mana ones. Their goal is to outlast, or "outvalue," the opponent with their higher quality but more expensive cards.

A key component of playing *Hearthstone*, or really any competitive card game, is determining "who's the beatdown?"[57] Essentially, this question asks, "which one of our decks will win the game if it goes 'long'?" One deck invariably has more value than the other, and thus, time is on their side, their victory is, in some sense, "inevitable." The player whose deck has less value must take an active role to "beatdown" the other player before they gain an insurmountable advantage. It may seem then, that it would always be preferable to be the player with inevitability. Many with that mindset

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[57] Flores, Mike. "Who's the Beatdown?" *Star City Games* (first published on *The Dojo*). January 1, 1999. https://articles.starcitygames.com/articles/whos-the-beatdown/

build their decks to out-greed their opponents, picking the most expensive and powerful cards, but rarely is this a winning strategy. In a well-balanced game, aggressive strategies, however precarious, punish greed. In some metas[58] a potent triangle forms between aggressive, mid-range, and control decks. The mid-range decks have more value than aggressive decks and take on the role of "value" deck in the matchup, but against control decks who outvalue them, they take on the role of the "beatdown" and attempt to defeat the opponent before they themselves get outvalued.

"Who's the beatdown?" is fundamentally a temporal question. The player places an imaginary clock over the game and refers to it in their decision making. If one feels they cannot win the long game, they take risks to try to win before the long game comes. If they feel they will win the long game, they attempt to minimize risk to maintain their temporal advantage. Complicating this frame of thought, in many matchups the beatdown deck can change hands based on contextual information and events, further enmeshing the fragile concept of time into the play of these games. Even though the literal passage of time is not a component of turn-based games, we can see the concept of time, of a past, present, and future, does play an important factor in the way players understand the game and what strategies they employ.

Another turn-based collectible card game is *Magic: The Gathering* (*Magic*), considered by some researchers to be the most computationally complex real-world game.[59] One reason for its increased complexity over *Hearthstone* is that players can act during their opponent's turn. In *Hearthstone*, one

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[58] The term "meta" is used to describe what strategies are in vogue in an esport.
[59] Churchill, Alex, Stella Biderman, and Austin Herrick. "Magic: The Gathering is Turing Complete." *arxiv,* 2019.

player is passive, waiting to go, and another is active, able to play their cards. But in *Magic*, on any given turn, the "active player" may change hands multiple times. It's still a single player's turn and they have all the privileges that come with that, of course, but the other player is free to respond to their actions. In *Magic*, cards have timing restrictions. For instance, most can only be played at "sorcery speed" or during a player's own "main phase" on their turn, but a player may cast spells called "instants" in response to actions on other people's turns. Similarly, they may use the activated abilities of cards on the battlefield at "instant speed." A large component of *Magic's* strategy is understanding when one can and can't use their spells and abilities, and how they temporally relate to other abilities.

By far the most interesting aspect of *Magic's* relationship to time is "The Stack." The Stack is *Magic's* system for resolving multiple spells cast or abilities used at the same time. Basically, when one player casts a spell or uses an ability in response to an opponent's card, they both go on the stack, with the original card or ability at the bottom. The players take turns adding effects or spells to the stack, while they do this, none of those effects resolve. Once both players pass on adding to the stack, it then resolves in *reverse* order to when they were played, i.e. the first card played is the last to resolve. Adding significant complexity to this, whenever a spell or activated effect is added to the stack or resolves, it may trigger the passive abilities of other cards on the battlefield. These "triggered abilities" are added to the stack and resolve *before* the effect that triggered them in the first place.

As a simple example of this system, let's say I have a creature on the battlefield that you want to destroy. You cast a spell that says, "destroy target creature." I cast a spell that says, "return target

creature to its owner's hand." We both pass priority. My spell resolves first, the creature is returned to

my hand, and then your spell destroys nothing and is wasted. To make matters more complicated,

perhaps before these spells resolved, you decide to cast a second spell that says "destroy target

creature" on top of my spell. Then my creature would be destroyed, and the two spells beneath it on

the stack would fizzle out.

Reading all this, it may not surprise you to learn that the *Comprehensive Rules*,[60] or complete

documentation of just *Magic's* Rules (not its cards, which number over 50,000), is 281 pages long as

of June 16, 2023. Many of these rules concern conflicts that arise out of the game's immensely

complicated timing system. This complication is not without value for understanding the ways

games communicate different modes of time. In The Stack we find a potent example of the "B-Series"

theory of time. While the process of taking turns adding effects to the stack takes on the character of

an ever-present "now," as we've already discussed, the way The Stack relates to the game and itself can

only be described in before and after terms and the way it resolves follows suit. The B-Series theory,

which seeks to describe time absent of the tenses in favor of more specific language (I am driving my

car vs I drive my car at 2:08 p.m. 6/1/2023), is often attacked by opponents as unintuitive, rejecting

the human experience of the flow of time. The same can be said for The Stack, which is by far the

most confusing part of *Magic* for new players to wrap their heads around. In The Stack, we can see

that even in the midst of one theory of understanding time (the natural A-Series formation of a turn-

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[60] *Magic: The Gathering Comprehensive Rules.* Wizards of the Coast. June 16, 2023.
https://media.wizards.com/2023/downloads/MagicCompRules20230616.pdf

based game), our understanding and representation of time is so nuanced and complicated that an entirely contradictory theory can also be present. I do not view this though as a negation of either theory, but rather, an example of how games, in their complexity, display the intricacies of our understandings of time. In their portrait of temporality, one represented through sequential moments of stasis, games usually don't teach the player anything new about the nature of time, but instead reinforce that in our manmade representations of time we struggle to fully understand it or its consequences on our actions.

We've spent most of this section discussing turn-based games as separated from traditional clock-time, existing in their own separate space, but this is not an entirely accurate description of how turn-based games are played. Often, particularly in competitions, players do not have infinite real-time between turns to consider their next play; instead, they are bound to an external clock tracking their turns, limiting their ability to consider all the options, and forcing them to make a move or risk forfeiting the match. These clocks take different forms, but always have profound influence over the shape of competition.

A simple example of such a clock would be *Hearthstone's* "rope." *Hearthstone* was devised as a mobile game first and foremost, and thus quick games are a necessity. When a player queues into a game, they expect to only be there for 5-10 minutes. If players had unlimited time to play their turns, games could stretch beyond an appropriate amount of time, particularly if bad actors decide they want to waste their opponent's time. To prevent this, *Hearthstone* has an inbuilt timer keeping track of each turn, which can be a maximum of 75 seconds long. About 55 seconds into their turn, a

burning rope appears on the Hearthstone board, suggesting the player hurry up. The rope plays an important role in the culture of Hearthstone. A nefarious or irritated player may "rope" each of their turns, even if they have no cards to play, just to annoy their opponent. If a player is unable to play all the cards they want to because their turn ended, they got "roped." The rope can also play a role in some strategies. At one point a deck existed colloquially known as "APM Priest"[61] because its combo required the player to play an incredibly specific sequence of up to 30 cards. The difficulty of assembling this combo was primarily that the "rope" would deny any slow player their victory. While this niche deck was never particularly powerful, it was quite popular among livestream viewers because they loved to watch their favorite *Hearthstone* streamers struggle sequence their cards correctly and obtain its obscure win condition. So, while rare within the game of *Hearthstone*, the timer can have an outsized effect at times as to what players strategies *can* employ, despite whatever might be "legal," or within the bounds of the rules, to do on their turn.

The most potent example of such clocks in Western gaming culture is their use in the world of competitive chess. "Time Control" is the method by which nearly all chess tournaments are played and the familiar "chess timer," a clock with two faces and buttons for keeping track of playtime, is an iconic device associated with competitive chess. Time Control can take a few different forms. Most commonly, each player has a set amount of time to make all their moves: if the amount of time is 20 minutes, the player's clock counts down from 20 minutes whenever it is their turn. Usually, these formats also have an "Overtime," or added time if the game reaches a certain number of turns.

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[61] Actions per minute, a term popularized by *Starcraft*

Since external clocks are a mainstay in competitive chess, what is less interesting is their inclusion in competition, which is ubiquitous, but how much time is put on the clock. "Classical time" which is used for World Championship games, is "120 minutes for the first 40 moves, followed by 60 minutes for the next 20 turns and then 15 minutes for the rest of the game with an increment of 30 seconds per move starting from move 61."[62] While not an endless well of time to play, classical games are the longest competitive chess tends to get. Following classical time are "Rapid," "Blitz," and "Bullet" time controls. Rapid time is around 10-15 minutes per player, Blitz is anywhere from 3-10 minutes, and Bullet-time is anything underneath 3 minutes.

While the rules of chess are immutable between these different time controls, as the time to play is reduced, the character of chess changes. Most serious players consider the faster variants of the game to be lesser compared to traditional chess. Grandmaster Vladimir Malkhov calls Blitz chess "a waste of time,"[63] and Grandmaster Nigel Short says he plays too much, and it "rots the brain."[64] Perhaps most damning, Grandmaster Hikaru Nakamura, one of the world's best blitz and bullet chess players, said, after winning a rapid chess tournament against top competition in 2016, that blitz was "not chess."[65] While this is certainly evidence enough that the character of chess changes with the addition of a timer, how that character changes is important to interrogate. Nakamura notes in his interview that, blitz is about getting into a favorable and easier to read situation than your opponent,

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[62] "Regulations for the FIDE World Championship Match 2023." FIDE. 2023. https://handbook.fide.com/files/handbook/FWCM2023.pdf
[63] "MISHANP." Vladimir Malakhov: chess player, nuclear physicist." Chess in Translation. Sept 5, 2010. https://www.chessintranslation.com/2010/09/vladimir-malakhov-chess-player-nuclear-physicist/
[64] Willis, Matthew. "The Modernisation of Tennis." The Racquet, Jun 19, 2020.
[65] Chess.com. "Hikaru Nakamura Wins Paris Grand Chess Tour." YouTube. June 13, 2016. https://youtu.be/5Ar9B5xFmyY

or rather, the goal is not to make the "best move," but the one which simplifies the game the most for the player while complicating it the most for the opponent. Since the limited resource on players is time, and thus their ability to process the board in front of them, winning blitz players choose to approach these shorter variants as a different game with different objectives from classical or untimed chess. For chess grandmasters, who have spent much of their lives dedicated to making the best maneuvers, understanding the ins and outs of every opening, and competing at the highest level for fame and fortune, it is easy to see why the faster variants of chess require a different skill set than the one they've cultivated. For them, the measure of a chess player is their ability to make great moves, wiggle their way out of difficult situations, close out games where they have an advantage. These skills aren't always tested in a match of bullet chess. The game is markedly changed, so much so that it's almost unrecognizable, and as these players argue, detrimental to learning "real" chess.

All these sentiments are not rooted in changes to how any of the pieces function, the number of those pieces, or the size of the board, but just the simple addition of a timer dictating the way the player approaches the game. In the timer then, we catch a glimpse of how important a role time plays in competitive sports. It is not simply a metric for instituting fair play, but a key component in understanding the mentality of players, how they approach competition, and how spectators should understand the events in front of them as they unfold. If even turn-based games can have such a rich and complicated relationship with time, how much more complex might games whose actions take place in "real" time be?

Hourglasses

Most professional sports are played within an hourglass time format. These games end when a timed condition is met, usually when a timer runs out. In American Football, each quarter counts down from 15 minutes and when the final quarter's timer hits "0:00" the game is over. In basketball, each quarter counts down from twelve minutes, when the last timer hits "0:00," again, the game is over. At a glance, soccer might appear different, as its timer counts up, but in essence, it too, simply has a timer for 45 minutes halves, give or take a few minutes. Baseball, a game with no external clock dictating the pace of play,[66] also maintains an hourglass structure, though based on innings and outs rather than specific allotments of time. Considering the popularity of the hourglass format in the world of sports, it's probably not a surprise that many esports keep it.

Unlike professional sports, which *only* end when the timer runs out, many esports use an hourglass time format to dictate the pace of play, but also allow victory through other avenues. Usually, those other avenues are the way games are won and lost, but even in those moments where, for example, a fighting game player wins by reducing their opponent's hit points (HP) to zero, the sinking sands of the hourglass play an important role in the play and strategy of these games. In this section, we will explore how various competitive games employ an hourglass temporal structure and how the hourglass shapes the culture of play.

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[66] Prior to the 2023 season, in which a clock was added to speed up games.

The earliest competitive video games played as esports carried over the more traditional hourglass format, particularly first-person shooters like *Quake*. When played as an esport, two *Quake* player-characters spawn on a map with a set amount of time[67] to frag (kill) each other. Each frag nets the slayer a point and whoever has the most points when the hourglass runs out wins the match. Death is remarkably impermanent in this game mode, as the fragged player immediately spawns somewhere else on the map when they're killed. In the competitive first-person shooter community, this mode is referred to "Deathmatch," which, despite its name is not a fight to the death, but dozens of such fights, where only the statistical winner comes out on top. Deathmatches take on the quality of a basketball game with two balls, both sides trying to score on the other before they get scored on.

Deathmatches may be the most popular esports with a more "pure" hourglass time format, but even so, they have not had the success or staying power of games with alternate win conditions. While popular in the early years of multiplayer gaming, few viable or big-name esports in recent years have released with a traditional death match as a focal point, and those series which traditionally did employ a deathmatch (such as *Call of Duty*), have begun to branch out into different kinds of temporal formats. While an hourglass time structure may be involved, these games are defined more by alternate goals for players to achieve. These alternate goals are usually described as win conditions. "Win condition" can be a confusing phrase because it can refer to the literal condition of victory, such as finishing the game with more points than your opponent or destroy your opponent's home base or the figurative plan for victory (i.e. "we need to sack the quarterback to

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[67] Anywhere from 5 to 20 minutes.

win"). For simplicity's sake, when I describe win conditions for the rest of this chapter, I refer to the formal conditions of victory which end a game.

Fighting games like *Street Fighter II* employ an hourglass format, but matches do not typically end in a "time-out," but when one player's character is knocked out. In a match of *Street Fighter II*, two players control characters who fight each other in a small two-dimensional arena with a variety of punches, kicks, and special moves. The first player to reduce their opponent's HP to zero wins. If the 99 second timer runs out, then the character with a greater percentage of their HP remaining wins. The purpose of the timer, then, is to induce conflict. At any given moment, assuming the players are not tied, the player with less HP must take on the role of aggressor, because inaction results in their loss. Fortunately, due to the small size the arena and how disadvantageous it is for a character to be backed into the corner, rarely does the winning *Street Fighter II* player simply play "keep-away" when they've got a lead, but in those rare moments where the hourglass is close to running out, players use it to their advantage to try to force either a time-out or sub-optimal moves from their desperate opponent. Since most matches don't reach the time limit, it would be fair to say that the timer only plays a crucial role in the decisions of players every once in a while, but the same cannot be said for competitive *Super Smash Bros. Melee*.

Whereas *Street Fighter II's* arena and ruleset are designed with an hourglass in mind, and thus its impact on matches feels measured and calculated, the competitive *Super Smash Bros. Melee* (*Melee*) player does not have such luxury. Their game, conceived by developers as a casual party game, was never intended to be played at a high competitive level, or at tournaments where tens of thousands of

dollars are on the line. With that in mind, *Melee's* tournament organizers attempt to use the hourglass to solve problems which arise from the game's play, which then causes additional problems from grafting an hourglass onto a game never meant to have it.

*Melee* has the same theoretical problem *Street Fighter* would have without a timer: what forces players to engage with each other than good sportsmanship? To solve this problem, *Melee* tournament organizers run the game with an hourglass like *Street Fighter*, but rather than the comparatively low 99 seconds, a Melee match has an 8-minute timer. For comparison's sake, a typical *Street Fighter* match is played in up to five "best of 3" sets.[68] The maximum amount of in-game time a tournament match could be, then, is 1485 seconds, or 24.75 minutes. The maximum amount of in-game time for a comparable best-of-5 Smash match is 40 minutes. While 40 minutes is quite a bit more time than 24 minutes, he key difference between the two is that virtually no *Street Fighter* tournament matches come close to the theoretical 24-minute limit, but a surprising amount of genuine tournament *Melee* matches either hit the limit or come incredibly close.

The reason this happens with relative frequency is twofold. While *Melee* is also played on a somewhat cramped stage, "camping" is much easier because of the game's speed and verticality. As opposed to *Street Fighter II*, where characters are slow and doddering, *Melee* characters are exceeding mobile, especially in the air, where they have multiple jumps. Thus, it is much easier to escape "the corner," or similar disadvantageous position in *Melee* and reset to a neutral position. Moreover, some

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[68] Meaning the players play a best of three, whoever wins two games first gets a point, then they repeat. The first to three points wins.

characters can turn such disadvantageous positions into strengths, such as Sheik, who can continually

grab the stage's ledge with only a few frames (less than a second) of time for the opponent to punish

her for stalling the game. The second reason games go to time-out in *Melee* is because certain

matchups between characters make the aggressor's ability to approach nearly impossible. For

comparison's sake, the grand finals of Smash Summit 12 between Cody "iBDW" Schwab's Fox and

Joseph "Mango" Marquez's Falco, two of the fastest and most aggressive characters in the game, took

approximately 8 minutes and 16 seconds of in-game time, or an average of time of 2:45 per game. The

reason for such quick games is that these characters have a bevy of tools to aggressively pursue their

opponent. Meanwhile, at Smash Summit 13 five months later, Juan "Hungrybox" DeBiedma and

Arjun "lloD" Malhotra played a five-game match which lasted approximately 30 minutes and 36

seconds, or an average time of 6:03 per game. This match had nearly double the average match length

because of the characters involved. Hungrybox plays the cute Pokémon character "Jigglypuff," who,

despite her adorable demeanor, has the "touch of death," a move which, while difficult to land, will

usually instantly take the opponent's life. llod, meanwhile, plays Princess Peach from the *Mario*

series, who is slow and lacks the in-game tangibles to easily get close enough to hit a competent

Jiggplypuff player without putting herself in danger. For both characters, approaching the other is

the sub-optimal play. With thousands of dollars on the line, neither player wants to blink first, so

their encounters are short and brief, each trying to get a single hit or two on the other before

retreating to safety. Thus, the matches are long, drawn-out affairs. It's not that players aren't taking

actions though, it's just that their actions are reactive in nature, waiting to catch their opponent

slipping up rather than making the first move.

You may be wondering, why does it matter if their games take twice as long as another? After

all, a timer is still in place to limit the amount of time a match takes. Well, nearly every time an

important series between top players looks Hungrybox vs llod, a minor crisis bubbles up in the *Melee*

community. Such timeouts cause controversy for several reasons: they disrupt tournaments with

hundreds of competitors by slowing the bracket down and causing delays throughout the

tournament, they are often decried as boring to spectate, and they tend to be viewed as going against

the spirit of the game. As an extreme example of the kind of crisis which arises from time-related

issues, we can turn to *Melee's* prequel *Super Smash Bros*. for the Nintendo 64 (*Smash 64*), which does

not have the ability to turn on a timer. During Tacna 2014, a Peruvian *Smash 64* tournament, Daniel

"SuPeRbOoMfAn" Hoyt played against Gerson "Gerson" Chucuya, and the *first* game of the set

lasted an astounding 52 minutes. The surprising length was due to the unique features of the "Hyrule

Castle" stage, which incentivizes avoiding the other player, a player wanting to prove a point, and a

match-up where the other character lacked the mobility to approach. The prolonged match, which

occurred late in the tournament, caused a great stir in the community, and was part of the reason

enterprising players and organizers hacked *Smash 64* to include a timer in tournament matches so

such a game would never happen again.

While not all time-related crises require fundamentally altering the code of the game to fix,

they do force individuals within the community to consider their rule sets and what they can do to

fix the issue. While the hourglass has yet to reach the point of full-blown crisis threatening the legitimacy of *Melee*, the *threat* that it may cause such a crisis looms large. Solutions to the problem abound. Some wish to lower the amount of time on the clock, which would make timeout matches shorter, but detractors note that shorter matches might incentivize more people to "play for the timeout" in the first place. Alternatively, have suggested raising the amount of time, making it harder to win by time out, but as we see from *Smash 64*, some players will still try to play for time, even when there is no timer. Because changing the amount of sand in the hourglass is generally considered a non-starter, organizers have gotten much more creative in their attempts to legislate play without significantly disrupting it. One such rule is the "ledge grab limit," which restricts the number of times a player can grab the ledge, the most common place to avoid engaging the opponent. If one reaches the ledge grab limit, they automatically lose the game. Some tournament organizers have set their rules so the limit only comes into effect if the game goes to time, others have made it so they lose if the ledge grab limit is reached at all. The purpose of rules like this, and other minor tweaks, is ideally not to influence the outcome of tournaments, but incentivize certain kinds of play. Just the threat a player might automatically lose for playing keep-away is usually enough to ensure it never happens, so the rules are meant to have a chilling effect rather than be enforced.

In *Melee's* hourglass troubles, we find a potent example of what happens when a game not designed for competition, and thus not designed with "fair time" in mind, is played competitively. The result is a mess: an unsolved and persistent specter burdens over *Melee's* players and organizers. They cannot fully resolve it because the game was not built with their kind of play in mind. Every

solution they suggest or implement is inherently inelegant and tacked on. To some degree, the feeling is right at home for *Melee* fans, as many consider the entire game to be a beautiful accident. It also demonstrates why time is often at the center of rule changes and controversies, because no matter how much video games may offer players the opportunity to manipulate and play with time, in the realm of competition, it is exceedingly important that players compete within a consistent temporality, adhere to the game's sense of time rather than their own. When time cannot be trusted, the legitimacy of the entire game is called into question.

Still, most games are not like *Melee*, and many are designed with the hourglass in mind. Battle Royale games, in which up to a hundred players' avatars kill each other to be the last one left standing, revived the traditional hourglass format, but the timer does not reside at the top the screen as a sequence of numbers counting down, but as an integral part of the map the players play on. The two most popular battle royale games *Player Unknown's Battlegrounds* (*PUBG*) and *Fortnite Battle Royale* (*Fortnite*) implement such an hourglass. While each game begins in a large open space with many areas and resources, every few minutes the "legal portions" of the game world, designated by a circle over the map, shrink. Like the hourglass in fighting games, the purpose of this timer is to instigate conflict between players. If the map never changed, then players would be incentivized to hide and wait for other players to show up on their turf, but because the "danger zone" slowly shrinks the area of play, and those within face certain death, they must keep on the move, leapfrogging from safehouse to safehouse, hoping to survive the long journey to victory.

Games with a large number of concurrent players existed before *PuBG* and *Fortnite*

popularized the battle royale genre. *Battlefield 3*, released in 2011, had 64-player multiplayer and

MMOs like *World of Warcraft* can service hundreds of players in a single city, but neither of these

instances of many players in a single space left as large of a cultural footprint as the battle royale craze

did. A significant part of these games' success can be chalked up to the novel way they implement an

hourglass time structure, which is intuitive precisely because most players already have ample

experience with such timers from other games, but novel because it's expressed via physical space, not

a countdown. Moreover, battle royale games incidentally solve one of the biggest temporal problems

of playing an online game: when a player is losing, they may begin to get discouraged and cease to

enjoy the game, rare is the feeling worse than being stuck in a lost match. Yet in a battle royale, as

long as the player is alive, they can continue to fight, and if they are eliminated, they may go queue

into another match, reducing the amount of "dead time" the game might otherwise engender in its

players. While we could list dozens of reasons battle royale games garnered such massive attention,

it's difficult to not see their unique expression of temporality as a key component of why they

connect with players on such a profound level.

Rounding out this discussion of hourglasses and moving into our discussion of stopwatches,

it is worth considering an asymmetrical game which flips the hourglass on its players with relative

frequency: *Counter-Strike*. Each version of the game plays similarly from a temporal perspective, but

for our purposes, I will be refer to the most recent version, *Counter-Strike: Global Offensive* (*Counter-*

*Strike*). *Counter-Strike* is a competitive first-person shooter which pits two teams, the "terrorists" and

"counter-terrorists" (CTs) against each other. Each round, the terrorists attempt to plant a bomb on one of two bomb sites (A or B) and the counter-terrorists play defense, attempting to stop them. A round usually is over when all player-characters on a side have died, the bomb has gone off, or the bomb has been defused.

Like our other hourglass video games, the clock in *Counter-Strike* primarily serves the purpose of instigating conflict between the players. The terrorists have 1 minute and 55 seconds from the start of the round to plant the bomb. While this is plenty of time to set up and execute a strategy, it's not quite as much time as it might seem. A CT can block off a choke point by throwing a smoke grenade into it, which lasts for 18 seconds. Because a player cannot see while in the smoke, this effectively blocks off that line of attack for a time without the player moving through it incurring heavy risk. Much of the strategy in *Counter-Strike* revolves around hitting timing windows. The terrorists may choose to "rush" a site before the CTs can set up their defense, but this too is risky. Regardless of what strategy they choose to employ, the onus to act is on the terrorists, while the CTs choose to wait and react to their moves.

If the terrorists take one of the two bomb sites, it only takes 3.2 seconds to plant the bomb. While not all hope is lost for the CTs when this happens, the hourglass is turned upside down. The game alerts all players once the bomb is planted and from that point the CTs have 40 seconds to defuse it. From here, the CTs cannot win by simply killing all the terrorists: they must defuse the bomb to win the round. Now, the shoe is on the other foot, as the onus is on them to act, and fast. Complicating matters, it takes a CT 10 seconds to defuse a bomb, meaning they actually only have 30

seconds to eliminate all threats and start the process. However, they can purchase the "defuse kit" to save time and lower the defusing process to 5 seconds.

The *Counter-Strike* hourglass is a critical part of how players approach the game. It acts as a great funnel of possibility, ratcheting up the tension of the round with each passing second. The less time in the hourglass, the less options available to team "on the clock." Unlike fighting games, which only occasionally push a player toward action, each round of *Counter-Strike* revolves around the clock, which forces players into uncomfortable situations and generates the drama so important for any broadcast sport. *Counter-Strike* is, by most measures, the second most watched esport.[69] The reason for its popularity is not because it has the best graphics, most interesting mechanics, or more spectacle than other shooters. In fact, it is one of the simplest and oldest FPS games. Instead, its popularity rests on how each moment of gameplay is structured around a strict and unforgiving hourglass, one which sets the rhythm for every round played and invariably builds suspense as it incites action among the players.

Across this section, we've examined different attempts to add hourglasses to games, some with more success than others. In chess, we saw the clock changing the nature of the game. In *Street Fighter*, clocks are systemic quirks to ensure quicker rounds. In *Melee*, the inclusion of the hourglass, and the measure to which it is implemented, is complicated by the game being designed without one in mind. In the battle royale games, we find an hourglass structure mapped onto physical space. In

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[69] Dmytro Murko. "Most Watched Esports Games of 2022." Esports Charts. June 6, 2023. https://escharts.com/news/most-watched-esports-games-2022

none of these games does the time format feel as ingrained into the structure of play quite like *Counter-Strike*, which not only uses it to build pressure, but expertly bakes that intrinsic feature of the hourglass, that it can be flipped upside down and restarted, into its gameplay.

Regardless of how the hourglass affects play in these games, it's undeniable that the artificial construction of time constraints, not necessary from a gameplay standpoint, but for the sake of fair competition and a more exciting product for spectators, is a core component of how these games feel to play and watch. Time, or the lack thereof, defines player actions just as much, if not more, than the guns the player shoots, spells they cast, or characters they choose. To understand why players devote so much time, often thousands of hours, to these games, we must consider how they expertly employ time itself as a game mechanic to hook players in a way that other games, where the pause button is just a press away, cannot, by adding real stakes through the facsimile of time management. As we continue our discussion toward "stopwatches" and later "hyperclocks," we will not distance ourselves from the hourglass structure but see how it's ingrained as metagames and microgames within the structure of more temporally open-ended experiences.

Stopwatches

While many esports use an hourglass to dictate the temporal limits of play, others eschew it in favor of a more open-ended structure. In these games, an external timer does not dictate when the game ends. Instead, both players strive after a win condition, which, when achieved, ends the game.

We will refer to this kind of temporality as a "stopwatch." The simplest example of a stopwatch game is a footrace. The competitors agree on a distance, start at a set time, and run: whoever reaches the goal first wins. The "condition" of victory is to cross the finish line. While most team sports are structured around hourglass time, many individual sports, particularly those played at the Olympics, are played on stopwatch time. In some events, such as the long jump, a theoretical stopwatch dictates the start of play but does not usually have a meaningful impact on the athlete's performance.

For the Olympic athlete, time matters in the same way it does for all competitions, as the competitors themselves are bound to a time and location, but the sense of time they operate under is more elastic. The shot-put thrower primarily competes with whoever showed up that day, but they also compete on the grand chart of all who have ever thrown the thrust "the shot" into the air. Like the ghost car from *Hard Drivin'*, players compete not just with each other, but for potential world records, or at least to move their performance up the list. This ability, to compete against the past, is directly a consequence of the temporality afforded by a stopwatch structure, which allows for a performance to exist beyond itself, as a self-contained moment, forever unchanging. In video games, we primarily find this kind of stopwatch game in the sport of speedrunning, but it's popular as a core part of many games' design.

Most popular esports with a stopwatch structure are not analogous to the self-contained performances we associate with Olympic sport, but other esports where competitors go "head-to-head," as it were, directly competing against each other in an arena of strength and wits. These can take the form of racing games like *Mario Kart 64*, where a large part of the gameplay is structured

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around disrupting the performance of other players, Real Time Strategy (RTS) games like *Age of Empires*, where armies clash and one wins by destroying all their opponent's buildings or units, or Multiplayer Online Battle Arenas (MOBAs) like *League of Legends* where the win condition is usually to destroy the opponent's base. In each of these examples, only upon the reaching of a certain game state, or, more commonly, one player/team surrenders, the game ends. For our purposes, I will consider two drastically different stopwatch games and what their play and competition teach us about the nature of time and games, *Tetris* and *Starcraft II*.

*Tetris* is the world's most recognizable puzzle game, having sold nearly 500 million copies, and is well known to be a single player experience, so, it might surprise you to learn that a large community has formed around playing the game competitively. If you're familiar with the many editions of the game, you may think that would be competitors might play the game a recent version with multiplayer capabilities, where clearing lines adds some for your opponent to deal with, or Battle Royale experiments like *Tetris 99*, in which 99 players together hoping to be the last remaining, but the players at the popular Classic Tetris World Championship compete not on some modern version of the game, but the version that introduced most of the world to the classic title: 1989's *Tetris* for the NES. Competitors compete against each other for the highest score in the classic title, which ends not at the resolution of some timer, but when both players fail, which due to the high speeds of play reached once the game has gone on long enough, is inevitable: no one can play *Tetris* forever.

Like the problems entrepreneurial *Smash 64* players who hacked their game ran into, *Tetris* poses problems for would be competitors: the limitations of its hardware and the inherent randomness of the game. The original *Tetris* software does not have simultaneous multiplayer functionality, and moreover, it cannot record scores as high as players are capable of achieving. It also wouldn't be particularly fair to have two players start playing *Tetris* on different machines at the same time, since the order and kind of pieces they get has an outsized impact on final scores. In order to turn the game into a fair competition, these players play the game on modded cartridges which expand the number of digits on the scoreboard and give each player the same sequence of pieces. Like *Smash 64's* mods, these changes do not affect the core gameplay of Tetris, just situate it more productively within the context of a competitive championship.

As a stopwatch game, *Tetris* is unique. While, like a shotput competition, players compete for a high score amidst similar conditions, unlike most sports, *Tetris* has an uncertain, but inevitable conclusion: the player "topping-out," which ends the game. The exact time the player tops-out is determined by the player's actions but the top of the screen represents a finality they cannot avoid. While topping out always looms, a game of competitive *Tetris* can end in one of two scenarios: the player with the lower score tops-out, meaning they cannot get a score higher than their opponent, or the leader tops-out and the other player then eclipses their score, at which point they need not continue playing, as they have already won. We could describe *Tetris* as having a kind of hourglass structure, because the sands in the proverbial glass will eventually run out, but those sands fall based on player decisions, not real-time. Imagine for a moment, a competition where competitors must

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hold their arms outstretched with 5-pound weights for as long as possible. Eventually, like the *Tetris* player, they too will fail, but the measure of their success cannot be accounted for, in the moment, by a ticking timer, only a stopwatch.

While the structure of competitive *Tetris,* from a temporal perspective, points to the myriad of ways time constructs sport, what is more interesting regarding *Tetris's* implementation as an esport is how players game time by finding new ways to play the game and achieve higher scores. The intractable problem for the NES *Tetris* player is the game eventually reaches a speed where they can no longer move their tetronimoes in a sufficient manner to clear lines and increase their score. Complicating the controller issues, all Classic Tetris World Championship players must play on original NES controllers or practically identical third-party recreations. Despite 30 years of play on ostensibly the same hardware, the point when the game becomes unplayable continues to evolve.

The primary area of improvement in recent years has not come in new strategies for achieving a higher score with the time a player has (i.e. clearing 4 lines at once gives the player more points than clearing them one at a time), but increasing the ceiling of time available to them. This may seem like an intuitive solution to the problem ("Just play better"), but the infamous level 29, or *Tetris's* "kill screen," had, for many years, made such a strategy nearly impossible. In the ten levels prior to level 29, Tetronimoes fall at a rate of 2 frames per gridcell, but at level 29, they fall at a rate of one frame per gridcell. The game plays at 60 frames per second and the game board is 20 gridcells tall, which means a tetronimo will reach the bottom of the board in 20 frames, or a third of a second, past level 29. For comparisons sake, at the game's starting level, 00, it takes 960 frames, or 16 seconds,

for the tetronimo to reach the bottom. As you can guess, even playing the game at 2 frames per

gridcell is difficult, and for the average player, level 19 represents an impossible to climb barrier. So

how do the best players get around this problem?

For the first eight years of the Tetris Championship Series, the eventual victor used a

technique known as delayed auto shift, or "DAS." DAS takes advantage of the fact that holding down

left or right on the d-pad moves a piece to the left or right quite quickly, at 6 frames per second. A

player simply tapping the d-pad would have to press the button 10 times a second to match the

nascent speed of DAS. Still, playing at higher levels with DAS is not as easy as it sounds. The NES

version of Tetris is built with a delay in mind, so when holding left, the piece will move one slot over

in 6 frames, then wait 16 frames, then move to the left another slot, then continue moving to the left

once every 6 frames after that. At level 19, a piece only has 40 frames until it reaches the bottom of

the screen, and usually the board has pieces already stacked upon it, further limiting the amount of

space to maneuver. The 16 frame delay, is a killer, as to move the piece from the center of the screen

to the far side requires 4 or 5 movements, which the delay makes nearly impossible. Fortunately,

players have a workaround. If they are already holding left or right when the piece enters the board,

they skip the 16-frame delay. Unfortunately for the DAS player, the 6-frame window afforded by DAS

is too long to play on level 29, which is why that level is known as the game's "kill screen."[70]

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[70] The term "kill screen" typically refers to arcade games, where, on a certain level, the game either freezes, glitches out, or kills the player to end their run.

Playing *Tetris* with DAS from levels 19-28 is possible, but incredibly difficult. Only a handful of people in the world can play well consistently at that level. For many years, DAS was considered the most effective strategy for players to approach the game, but in the late 2010s, a new crop of players began using a different piece movement strategy called "hypertapping." Like the name implies, a hypertapping player simply presses left or right on the NES d-pad their desired number of times. While it sounds simple, it typically requires special grips, and many players will never be able to match DAS's natural speeds of 10 times per second, even with practice, but for those players who press the d-pad faster than once every 6 frames, even level 29 becomes manageable. Hyper tapping requires a significant amount of concentration and practice to pull off and can often look strange to someone unfamiliar with competitive *Tetris* play. Joseph Saelee, the first hypertapper to win the championship, holds the controller against his leg and primarily uses his right thumb to hypertap and his middle finger to rotate the pieces, meaning his hand rests above the rectangular controller more like he's typing on a keyboard than holding it in a traditional way. Using hypertapping, Saelee became the first person to reach levels 31 through 35, and the first to ever reach level 30 in live competition. His success, and young age, only 16 when winning his first championship, inspired a new generation to take up *Tetris*, and within a few years dozens of young hypertappers were competing at a high level. These players also pushed out longstanding DAS players, whose playstyle limited what they were capable of. Hypertapping was not without its drawbacks, as tapping can often be inconsistent and many worry the strain it puts on the hand and wrist can lead to arthritis. However, for many years it was believed to be the fastest and most optimal way to play NES *Tetris*.

Yet as is often the case in competitive video games, players were not done innovating. In 2021, Christopher "Cheez" Martinez began experimenting with a different technique for moving the pieces from side to side called "rolling." Rolling involves the player lightly resting their finger on the d-pad, but not pressing it down, then rolling the fingers from their other hand across the bottom of the NES controller, effectively pushing the button into their finger, rather than the other way around. Rolling was found to be much faster than hypertapping. The reason for the increase in speed is quite intuitive: the buttons on the NES d-pad are incredibly small, a hypertapper can only tap the button with one of their fingers, but the rolling player effectively presses the button with three or four fingers consecutively. As a helpful illustration, the difference between rolling and hypertapping is like the difference between playing the piano with only one finger, and playing it with all your fingers, the latter will, of course, allow the musician to play much faster.

Cheez would go on to be the first player to go beyond level 35 and reach level 40 in a live competition. Moreover, he set a then world record high score on December 1, 2021 when he scored 2.3 million points in a game. This number is unfathomably high: the previous world record was 1.6 million, and to achieve this score Cheez had to play at "kill screen" speed for 31 levels, more than the amount of levels *before* the game reaches its fastest speed. Using DAS, or even hypertapping, such play would be impossible, as the player lacks the control over their pieces to get them in the right place before they hit the stack.

*Tetris* teaches us a few useful lessons about the relationship between time and games. Its first lesson is that mechanical and bodily limitations are the most often barriers to speed in esports. It wasn't that *Tetris* players couldn't mentally plan their next move fast enough on the kill screen, but that they had no feasible way to execute their strategies at that speed. Often, in discussions on human perception of games, a common refrain is that the human mind or eye will eventually lose the ability to comprehend the action on the screen, but when approaching such games, matters of speed should be primarily relegated to what hands and machines are capable of in unison, and ask what ways they can better work together. In the case of *Tetris*, that question is specific to the symbiosis between the player and the NES controller in their hands which every player must use.

Second, *Tetris* teaches us that in games with "soft" barriers, such as *Tetris's* famous level 29, which merely suggests the player be done, rather than cut them off from playing, players will find ways to manipulate time to their advantage. It may require holding a controller and pressing its buttons in a new way, or changing the way the player theorizes and applies their strategy, but when in pursuit of high scores players find novel ways to cheat time that developers could never have imagined. Each time a strategy is developed to push records even further, it reifies the "stopwatch" structure of the game. Many sports structured around stopwatches are, or were, assumed to have theoretical limits like the 4-minute mile and the 2-hour marathon, but as *Tetris* shows us, if the stopwatch can go higher or lower, players will find a way to push it further.

*Starcraft II*, a competitive esport in which two players manage an in-game economy, build up armies, and try to destroy each other's bases, does not approach a stopwatch in the same way as a

footrace or *Tetris*. In *Starcraft II*, all that matters is if the player wins: it does not matter how quickly or slowly they do so. However, time is an essential factor in how the *Starcraft II* player approaches the game. In fact, it could be argued time is the most important element in determining who wins and who loses, with those with the strongest grasp over the game's timings and windows most likely to come out on top. The *Starcraft II* player must be mindful of time in a number of ways and its conception of time defines *Starcraft II's* relationship to the player in a way unique only to it and other real-time strategy games.

*Starcraft II* players take on the role of one of three factions, the Terran, a human race with space marines, tanks, and planes, the Protoss, an advanced alien race with psionic abilities, and the Zerg, an insectoid hivemind with abilities based on biological evolution. Each game is played on a small map with limited resources. The player commands workers to mine these resources, whether the more abundant "minerals" or the scarcer "vespene gas." When they have accumulated enough resources, they can use them to erect buildings, train military units, and advance their technology. They can then use their units or technological advantage to hinder their opponent's gameplan or outright destroy them. A match is technically over when all of one player's buildings are all destroyed, but virtually no competitive matches reach this point, as players concede, or calls "gg" (good game) once they feel there is no hope of coming back. While minerals and gas form a core limitation on the *Starcraft II* player, every aspect of the game, from mining those resources to constructing a building to training a unit, requires that all too important resource: time.

The "real-time" in *Starcraft II's* genre of "real-time strategy game" is so described because, as opposed to other strategy games like chess, it is not played in "turns," but live. Any moment of inaction is one where the player's opponent may be taking action, and thus, *Starcraft II* games are frenetic affairs. Of all esports, *Starcraft II* is considered to require the highest "APM," or actions per minute, and indeed, this is a metric the game itself tracks for the player. An "action" in *Starcraft II* can be many things: ordering a unit to move from one place to another, telling a building a construct a tank, having a worker mine some minerals, upgrading a military unit, or researching some new technology to gain an edge. Each of these actions takes time, and while any given action is simple to perform (to move a unit, one just selects it and right clicks on the location they want it to go), consecutively performing multiple actions each second for minutes on end is a physically and mentally taxing activity.

New players hover around 30 to 50 APM, meaning every second or two they issue a new order. Experienced players can usually reach 100 APM, meaning they effectively double the new players actions in a minute. Professional players reach rates of 150 APM or more, meaning they take two to three actions per second, and particularly during stressful moments of gameplay, such as when large armies clash, their APM may reach as high as 300. Looking at these numbers, one may get the impression that a higher APM equates to a higher skill, but *Starcraft II* is not so simple. Not all actions are created equal; anyone with a mouse can enter a game of *Starcraft II* and achieve an APM of 200 or more by simply taking control of one unit and spamming right click to issue conflicting commands. These movements though, each calculated by the game as an "action," do not hold much

strategic weight: they do not advance the player's goal of winning the game. Still, the existence and focus on APM as a metric of player skill and activity in the *Starcraft II* community, one which is rarely mentioned in other esports communities, illuminates a simple fact: *Starcraft II*, despite its open ended stopwatch structure, is so bound by time the player can't do all they might want to do while playing, so they must pick and choose those actions which will most likely bring them victory.

The primary limitation of player action in *Starcraft II* is that every action worth taking takes time. For each race, building a worker takes 12 seconds. Those same workers all have a speed of 3.94, or how many units of terrain it can cover in a second. If the player sends one to the other side of the map, they will have to wait for it to get there. Buildings take time to build: an SCV, the Terran worker, needs 46 seconds to build a barracks, which then requires 18 seconds (and 50 minerals) to produce a marine. To add a tech lab to the building requires 18 seconds, and then 100 seconds to research the "Stimpack" upgrade, an ability which, when used, sacrifices some of the marine's health for faster movement and attack speed. So, from the moment the player starts building a barracks to having a single marine with Stimpak ability requires 182 seconds of in-game time. Across those 182 seconds, the player only takes four in-game "actions." You may be wondering then, if actions take so much time, how can a player make hundreds of them in a single minute?

The answer is twofold: first, in a single game a player will likely build hundreds of units, dozens of buildings, and research more than a few upgrades. The second, is that while a player can control their army in large groups (rather than each unit individually), the best players are those who micromanage their armies to the best of their ability, ordering them in as small of groups as they can

to accomplish as specific of goals as they are able. Indeed, the nomenclature of *Starcraft* community denotes two different kinds of "play" one must master: "Macro," which refers to the player's control over their in-game economy, including workers, buildings, and the production of new units, and "Micro," which refers to the individual's control over said units. If a player is effectively using their high APM, they both preside over a large industrial machine, one whose every unit produced is the direct result of their mouse clicks and button presses, and a large army, whose unit movements and attacks are all coordinated by the player. In this sense, *Starcraft II* fulfills the ultimate "commander" power fantasy: nothing happens in the game automatically, only that which the player tells their units to do. While this is also the player's disposition toward other strategy games like chess, the ruthless speed of *Starcraft II* and the player's inability to take every action that could lead them to victory, is what inspires players and makes competition between them so unique.

You should be getting the impression that playing a game of *Starcraft II* is one of spinning plates. The player manages dozens of "hourglasses" at any given moment. For instance, one of the most important actions for the player is the production of workers. They start the game with 12 workers, the only units they have. A single worker mines around 40 minerals each minute while taking 12 seconds and 50 minerals to produce. From a single base, which is all the player starts with, they can only produce one worker at a time. If the player wants to maximize their potential production and future resources, they must always be producing a worker. While they could "queue" up multiple workers at once, doing so requires the mineral cost up front, tying up resources could be

used to produce something right now. Thus, if they wish to play optimally, every 12 seconds the player needs to check in on their home base and tell their primary building to build a worker.

By the time the midgame rolls around, a player may have three or four bases, each mining minerals and gas and requiring even more of their attention and protection. Adding to this complexity, most every building the player constructs can produce units, and those buildings provide no value if they aren't producing said units, so the player must keep their eye on those as well. On top of this, the player manages a "supply cap" (imagine buildings which house supplies for your army). If they reach their supply limit, all unit production ceases. Like the worker dilemma, if the player invests too many resources too early into raising their supply cap, then they effectively tie up minerals and gas that could have been used now for buildings that currently accomplish nothing. Thus, it is best to build supply depots at a steady rate in conjunction growth, always with just enough wiggle room to continue producing units. For novice players, just trying to manage the game's macro is too much multitasking to handle, and even professional players can struggle to multitask while keeping tabs on their opponent and managing an army.

The *Starcraft II* player simply does not have enough time to do everything they might want to do, and thus, they must pick and choose what to give their attention. Successful players, however, do not solely manage their own bases, but actively seek to disrupt their opponents. A large part of the strategy of *Starcraft II* is finding ways to draw your opponent's attention and limit their ability to keep their production up. Players often send small contingents of units across the map to sneak into the enemy base to kill their workers. After all, the less workers, the less the opponent's economy can

produce. Often, the point of such harassment isn't simply economical, it is attention grabbing. If I

can in five clicks and 3 seconds, select a group of units and send them across the map to attack your

workers, but it requires you 30 clicks and 15 seconds become aware of the attack, withdraw your

workers, find your army, and send them to deal with it, then put your workers back to work, I have

won the exchange of attention, and critically, time. With enough of these small advantages, I may be

able to snowball them into a large enough lead to outright take the game. In each encounter, the

*Starcraft II* player weighs not just how many minerals are on the line, but how much time each action

will take, and must decide if it is worth that investment. Finding the quickest, most efficient, ways to

accomplish goals is an important skill in becoming a great player.

Time in *Starcraft II*, however, goes beyond making your time more valuable than your

opponents: it's also about what is possible at any given moment. The player starts with 12 workers

and a home base, that's it. The home base can only produce more workers, so the player begins with

nothing: no military units and no way to make them. For the Terran players, they must first build a

supply depot, which takes 21 seconds, then a barracks, which takes 46 seconds, and then wait another

18 seconds until their first marine arrives, for a total of 85 seconds. This means that their opponent

does not need to worry about a marine in their base attacking them for at least the first minute and a

half of the match. Also consider the marine would then have to walk across the map, which would

take even more time. Every unit and upgrade in the game adheres to these properties, even a player

rushing as fast as possible cannot reach *Starcraft II's* most powerful units until 6 or 7 minutes into the

game, plenty of time for their opponent to recognize what they are doing, build up a defense, and stop them before they get it.

Thus, *Starcraft II* is a game all about timings. The game has copious amounts of hidden information, as the player can only see things on the map their units can see. While they may send units to see what the opponent is up to, for much of the game they are in the dark. The player must intuit what units their opponent is capable of having or attacking with at any given moment, and what may be outside the range of possibility. This intuition is called "gamesense" and forms the core skill which separates a decent player, who can manage their economy and army alright, from the great player, who not only understands their own capabilities, but those of their opponents.

Being a stopwatch game, *Starcraft II* matches can end at a wide variety of moments along the timer. You may think skilled players, with their ability to micromanage their army and maintain a strong economy, would tend to play the longest games, but the reverse is true. Newer, or less skilled, players usually do not know how to push their advantage or close out games, and their poor management of workers and buildings means it takes them much longer to gain a significant economic advantage. Skilled players, meanwhile, do not simply bide their time and build up armies, they prepare timing attacks and harassments for their opponents, hoping to catch them off guard or defeat them outright.

One of the most common strategies is referred to as "cheese." Cheesy strategies are those which aim to win in the early minutes of the game, before either player has gotten their economy off the ground. The defining feature of a cheesy strategy is that if it fails to do significant damage, the

cheesing player will be so far behind economically that it's best to simply surrender, making the strategy akin to betting all your chips in poker. A common cheese is called a "Zergling rush." With this strategy, a zerg player builds few additional workers, gets the building necessary for building zerglings, an offensive unit, then spawns them as soon as possible and sends them across the map to attack their opponent's workers. If their opponent is unprepared, perhaps not yet having set up defenses, they will likely lose most of their workers, and the game. A zergling rush is a potent attack because it is the earliest possible time a Zerg player can blitz their opponent, but because zerglings are the weakest of their units, it is also easily defended, particularly if the defending player scouts it.

*Starcraft II* is filled with these kinds of windows, those earliest moments an opponent can assemble a certain kind of army or build a certain kind of unit, and then using those units attack the opponent or put them on the back foot. Each moment of the game cascades into millions of possible "builds," or the sequence in which the player constructs their units and buildings, all of which are made more complex by the fact that opponents can and will disrupt them. If you aimed to construct an important and expensive unit by the 6-minute mark, but your opponent attacked your workers and you lost some, your entire build will be delayed until you can produce additional workers. Some of the most exciting moments of high-level gameplay can be when a player denies an opponent an upgrade they've been working on for over a minute by destroying the building making the upgrade. Suddenly, that player's entire strategy will no longer work, and they must either adapt to change, or accept defeat. A minute or two in *Starcraft II* is an incredibly long time, an attack meant to hit at 4 minutes will not have the same potency if it lands a minute later, because the opponent has had an

additional 60 seconds of units produced and defenses constructed and the window of opportunity was lost.

To play and watch competitive *Starcraft II* is to engage constantly with time. How many actions can a player take in a minute? How much time will it take to accomplish this goal, build this unit? Is the window this strategy is effective over? Will the opponent expect an attack to come at this time? Can the player delay their opponent's attack for two minutes while they get their defenses up? In high level matches, the difference of seconds is often the margin of victory and defeat. Those seconds though, do not come out of a vacuum, they are the cascading consequence of every decision that came before. Each decision in *Starcraft II* both expands the number of possible directions the game can go and limits other directions it can no longer take. The interplay between these possibilities, and the player's mastery over them, is what makes *Starcraft II* the rich and complicated game it is, and they all relate to the game's stopwatch construction of time, which bestows on its players not to one master clock, but hundreds of little hourglasses they must constantly flip, thousands of timed decisions they must make, and millions of possible game states to consider. The open-ended temporal construction of *Starcraft II* makes it the most complicated a one-on-one esport gets, so much so that the game includes a mode where two users control a single "player." However, *Starcraft II* does not reach the level of complexity offered by an esport with 10 players, and even more hourglasses to keep track of: *DOTA 2*.

The Hyperclock

By our own temporal definitions, *Defense of the Ancients 2* (*DOTA 2*) is a stopwatch game in that time starts at 0:00 and like *Starcraft II*, possibilities expand from there. While *Starcraft II's* win condition is destroy all the enemy building's, *DOTA 2's* win condition is in its name: defend your "Ancient" and destroy your opponent's. Yet the more one plays and watches Valve's 2013 MOBA game, the more they are likely to find *DOTA 2* isn't really a game about destroying ancients, it's a game about time. *DOTA 2* has layers and layers of temporality collapsed on top each other, hourglasses and stopwatches players must manage to simply understand and play the game, and hundreds of egg timers going off every moment. *DOTA 2* is renowned as one of the most complex video games, and the amount of time invested into it by professional players proves the point: Sébastien "Ceb" Debs, whose career began in 2011 while the game was still in its beta, has played nearly 14,000 games on his primary account for a total amount of time played of 323 days. Note that number isn't the amount of time he's spent in the game's client, but how many days he's spent in matches, playing the game. Many games, like *World of Warcraft*, *Starcraft II*, and *League of Legends*, have players who also devote similar time to achieving greatness in their respective games and sports, but none of these games revolve *around* time quite the way *DOTA 2* does.

When one starts a game of *DOTA 2*, the first decision they must make, before even stepping onto the battlefield, is what hero they will play. Every hero in *DOTA 2* is its own little collection of unique clocks. Most straightforwardly, each hero has a collection of unique abilities. Most of these are "active" abilities, meaning the player presses a button and the character performs an action

unique to them. Every ability in *DOTA* 2 has a cooldown, or an hourglass turned over which prohibits them from using it again until the time's ready. Cooldowns form a core part of how players approach the game. Some powerful abilities, like Tidehunter's "Ravage" which stuns all enemies in a large radius, are offset by long cooldowns. Ravage itself has a 150 second cooldown. For the Tidehunter player, the threat of a Ravage is more impactful than the actual ability, but for two and a half minutes after Ravage goes off, the opposing team does not have to worry about it. Managing your own cooldowns for maximum effect, while also keeping track of your opponent's cooldowns, is a key part of the teamwork and communication needed to coordinate and succeed in a match of *DOTA 2*.

Each of these abilities also has a cast animation, which is the amount of time in between pressing the button and the ability being cast, and a cast "backswing" or the amount of time after the ability has been used that the character cannot move or cast another spell. Usually, these tally less than a second in real time, but they add up when a character is casting multiple spells in a row. Abilities are not the only way a hero can harm their opponents, as each character is equipped with a basic attack, the player can send out by right clicking on an opponent. Each character has a unique attack speed, or how many attacks they can peform in a second, as well as an attack animation, with its own unique "upswing" and "backswing."

Each character has a movement speed, capped at 550, which sets how many in-game units a character can move a second, and a turn rate, which dictates how quickly their character's model can turn. Speed sets up hourglasses for how quickly a character can get where they need to be on the

map. Characters also each have their own unique health and mana regeneration rates, which represent how quickly these all-important resources refill on their own while the character is out on the map. Some of these numbers are inflexible, such as turn-rate and attack animation, but most can be adjusted by leveling up a character or purchasing items to augment their timers.

As an example, let's consider one of the simplest characters in *DOTA 2*, Lion. Lion is a mage who like Faust, traded his soul for more power, and is now bestially disfigured. Lion has four abilities, Earth Spike, Hex, Mana Drain, and Finger of Death, for our purposes, we will consider just two. Earth Spike launches rocky spikes from the groun in a line moving away from Lion. Lion's cast animation for this ability is 0.3+0.0, meaning it takes 0.3 seconds from casting the ability for it to come out and he is free to act immediately after. The spikes move at a speed of 1600, much faster than any character can move, but still require an entire second to reach Earth Spike's maximum range. If the spikes connect with an opponent, they are stunned for 1.4 to 2.6 seconds, depending on the level of the ability, and once cast, Earth Spike has a cooldown of 12 seconds. In just this ability, the player must track four timers: its cast animation, the speed of the spikes, the stun duration, and the cooldown.

Lion's second ability is "Hex." Hex transforms an enemy into a harmless frog. It has a cast animation of 0+0.53, meaning it comes out right when the player presses the button, but Lion can't act for half a second after. Hex lasts for 2.5-4 seconds and has a cooldown anywhere between 12 and 30 seconds (again, depending on its level). While frogified, the opponent moves the slow speed of 120 units per second, slower than any other character in the game. One again, an ability's use flips a

variety of hourglasses, though at this point, you may be wondering just how important any of these numbers actually are. I can assure you, in the actual play of *DOTA* 2, they are all-important.

For instance, let's say Lion's opponent is Wraith King. Wraith King has the ability "Wraithfire Blast," which can stun an opponent for a couple seconds. This ability, like Hex, targets a single opponent, has a longer cast range of 525 compared to Hex's 500. If both characters stand 600 units apart and queue up Wraithfire Blast and Hex,[71] you may think then that Wraith King would win the encounter, since his ability has a longer range. Yet because Wraithfire Blast has a 0.35 second cast animation, Lion will actually walk the 50-unit difference between their ranges before Wraith King finishes casting his ability, and since Hex has a cast time of 0.00 seconds, Lion will turn the King into a frog before he has time to get off his ability. Moreover, even if Wraith King were to get the jump on Lion, his Wraithfire Blast must travel to the opponent, as opposed to Lion's Hex, which has no travel speed. This means, at max range, the Lion player would have 0.55 seconds to react and Hex Wraith King before he would be stunned by the blast.

Such interactions between abilities are plentiful in *DOTA* 2, and mastering the feel of these timings is an entire game within the game. Mastering them is also crucial for winning games, which can perhaps best be seen in the above battle caused due to attack animations. As previously noted, when a player queues up an attack, they must wait for their character to then do a wind up, then attack. Typically, this windup is no more than a few tenths of a second, but what a difference a few tenths of a second can make. A large part of getting an economic advantage in a game of *DOTA* 2 is

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[71] Meaning they walk toward each other and cast their spell at the earliest possible opportunity.

"last hitting" creeps. Every 30 seconds, a fresh group of creeps spawn and walk down the game's three lanes, meeting up in the middle of the map with the opposing team's creeps. The creeps slowly deal damage to each other, and their battles usually end in a wash, with both sides losing all their members. If a player last hits an opposing minion, they pocket some gold. Unfortunately for them, their opponent can also attempt to last hit those creeps, denying them their bounty.

In the meta of last hits, attack animations makes the difference between winning and losing your lane. For instance, consider Lina and Gyrocopter. Lina, a fiery mage, has one of the slowest attack animations in the game at 0.65+0.6. Gyrocopter, a dwarfish creature in a miniature plane, meanwhile, has one of the fastest, at 0.2+0.1. If Gyrocopter and Lina both attack a minion at the same time, Gyrocopter's attack will arrive 0.3 seconds faster, even before we consider that Gyrocopter's "projectile speed" or the speed at which his attack moves, is three times faster than Lina's at 3000 to 1000. Assuming optimal play, Gyrocopter can always deny Lina her last hits. Lina's only recourse is that, at level 1, her attacks deals 51-59 damage and Gyrocopter's deal 42-48 damage, so she can attempt to strike a creep while it has more health remaining and trump Gyrocopter's speed advantage, but if the unit is below 48 health, as is often the case, an adept Gyrocopter player can consistently deny Lina her last hits and gold. Most players don't play perfectly, and sometimes a player must choose between denying an opponent their last hit and getting their own, so a Lina player will likely still get some gold for their time in lane, but the difference between attack animations can, and does, often make a significant impact on the shape of the game's early "laning phase." The windows of opportunity created by these timings, a cooldown of 12 seconds, an attack

animation of 0.2 seconds, health regeneration at a speed of 2.25 hp a second, or a cast animation of 0.3 seconds, can completely shape conflicts as they arise between opposing players and teams. Adding to this, the game has 123 heroes, each with their own unique cooldowns and animations, and any given game of *DOTA* 2 will harbor ten of them across two teams. In a single game of *DOTA 2,* hundreds of clocks concurrently run as the player contemplates what to do.

Among these heroes, are those thematically and mechanically connected to the concept of time. Chief among them is Faceless Void. Each of Faceless Void's abilities is flavored around time. His "Time Walk" ability, which rushes him forward and allows him to backtrack any damage taken in the last two seconds. Later on, he can purchase an additional ability called "Reverse Time Walk" which will reverse not just his health, but his location. Another of his abilities is "Time Dilation," which erupts a large magical circle around him and makes his enemy's abilities take longer to cooldown and does damage to them for each ability hourglass turned over. His "Time Lock" ability gives Faceless Void an opportunity to lock units in time for a moment, freezing them in place. Finally, his strongest ability, and one of the game's most iconic, is "Chronosphere," which creates a large zone of frozen time. Both enemies and allies within the Chronosphere freeze in place. Only Faceless Void can move or take actions within the area. The game's lore explains that Faceless Void is from a dimension "outside of time," and "time means nothing to him," yet he poignantly adjusts the flow time with each of his abilities, showing just how important a single second can be in a game of *DOTA* 2.

If just heroes had cooldowns and clocks, *DOTA* 2 would already be a temporally rich

experience bordering on the absurd, but when we add the game's map into the equation, we find

*DOTA 2* does not just seek to make the player aware of time and hourglasses but overwhelm them

with it. We tend to envision game maps as static, unchanging, things. The familiar black and white

tiles of the chess board serve as the site of competition because of their stability. *Starcraft II* is played

on a variety of maps, but none have a genuinely temporal component (something that changes one

minute to the next). Players tend to expect their battlegrounds to shape the kinds of encounters they

have, but not adapt to those encounters and change based on their actions. *DOTA 2*'s map, though, is

as beholden to changes over time as its heroes with their various speeds and cooldowns.

It's best to address the map's adaptability chronologically. The heroes spawn on the map not

at 0:00, like you might expect, but at -1:30. The first minute and a half of the match is functionally

outside of the game's normal time. Still, it wouldn't be accurate to say the players aren't preparing for

the game's egg timers to go off. At 0:00 the game properly starts: night turns to day and at each base,

for each of the map's three lanes, a squadron of creeps spawn, three melee and one ranged. Near the

the center of the map bounty runes spawn, if picked up they award everyone on the procurer's team a

small cache of gold. Here, we see the first hourglass to cause conflict. As two of these runes spawn in

different neutral locations, teams must choose how to divide their attention. Do they send two to one

and three to the other, or perhaps send all five to obtain one and perhaps procure a kill with their

overwhelming numbers? This kind of conflict, where teammates must choose what to do *now* with

divided goals, is the lynchpin of *DOTA 2*'s design. From start to finish, the constant flux of the map

pushes and pulls them to make decisions. Rare is the "correct" move in a game of *DOTA* 2, as the hundreds and thousands of choices offered by map obfuscate such easy distinctions. Instead, the game offers the player too many timers, too many places to be: choosing where to go is also a choice to *not* be a dozen other places.

At 0:30, another wave of lane creeps spawn at each base, they will continue to do this every 30 seconds for the rest of the game. One minute into the game "neutral creeps" spawn across the map in the jungles between the map's lanes. Neutral creeps spawn every minute and the most common way the zone is emptied is by heroes killing these creeps for additional gold and experience. Neutral creeps are usually too strong for low level characters to defeat, but as the players grow stronger, these creeps offer as much, if not more, gold and experience than the lane creeps, and since they are in the jungle hidden from enemy view, hunting them offers heroes more protection from conniving foes.

Unfortunately, heroes can't be everywhere at once, and they usually cannot kill all the neutral creeps on their side of the map in a single minute, which is where "stacking" comes in. Stacking is a technique where a hero attacks the neutral keeps but runs away right before the clock strikes X:00. If the neutral creep's rectangular zone reads as empty when the minute turns over, new neutral creeps will spawn in that location. Then the original creeps lose interest in the hero who attacked them and return to the zone, effectively doubling the number of neutral creeps there. Much of *DOTA* 2 is about dividing resources. It is usually better to have one super powered member of a team rather than five mediocre powered characters. When a support hero "stacks" a camp, they ensure more gold and experience for their teammate when they can clear it later. The world's best supports can, if they

are careful, stack up to three zones at a time. "Stacking" is one of many ways *DOTA* 2 players "cheat" time, but, in reality, the stacking player spends their time to make-up time for their ally.

At 2:00 and 4:00, new runes spawn near the center of the map named "water runes." A water rune gives its consumer some of their health and mana back. For mid-lane heroes, who often fight against each other 1v1 (as opposed to the 2v2 of the side lanes), these runes are critical for sustaining oneself. In high level matches, it is not unusual for support players to rotate to the mid lane to contest or steal the water rune from the opposing player, adding another wrinkle to where the player may want to be on the map and when. Starting at 6:00 and every two minutes after, a "power rune" spawns at one of the two locations where the water runes spawned. These runes, as their name implies, give powerful temporary effects: one doubles a hero's attack, one makes them invisible, one regenerates all their health and mana. Every two minutes, players must consider if these power runes are worth fighting for, and position themselves to take advantage of their bonuses.

At 5:00, and every five minutes thereafter, a new type of creep spawns with lane creep named "siege creeps." Siege creeps, visually similar to a trebuchet or catapult, are particularly strong against buildings. If a team protects their siege creeps, they can use them to tear through the opponent's turrets, which stand between them and the enemy team's ancient, much quicker. So, every five minutes, each team must consider how they want to use their siege creeps to get an advantage over their opponent, as well as anticipate how their opponent might want to use their siege creeps against them. The lane creeps continue to get stronger across the game and at 15:00, 30:00, 35:00, 40:00, and 45:00 another creep is added to the group. Eventually the initial four creeps turn into eight, which

means not only more potential gold and experience, but more power for toppling your opponent's base.

Every ten minutes, the time-of-day changes from day to night or night to day. The most important distinction between these times is each hero and unit's range of vision. Most heroes and units can see out to a range of 1800 units during the day but are limited to 800 units at night. The lack of vision at night makes ambushes easier. Some heroes are particularly attuned to these changes. Nightstalker, for instance, gains significant advantages during his favored hunting hours and can temporarily turn day into night to gain them. While no player can avoid the drastic change in vision caused by the switch between night and day, those playing heroes beholden to their effects must grow accustomed to how its cycles impact their heroes.

Near where the power runes spawn is a strange dark pit. Inside lurks the most dangerous non-player-character on the map, Roshan. Roshan has technically been hanging out since -1:30, but only starts to matter once teams feel strong enough to take him on. Not only does Roshan offer the team that kills him a large bounty of gold and experience, but he drops powerful items for them to use. The most important of these is the "Aegis of the Immortal" an item which reincarnates its holder upon death at the location they died. As we've already noted, *DOTA 2* is a game where the optimal play is to pool most of your resources into a single player, so essentially giving that player an extra life to play with is one of the most potent ways to leverage that power and take objectives across the map. The Aegis has its own quirks though: after five minutes, it vanishes from the player's inventory. AKA, they must use it, or lose it. The five minutes after a team defeats Roshan are the best time for a team

to take risks: take a fight, invade the opponent's jungle, or attack the opponent's "high ground," where their ancient is. Once those five minutes expire, or the hero holding the aegis dies and uses their extra life, the threat is gone. Considering the massive boost in power Roshan gives the team that kills him, it's not surprising that teams fight over who gets to fight him. Teams often try to sneak a Roshan kill when the other team isn't looking, or purposefully loiter around Roshan's lair to scare their opponent's into forcing a fight. Still, Roshan is a fickle and unreliable beast: once killed, he does not return to the map at a set time, but a variable one, as between eight and eleven minutes after his death, he respawns in his pit. The exact time is unknown to the players; thus, they must prepare for the contingency he may be back early or late and plan their strategies around each possibility.

The plethora of trees which populate the *Dota 2* map are mostly innocuous. They do not attack the player or block access to any important areas, and yet they are still temporally significant. The map is covered with them: over 2000 hero-sized plants litter the landscape. Each of these trees is interactable. Players can purchase items which consume them for some health or cut them down. Many of their abilities interact with these trees too, such as Nature's Prophet who can turn them into temporary allies, Wind Ranger, who shackles enemies to them for a long stun, and Hoodwink, whose abilities revolve around trees: she can plant new trees, use a bushwhack to tie enemies to them, and use a special ability to avoid collision with the trees for a short time. Other abilities simply count trees among their casualties. Once destroyed, a tree takes three minutes to pop back up in the same spot. Enterprising players may clear trees for a variety of reasons: to catch an enemy hiding within them, make a shortcut to another part of the map, or protect themselves from ambushes. In these

trees, constantly cut down and regrown over the course of each match, we find even the topography of *DOTA 2's* map is structured around hourglasses and affected by time in the same way its heroes are.

Beyond the map, a variety of other, not as easily categorizable clocks tick each *DOTA 2* match. Every 2 minutes, if a team controls one of the two "watch towers" on the map, they gain a small cache of experience. At the start of the match, each player starts passively accruing gold at a rate of 1 gold every 0.6 seconds, or 100 a minute, which increases slightly over the course of the match. Players may use this gold to purchase "wards," of which there are two kinds: observer wards which spot enemy activity when no heroes are there to see it, and sentry wards, which lack any ability to see themselves, but grant any allies within its area the ability to see invisible units. The wards are stationary and easily destroyed if found, but invisible, so players often do not know if they are being watched. An entire metagame revolves around placing wards where the opposing team won't look for them. Information is power in *DOTA 2*, and knowing where your opponents are is a great tool in planning your next move. Observer wards last 6 minutes once placed on the map, while Sentry Wards last for 7. Teams are restricted on how many wards they can purchase, so they must use them carefully. Each ward placed is an hourglass for its team to keep track of: a window into their opponent's activities for a short time.

Players have all manner of ways to cheat time's flow in *DOTA* 2. The "Octarine Core" reduces the time of all their cooldowns. A single use of the "Refresher Orb" or its fragile sibling the "Refresher Shard" will refresh every one of a hero's abilities. Players can purchase town portal scrolls

which allow them to get around the map more quickly, but only once every 80 seconds, if they want to get around quicker, they can purchase a special pair of boots to lower the cooldown to 40 or 30 seconds. One of *DOTA* 2's most important items, purchased nearly every game, is the "Black King Bar" (BKB) which, when used, gives the user complete immunity from enemy spells. It's not enough for the BKB to have an ability and cooldown, instead, *DOTA 2's* designers added an additional wrinkle: each time the player uses it, it becomes less potent. Initially, BKB's effect lasts for 9 seconds, but its efficacy is reduced by one second each time it is used to a minimum of 6 seconds. The difference between 6 and 9 may not seem significant, but as is often the case in *DOTA* 2, where fights are won or lost by the slimmest of margins, three additional seconds of spell immunity can make all the difference.

Whenever a hero dies in *DOTA* 2, they do not immediately respawn back at their home base. Instead, they must wait out their "death timer." Each hero's death timer is based off their current level: at level 1, 12 seconds, level 15, 50 seconds, and at the maximum level of 30, 100 seconds. Character death, and the timers associated with them, are the most important advantage a team can have, as they gain a numerical advantage over their opponent. If all five members of the other team die, that could mean a minute or more for the opposing team to invade their base and destroy their ancient unopposed. Fortunately, as we can see with anything relating to time and *DOTA* 2, rules around time are meant to be broken. Players can spend their hard-earned gold to "Buyback" or instantly respawn on the map. The amount they must pay is based on their current "net worth" or the combined value of all the items in their inventory. Once a player buys back, they cannot do so

again for 8 minutes. In every game of *DOTA* 2, players keep track of who on their team, and their opponent's, has buybacks available. Buybacking players must be careful, for if they die again soon after buying back, not only will they have to wait out their original long timer, but time will be added to their death timer as penalty. A common play when one team wins a fight is to feign pushing into the opponent's base to force them to use their buybacks, then retreat without taking the second fight. With the other team's buybacks now used, they have 8 minutes to win another fight, and if they do so, nothing will be able to stop them from winning the game.

It may seem overly ambitious or pedantic to spend so much time outlining each of these temporal mechanics, but only with each piece can we see the full picture. At every step of the way, *DOTA 2's* designers infuse time into its design. Each hero has its own set of timers to look after. Every corner of the map has some hourglass constantly flipping from one side to the other, objectives to capture, minions spawning, trees regrowing. Many of the game's mechanics and items allow players to "cheat" time in one way or another, but even these are egg timers within egg timers, clocks within clocks. No player can fully keep track of each of these hourglasses, but that's *the point*. *DOTA 2* is designed to push players to the limits of their perceptions of time, to give them so many timers that they can't possibly handle them. The player is temporally engorged, inundated by an endless sea of hourglasses and stopwatches.

In *Metagaming*, Patrick LeMieux and Stephanie Boluk point to the depth of temporal waters surrounding *DOTA 2* in their section titled "Seventeen Seconds of *DOTA* 2." In the section, they dissect a pivotal moment in *DOTA 2* esports history and use timestamps to document each player's

individual actions and lay them out like a large spreadsheet. What they uncover is beautiful: how, with millions of dollars on the line, a matter of milliseconds can mean the difference between victory and defeat. They connect this temporal reality to their conception of metagames and how players relate to each other and how play continues to evolve as players engage with it. They describe temporally important actions as a "statistical exploit," but this framing around statistics takes the ever-changing and complicated game of *DOTA* 2 and flattens it, returns it to stasis, something paused and still. Perhaps because it was outside of the scope of their study, they miss the forest for the trees: it's not in statistical probabilities that players experience *DOTA 2*, or even in the individual actions players take each moment, which sets *DOTA 2* apart as a hyperclock. While they absolutely do matter, the game is designed to be temporally overwhelming. Players find ways to play the game within its flooded temporalities, but fundamentally, *DOTA 2* insists that players play within its rules, its intricate timings.

At its zenith, *DOTA* 2 resembles Buonomano's understanding of the human body: a clock which both tells time and constructs it. One could construct an alternative *DOTA 2*, one without any heroes or trees or creeps, and replace each and every one of them with a clock. Everything in *DOTA* 2 is connected to time, just like how every aspect of the human body runs on some kind of clock. We cannot perceive all the different temporalities going on within us at any given moment, but they march on nonetheless. The *DOTA 2* player lives with the same predicament, unable to process everything happening in a given moment, but uses their intuition, often described as "game sense," or the most important skill for any player to have, to determine their next play amidst a sea of clocks,

hourglasses, and stopwatches. Somewhere in that sea lies *DOTA* 2, a game ultimately too complex to map temporally.

DOTA 2's temporal complexity points to the human experience of time. We, too, are inundated with a series of clocks we don't always perceive or understand, and trying to map them all, is impossible and experientially misleading. Just like how playing *DOTA 2* in real-time is different from reading a chapter about the game, so too is living in real-time different from thinking about time. While we can mentally map the various clocks in our lives, the moment we're forced to live on their time, we find ourselves unable to keep up. While *DOTA 2* limits itself to ten individuals to keep track of, the neighborhoods and cities we find ourselves in don't: we cannot keep track of all the various hourglasses and clocks in our own lives, so how can we even fathom the endless clocks of everyone around us? *DOTA 2* teaches us that while we can sometimes map time for our immediate benefit, it's futile to map time in pursuit of meaning: we construct meaning from experience, from living in time and using our "game sense," or intuition, to help us make sense of our temporal realities.

# Chapter 6 - Aging Games

Throughout this project, we've discussed how games use time, or the concept of time, to accomplish their goals. Whether as a game mechanic, narrative conceit, metaphor, or ludic constraint, time is always at play when understanding how and what games communicate. Thus far, we have read games as texts, let them dictate what time means and considered how they construct a sense of temporality for the player. In this chapter, we're going to partially step away from that method of analyzing games to consider how they themselves are subject to the effects of time. Just like us, video games age. Some literally change: they receive updates and patches, their code an ever evolving project. Some figuratively change: how they're played and understood develops in ways their designers could never imagine. Others are reborn, remade by different hands with new technology for modern audiences. Regardless of the temperament of this change, even if they share the same name, the game you play today is not the same game you'll play tomorrow.

Video games are art to be interpreted, as I've demonstrated across the other five chapters, but they are also *things*: cartridges, apps, consoles, CD-ROMs, code, products. While art ages, we tend to treat it as ethereal and immaterial, as though it exists beyond us. 400 years after Shakespeare, we still describe *Hamlet* in the present tense. Things, meanwhile, are corporeal and far more susceptible to change. "Thing" is a famously vague word, but I invoke it specifically as a reference to *The Social Life of Things: Commodities in Cultural Perspective*. In its introduction, Arjun Appadurai argues

commodities, or things, are social objects imbued with meaning. Scholars of games tend to avoid

reading them as items or products, as that's typically the realm of games journalism, whose reviews

and articles evaluate individual games on their commercial value. While this chapter reads games as

commodities, I am interested in them primarily as objects of social significance. As Appadurai notes

of things: "their meanings are inscribed on their forms, their uses, their trajectories" (5). Such

trajectories and uses are precisely what I'm interested in investigating in this chapter. In them, we

find the value of games is just as fluid contextually as it is narratively and ludically. By paying special

attention to external context, or how games are played, replayed, updated, and remade, we can better

understand both an individual title's meaning and the broader temporal underpinning of games as a

medium.

I am not the first games scholar to make this theoretical and methodological leap. In *Game

After: A Cultural Study of Video Game Afterlife*, Raiford Guins investigates how the long arc of time

redefines games as objects. He echoes Appadurai and examines games as things: "Things or objects

take on numerous lives as they undergo recontextualization across their careers and biographies... no

single situation exhausts the total trajectory or biography of a particular thing" (9). He draws a

through-line between the past and present, however his work is "dedicated not to the historicism of

the past, but to how and where video games remain present and the new roles situations enable for

writing their history" (30). I, too, am less interested in historicism, though I will provide historical

context we cover in this chapter. Instead, I am intrigued by how games adapt, or are adapted, as they

age. While the theoretical underpinning of our work is similar, two important distinctions set Guins

and I apart. First, Guins investigates games as material objects with a physical past, present, and future, while I examine them primarily as social objects which bind communities of play together. More importantly, he is concerned with "afterlife," or those games which have cultural died or been sunset. He covers games that find their way into museums, landfills, archives, and restoration efforts. I am not interested in afterlife, but persistent life. This chapter is about games which persevere and grow over time, or which seem so notable (culturally or economically), that, like a phoenix from the ashes, they are reborn and modernized in an attempt to preserve some important essence, less it be lost to time.

This chapter has three sections: in each we track how games change over time. In the first, we examine live service games, which, as long as they're profitable, update constantly, so neither developers or players are ever meaningfully finished with them. In the second, we consider static games which socially change over time. As metas, mechanics, and strategies evolve, so too does the way players relate to these games. In the third, we broach the topic of remasters and remakes, or those games which attempt to artistically reimagine their predecessors with modern sensibilities. Of course, it doesn't hurt if their revitalization is profitable. In the context of this project, this chapter has an ouroboros-esque quality: we've discussed how games change us and are vehicles to explore change, now we investigate how we change games, because they are as much in-time as we are.

Live Service

In the 1977 Rush song "Xanadu," which draws heavily from Samuel Coolridge's poem *Kubla Khan*, Geddy Lee takes on the persona of an explorer searching for Khan's "pleasure dome" so he might "drink the milk of Paradise" to become "the last immortal man." Eventually, the unnamed figure succeeds in his quest, but finds himself worse for it: his "bitter triumph" leaves him immortal, but trapped. Thousands of years pass him by as he's "frozen in an everlasting view," and he describes Xanadu not as a place of luxury, but "prison of the lost." The song's meaning is rather evident: while the idea of cheating death and living forever may sound appealing, undeath is just as much a prison as expiration.

It wouldn't be fair to call live service games gaming's Xanadu-incarnate, but they do try their best to drink the metaphorical milk of paradise. Prior to the internet, most video games had a product revenue model, meaning consumers purchased the product and then owned it. Live service games have a different monetization strategy: they make the bulk of their revenue through post-purchase or download services. Whether through new content, cosmetic items, or subscriptions, these games are designed to never end. The "games as a service" model is a topic of some controversy within popular gaming discourse because it traditionally attempts to squeeze its users to spend significant sums on digital content. The bulk of the profit for these games comes from "whales," or individuals who spend thousands of dollars in-game. Though, as Christopher A. Paul argues in *Free-to-Play*, critics of games as a service tend to do so to maintain the legitimacy of what they see as "real" games and dismiss the digital gaming pleasures of out-groups from mainstream gaming culture.

Considering live service games are a massive part of the gaming industry, and subject of numerous books and articles, my goal in this section is not to present a complete history or analysis of the model, but to consider how live service games change over time. We discussed some live service games in previous chapters, but whereas we were interested then in how they communicated notions of temporality, here we will ask how those games implement the service revenue model and if that affects how we understand them. Unlike product-oriented games, which may experience patches or updates, but are functionally the same title post-release, live service games are designed, from the ground up, to be modular and change into the future. If, as "Xanadu" suggests, immortality is a curse leading to a changeless future, it's interesting that live service games seem to buck the conception. They are games for whom "immortality" is predicated on ceaseless change, but rather than achieve permanence through a one-time event (such as a product release), they are tirelessly reconstructed and expanded so players do not bore of them, a fate perhaps just as cursed as stagnation.

The live service games model does not have an abundance of pre-digital corollaries. One such example would be collectible card games, which are physical products with a service model. Games like *Magic: The Gathering* and *The Pokémon Trading Card Game* release new sets of cards multiple times a year to entice players to continue playing and making purchases. Successful games in the collectible card game market can keep players hooked for decades, so it's natural that video game companies, when developing their own live service games, look to collectible card games for advice. *Hearthstone* is an instance of this trend.

In *Hearthstone*, players do not just take turns battling each other, but purchase packs of digital cards and build decks with them. *Hearthstone* is clearly designed with expansion in mind. While the game was released in 2014 with hundreds of playable cards, players signed on not just for the fun gameplay, but for the promise of more cards in the future. *Hearthstone* is always in a transitory state: every four months a new expansion of 120-180 cards releases for players to tinker with and use to develop new strategies. From a revenue standpoint, these sets present an easy opportunity to monetize player devotion to the game. For decks to stay relevant and their tactics sound, they often need to be constructed with the most recent cards, so players purchase packs to find these cards.[72] Artificial scarcity drives player's monetary engagement with *Hearthstone*, but that scarcity is accompanied by a variety of changes meant to either keep the experience of the game fresh or the player feeling the need to purchase cards to keep up.

The most obvious way a game like *Hearthstone* changes over time is through the introduction of new aesthetics and gameplay mechanics. *Hearthstone* is a spin-off of another of Blizzard's live service games, the MMORPG *World of Warcraft* (*WoW*), so it typically themes its expansions around areas or narrative events from that game. For instance, each playable class in *Hearthstone* is derived from a playable class in *WoW* and sets like "Journey to Un'Goro" and "Mean Streets of Gadgetzan" make clear reference to popular locals in the game. Un'Goro is a pre-historic jungle filled with dinosaurs and has a bit of Indiana Jones flair. Gadgetzan is a metropolis; its "mean streets" are

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[72] Players may also "disenchant," or destroy, their unwanted cards to create an alternative currency used to craft the cards they do want.

populated with mafia and gangsters and make references to films like *The Godfather*. Mechanically, while each set still works within the basic rules of *Hearthstone*, they use those rules to help sell the fantasy of new locations and give player's new cards with unique abilities. Un'Goro was flavored around exploration, so it introduced the "Discover" mechanic where the player "discovers" a card from three options and adds it to their hand, promoting a sense of unpredictable exploration. Gadgetzan, meanwhile, divided the game's then-nine classes into three mafia families and gave them "tri-class cards" which were available to each class in that family, allowing them to share mechanics and themes. Over time, *Hearthstone* has changed from a generic fantasy card game to one with a wide variety of themes, some expansion's themes include murder-mystery, dungeons and dragons, frozen tundra, magical academy, and a disco party.

As you might expect, *Hearthstone* and other live service games seem to inflate over time. What began as a game with 240 cards now has over 4000. Playing with thousands of cards is daunting even for a veteran, so "Standard," or the game's premiere format, was born. It only uses a "Core Set" of non-rotating cards and the previous two calendar-years' sets. If players wish to use the three-thousand or so cards not in standard, they may play the "Wild" format, where all cards are legal. The inflation of live service games affects more than just the number of cards in the game, it can affect all aspects of the game's development and reception. Fans of these games tend to describe these changes as "creep," and perhaps the most noted by fan-communities is "power creep."

Power creep is when contemporary game elements are noticeably better than past elements either because they are objectively more powerful or enable new synergies and strategies previously

unavailable. To give an example from *Hearthstone*, the card "Spider Tank" was printed in the game's second expansion, "Goblins vs Gnomes." Spider Tank is a minion which costs three mana to play, and has three attack and four health (3-mana 3/4). During the Goblins vs Gnomes meta-game, Spider Tank was a decently strong card which saw play in a variety of decks, but over the years, it has been outclassed by cards strictly better than it. Fans of the game still affectionately call creatures with the 3-mana 3/4 statline "spider tanks," but cards like "Paparazzi," which discovers a legendary minion when played, or "Mankrik" which shuffles a powerful card into your deck, completely outclass it in terms of strength. Moreover, in today's *Hearthstone*, even so-called "spider tanks" with upside don't always see play. Like real-world inflation, power creep creates feedback loops: new sets must contend with last year's sets, if they're considerably lower in strength, fans will not feel a need to purchase them, or they will feel like the game is going stale because they're seeing the same cards in every game for months or years on end. Thus, companies like Blizzard have a vested financial interest in printing powerful cards that usurp their forebears.

Power creep is not just tracked through individual cards, but the overall pace of the game. When *Hearthstone* was first released, few cards added more cards to the player's hand when played. Since an individual's cards didn't replace themselves, players ran out of resources often, causing wars of attrition where each player tried to maximize the value of each card they drew. In today's game, it is common for cards to either draw, discover, or otherwise add more cards to their user's hands. As a result, it is rare for either player to run out of cards. While likely a change to reduce moments where players feel powerless, *Hearthstone's* game-feel is markedly different than in its early days: what skills

the game once tested, and values it once held, have changed as thousands of cards were added to the game, each one needing to be interesting and different compared to what came before.

Creep can extend to the features in a game. *Hearthstone* originally only had a "Constructed" game mode, where players construct decks for competition, and the "Arena" where players wager some in-game cash, draft decks from randomly generated cards, and play those decks until they lose three games, gaining rewards the more wins they get. Today, *Hearthstone* still has Constructed and Arena, but also Wild, Classic, Duels (like Arena but with drastically more complicated rules), Mercenaries (an RPG-like combat system), Tavern Brawl, Twist, and Battlegrounds (a so-called "autobattler" with similar art and themes than the *Hearthstone* card game but is not a collectible card game). Some players may sign in only to play Battlegrounds, others may only play Arena and Mercenaries. As such, what it means to play and enjoy *Hearthstone* has changed in the decade since it came out. In a bid to remain relevant, *Hearthstone* uses its recognizable IP to ape popular new game genres and place them in its shell. It also develops new experiences to keep players, who might otherwise tire of its gameplay, interested. Live service games live on a tricky edge: since they require a significant amount of daily users to turn a profit and justify the expense of running an endless game, they must do everything they can to entice players to continue signing in. While any individual add-on may seem small, over time live service games pick up so many additions they cease to resemble the original game that was marketed to fans.

Perhaps the clearest way *Hearthstone* changed in the decade since its release is in its complexity. We've already discussed the number of new cards to learn and additional game modes,

but on the whole, *Hearthstone* is a dramatically more complicated game than it was on release. This distinction is important for *Hearthstone* in particular because it was originally billed as a simple mobile card game anyone could get into, but today, new players will likely find themselves overwhelmed by how much information is crammed into the game. With some cursory analysis,[73] it appears decks today contain 50-60% more total words than they did a decade ago, which is particularly impressive because of the limited space on each card to print words. In addition, the number of legal cards in March 2016, the month before the first standard rotation, (which reduced the amount of legal cards in standard) was 606. Meanwhile, in March 2023, despite similar rotations culling sets from the standard format, the format contained 1,309 cards, more than twice as many. Even the game's design team, which spent most of initial development at 15 members, requires 70 today to maintain the game and create new content for it. No matter how one measures the comparison between past and present, *Hearthstone*, like a snowball rolling down a hill, is significantly bigger and more complicated than it was at release.

It isn't a judgement on *Hearthstone* that it changed in the decade since release, but its continued development suggests a problem for discussing these games. When one describes "*Hearthstone*," whether in a formal academic or casual sense, which "*Hearthstone*" do they refer to? The game as it was on release in 2014? The game before its original director Ben Brode left in 2018? After the introduction of the Battlegrounds mode which, by most measures, is now more popular than the card game attached to it? Or the game, in total, as it exists today, in 2023? This isn't a

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[73] I compared the top decks from "Classic," where only original cards are allowed, to the top meta decks from June 2023.

problem unique to *Hearthstone*, as I briefly mentioned in the previous chapter, *DOTA 2* has undergone similar complexity inflation since its initial release.

Perhaps the most apparent way to track a game's age is through its file size. *Hearthstone's* "minimum" requirement for storage at release was 3GB, but downloading the game requires 8.5GB. *DOTA 2* required less than 10GB on release and today is a 60GB game. We can imagine live service games are a version of the "Ship of Theseus" thought experiment, except rather than exchange their components for replacements while remaining roughly the same, they become bigger with each passing year: paddle boats transformed into cruise ships and oil tankers. For them, aging is not just a process of changing over time, but an accumulation of mass. They show their age with all the weight they carry, each addition evidence of a change.

What happens if we strip the accumulation back from these games? Blizzard attempted to do just this in 2019 with the release of *World of Warcraft Classic* (*WoW Classic*). At the time of *WoW Classic's* release, *WoW* was nearly 15 years old. Like *Hearthstone* and *DOTA 2*, *WoW* has undergone tremendous change since its release. Many users, nostalgic for their early days with the game, openly pined for an opportunity to go back, play *WoW* as it once was. Their pleas already a potent example of how profoundly live service games change over time. *WoW Classic* is an explicit attempt to rewind the clock: Blizzard left the game virtually unchanged from its initial release. For fans, this didn't just mean undoing 15 years of power and feature creep, but a return to a different game. Claus Toft Nielsen, writing before its release, views *WoW Classic* as a "homecoming" for fans, an opportunity revisit "a place imbued with cultural memory" (66). Contemporary cultural critics came to similar

conclusions on release. Polygon's Heather Newman describes *WoW Classic* as a "fascinating experiment that helps root out what people like in a game." PC Gamer's Steven Messner finds the rougher edges of the older version make it more cumbersome than the modern game, but that it's those same haphazard mechanics "that give Classic so much character and flavor." Blizzard, ironically, did not need to change their game to engender powerful emotional responses from their audience, they just needed to undo 15 years of updates.

Though, as with *Hearthstone* and *DOTA 2*, *WoW* is not a game designed to sit still. I write in 2023 and have the benefit of hindsight to know the *WoW Classic* of 2023 is not the *WoW Classic* of 2019. It too, has aged. The game received patches to match the progress of early *WoW*, adding additional features and content. In early 2007, just over two years after *WoW*'s original release, Blizzard released the expansion *The Burning Crusade*, and in June 2021, *WoW Classic* received the same expansion. In 2022, Blizzard released the *Wrath of the Lich King* expansion (originally released in 2008) for players of *WoW Classic*. Within three years, *WoW Classic* no longer resembled *WoW* as it was in 2004, but as it existed in 2008, and Blizzard shows no signs of stopping. *WoW* was, and is, designed to change. Heraclitus once said no one steps in the same river twice, and similarly, no one plays the same live service game twice. No matter how powerful the pull of nostalgia, or the literal ability to set up servers with previous software, a live service game will change. *WoW Classic* suggests, however lightly, that even though you can't stand in the past's river, you might be able to float down it again once in awhile.

However, not many live service games are as lucrative as *WoW* has been for Blizzard. Most designers do not have the luxury of a player-base so nostalgic for their intellectual property they can afford reconstructing the past and expecting to profit from the endeavor. Underneath the success stories of games like *Hearthstone*, *DOTA 2*, and *WoW* lie a veritable graveyard of live service games that didn't make it. Not only do live service games require constant updates to stay relevant, they rely on a large player-base to even function: servers, customer service, debugging, and moderation all require resources, and publishers are quick to pull the plug on under-performing properties. Such live service games don't simply cease changing from this point, they become unavailable and unplayable. Most, perhaps all, live service games will share this fate. The best example of academic writing on the topic is Celia Pearce's *Communities of Play*, which covers the birth and death of the live service game *Uru*, but more pertinently follows the efforts of the "Uru diaspora" as they attempt to find a new home. Pearce is primarily interested in the power of emergent play and argues "Bottom-up processes have a mind of their own: they cannot be controlled. Emergence, once under way, is very hard to undo" (280). *Uru's* community though, seems to be unique in this regard. As an early example of a live service game dying, players took for granted the temporary nature of the genre and tried to preserve what they had both socially and literally by protesting the company to restart the game. For every *Uru*, there are a dozen *Hyper Scapes*.

*Hyper Scape* has all the trappings of a highly successful live service game. Developed by Ubisoft Montreal, creators of the popular *Assassins Creed*, *Far Cry*, and *Rainbow Six* franchises, *Hyper*

*Scape* was[74] a battle royale first-person shooter released in 2020. Its most salient intervention on the

saturated battle royale format was the ability for *Twitch* viewers to influence the outcome of matches.

Despite the Ubisoft pedigree and a transparent attempt to court free advertising from popular live

streamers, *Hyper Scape* was a flop. Within two months of its release, Ubisoft announced it failed to

meet expectations, and within two years they shut down its servers. I am not particularly interested in

why *Hyper Scape* failed. Instead, what I find interesting is how unremarkable *Hyper Scape's* failure

was. When *Uru* "died" the concept of a live service game ending was still novel. Pearce writes that

players felt betrayed that the content they paid money for was taken offline and were worried that

the relationships they cultivated through the game would be lost. When *Hyper Scape* died, few paid

notice. By 2022 the song and dance was routine: company produces a live service game, it fails to

catch on, development stops shortly after, and servers shutter after a year or two. It's not

embellishment to say hundreds of games share *Hyper Scape*'s story.[75]

These games fail because they require a critical mass of players to be successful. *Chrono Trigger*

will turn 30 years old in 2025. While it's not as culturally relevant as in 1995, anyone can still play it,

because *Chrono Trigger* requires an audience of one to be experienced. Battle Royale games require

hundreds or thousands of players to be online at the same time to function properly, and *Hyper Scape*

was designed for live viewers to play a role in the outcome of matches on top of that. While we can

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[74] When discussing games, we usually describe them in the present tense, but for ended live service games which can no longer be played, past tense seems appropriate.

[75] *Delistedgames.com*, which chronicles "games you can't play," lists nearly two-thousand delisted games and 688 "extinct" games, which were only released digitally and are "no longer available to buy, download, log into."

make arguments toward the preservation of these live service games, ultimately, preserving *Hyper Scape* is not something a single person can achieve like restoring an arcade cabinet or uploading a ROM to the internet. Even if they could get its software up and running, they'd still need a server and hundreds of people to recreate the experience of playing the game. Functionally, *Hyper Scape* is an experience no one can go back to, a game no one can play.

*Chrono Trigger* cannot die because, despite having a physical cartridge which can be destroyed, it is a contained piece of software. *Chrono Trigger*, definitionally, has limits. *Hyper Scape*, *WoW*, and *Hearthstone* do not have boundaries, or at least not of the same kind. They stretch out into the past and future with their seemingly endless variations because they are designed to change, to never be the same game twice. In this way, they replicate the temporal reality of their creators not in narrative or gameplay (though those features certainly can), but in their existence. All life ages, or changes over time. A prerequisite to this change is death. Whether the metaphorical death of *WoW* whenever a new expansion comes out, or the more literal death of a game like *Hyper Scape*, these games are punctuated by endless potential endings. Once a game commits to changing in perpetuity, the moment that change ceases, the game ends, or to put it grimly, dies.

At the end of Rush's "Xanadu," a now immortal narrator speaks of himself in the past tense, "For I have dined on honey dew/and drunk the milk of Paradise."[76] Despite the narrator's success at achieving immortality, in the process he gave up the idea of "the present," and does not proceed into the future. Live service games naturally follow the same path: despite the word "live" in their title

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[76] echoing the previous line "I will dine on honey dew/and drink the milk of Paradise".

and whether they're functionally alive or dead, they exist, and always will exist, in the past tense. The moment we put our minds on them, or pen to paper to write about them, whatever we're thinking or writing about is not the game as it is, which does not exist, but the game as it was.

Competitive Aging

It would be a mistake to assert non-live service games can't age, they just age differently. While live service games age by accumulating more updates and content until they're unrecognizable from their original release, what we might call static games, or those who do not receive updates post-release or only minimal improvements, do not themselves change, but the way players understand and play them does. The vast majority of static games do not meaningfully change during their time in the limelight or even twilight of their career. Players may have different interpretations of a game's endings, or their opinions on its quality may change, but they'll play it the same way as they did on release. Typically, to see dramatic change over time in static games, players need to be motivated to spend hundreds and thousands of hours exploring their depths. Only esports tend to get this sustained attention. One example of this we've already covered is *Tetris* and the evolving ways players hold the controller to optimize their play.

Most esports, particularly those released since high-speed internet's mass adoption, have a live service model. A common concern for competitive game developers is that unbalanced gameplay will turn players away from their game because it can be a nuisance to consistently see, and lose to, a

particular strategy. Members of fan communities often speculate that the purpose of balance patches, implied to make game fairer, is to keep players interested. Even a cursory glance at the update logs for popular competitive games reveals these games are never in a state of fairness, because every balance patch is succeeded by another balance patch a few weeks or months later. Perhaps fairness is not required for a game to be interesting and nuanced for competition: which is a reasonable conclusion to make after reading up on the esports history of *Super Smash Bros. Melee* and *Starcraft: Brood War*.

*Starcraft: Brood War* (*Brood War*) is a real time strategy game and expansion to Blizzard's *Starcraft*. Released in 1999, *Brood War* is an early example of the live service model, as it had balance patches and was an expansion product itself, but despite these early updates, *Brood War* hasn't been updated since Patch 1.08, released on May 20th, 2001 so it has been the same game for most of its time as an esport. Even when *Brood War* was "remastered" in 2017, Blizzard went to great lengths to show the changes were purely aesthetic and did nothing to the game's underlying systems. Functionally, while *Brood War* did change a little in adolescence,[77] it's fair to say most competitors have only ever played one version of the game. Yet during the 20 years of competition after the last balance patch, *Brood War* has remained a popular esports title in South Korea, where its matches are televised and professional players are sponsored by large businesses like Samsung.

To contemporary designers and players, who are familiar with the ceaseless live service model, *Brood War's* longevity may come as a shock. While it's fair to assume *Brood War*'s success and

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[77] As did Melee, if ever so slightly between Japanese, North American, and European releases.

competitive depth are the result of excellent game design, it's worth noting the game has rarely been viewed as "balanced" post patch 1.08. Despite professional players, whose full-time job is competing over massive prize pools, playing the game twelve or more hours a day to gain any sort of competitive edge, *Brood War* has never been solved.[78] In fact, *Brood War*'s metagame continues to shock veterans and audiences alike with its complexity. Since the game features the same three races as *Starcraft II*, Zerg, Protoss, and Terran, one might think one of those races would be identified as the best one and players would gravitate toward it. Yet despite the game remaining static, *Brood War*'s metagame has never settled down.

In the early years of *Brood War* as a professional esport, Terran was seen as the game's weakest race. For instance, in 2000, no Terran player qualified for the top 16 of the year's final *OnGameNet Starleague* (*OSL*), the most prestigious televised Korean tournament at that time. As *Brood War* became more optimized, it appeared that Terran would play third fiddle to Protoss and Zerg. Then, in 2001, Lim Yo-hwan, known as "BoxeR," shocked Korea by qualifying for and winning his first *OSL*. He quickly became an overnight sensation and the game's most popular player. BoxeR's play relied on mechanical skill, was notably aggressive, and employed high-risk strategies, traits which were quickly copied by other Terran players. His success paved the way for years of Terran dominance, as he and other Terran players would win five out of the next seven *OSL* tournaments and a Terran player would be ranked #1 in the monthly Korea e-Sports Association (KeSPA) rankings

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[78] A "solved game" like tic-tac-toe or checkers has strategically optimal strategies which invalidate all other strategies.

until 2005. While *Broodwar's* metagame was still young, BoxeR showed it was far more complex than anyone imagined.

Sometimes, it does not even take an entire tournament to revolutionize the metagame, as Kim "Bisu" Taek Yong proved in the *2006-2007 GOMTV MSL* Season 1 finals. Prior to this match, Protoss was seen as weak versus Zerg. From 2001 to 2007, no Protoss player defeated a Zerg player in the finals of a premiere *Brood War* tournament, and much of the time, Protoss tournament victories came down to if the top Protoss players avoided the top Zergs in bracket (only playing against Terrans and other Protoss). Due to this bad match-up, no Protoss player ever achieved the #1 KeSPA rank. In this finals match, Bisu, a Protoss player, went up against a Zerg player, Ma "sAviOr" Jae Yoon, at the time the #1 ranked competitor in the world. Bisu employed a unique strategy, relying heavily on the Corsair unit, historically thought to be useless, and trounced sAviOr 3-0. In the months that followed, Protoss players employed the "Bisu Build" and flipped the script, turning Protoss into the favored race in the match-up. Bisu himself became the first Protoss player to achieve the #1 rank after seven years of Terran and Zerg dominance. Once again, despite the game being nearly a decade old and its players incentivized to come up with any strategy to win the game and life changing cash prizes, *Brood War* proved to have nuances and possibilities none had considered.

It's difficult to fully describe how monumental these meta-shifts were because *Brood War* is a famously complex game, but that same complexity is the reason it is so dynamic. *Brood War* is an endless well of possibilities for its player base, who constantly find ways to innovate on its well-worn design. *Brood War* has a "high skill ceiling," meaning that it isn't just a player's strategies which

matter, but their ability to execute them (similar to its sequel, *Starcraft II*, which we in Chapter 5).

While *Brood War* does receive pseudo-updates in the form of community designed maps, its simultaneous ability to constantly change and never change makes it a fan favorite. Players expect the metagame to evolve, but not as a consequence of some far-off game designer's obscured decisions, but because of theirs, which creates a sense of ownership for the community. To them, *Brood War* is *their* game, not Blizzard's.

*Melee's* community also has a unique sense of ownership over the game, though they have more antagonistic reasons to take the reins. *Melee* was not designed to be an esport like *Starcraft*, but its fast paced and technical gameplay attracted competitively minded players. Unfortunately, *Melee*'s publisher, Nintendo, prefers to hold a tight leash on their intellectual property. So, when *Melee* continued to prove popular, even after they released a slower-paced and less competitively interesting sequel, they became hostile toward the competitive *Melee* community. Perhaps the most well-known conflict happened at EVO 2013. EVO is the largest fighting game tournament in the world, and in 2013 the organization hosted a donation drive where fans of various fringe fighting games competed to raise money for breast cancer research. The group of fans who raised the most money would have their preferred game featured in the prestigious tournament. *Melee* fans raised close to $100,000 to get *Melee* featured in the tournament, but prior to the event's start Nintendo contacted EVO and demanded they not air the game live or host the tournament (a threat with fairly dubious legal credibility). After swift condemnation from the broader gaming world, Nintendo relented and let

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EVO air the game.[79] Still, *Melee* fans are standoffish toward the company that developed the game,

wary they'll attempt similar measures in the future.

It's helpful for *Melee*'s community that, like *Brood War*, *Melee* is not a live service game. As

long as someone has a *Melee* disc and a console to play it on, no one can stop them from playing it as

it was on release in 2001. So, like *Brood War*, any innovations in *Melee's* metagame come not from the

game changing, but its players. They exploit glitches to perform complicated combos, they learn

every facet of their favorite characters "frame data" down to 1/60th of a second to best optimize their

play, and they elevate characters once thought bad by winning competitions with them. An

exhaustive list of meta changes is outside the scope of this project, but to give a sense of how dynamic

*Melee's* metagame is, in 2022, more than two decades after its release, a player piloting the character

Yoshi won a major tournament for the first time. It seems every year some unprecedented thing

happens to shake up *Melee*, and players continually adapt to its rapidly evolving metagame.

For comparison's sake, *Melee's* sequel, *Super Smash Bros. Brawl*, was far more financially

successful than its predecessor, selling twice as many copies for the popular Wii console. So, if *Brawl*

has more copies out in the world, and it's the newer game, why hasn't it had the longevity of *Melee*?

When *Brawl* came out players tried to make it into a competitive game, but it became apparent to

them *Brawl* was not as interesting as *Melee*, and worse, was terribly balanced. Brawl's metagame

revolved around a single character, Metaknight, because that character was inherently stronger than

the rest of the cast. Players either had to play Metaknight, are play one of the few characters who

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[79] For more information on this saga, see Pitcher, 2013.

naturally countered him. Metaknight's dominance cost Brawl the all-important feeling of contingency in its matches, because, at the end of the day, if the top players were all playing the same character the same way, the outcome of matches felt trivial for them and audiences. *Melee*, despite having a top character (Fox), has such a high skill-ceiling that even great players don't consistently execute the game's most difficult techniques, which opens the door for novel strategies and hard work to trump character and strategy decisions.

For all intents and purposes, *Melee* should be a "dead" game. It has been succeeded by three sequels and many of its players weren't yet born when it came out. Like the games Guins covers in *Game After*, *Melee* could have come and gone, slowly faded from public view. It didn't survive by itself, it changes because a community dedicates countless hours to gathering, organizing tournaments, and, of course, playing the game. It's important to emphasize the power players have over the trajectories of games and how we understand them. A game like *Melee* does not, itself, undergo change, but over time, a community, through ritually repeating the same social actions with the same software, changes how we conceive of it and even what it means to play it.

*Brood War* and *Melee* were released around the same time, and they've outlasted multiple generations of competitive games. They didn't do so purely because they're more fun or exciting than those games, but because their innate qualities mean players never grow bored with them. Particularly, they are both fast paced, feel community-owned, have a high skill ceiling, and critically, keep changing. When a game's code is set in stone, players may feel their grip on the feeling of contingency begin to slip; match outcomes may feel determined not because of player's skill, but

because the game has a right and wrong way to be played. Games which falter in this way appear as shallow caves to their players, easily mapped and understood. *Melee* and *Brood War*, on the other hand, whether intentionally or not, seem infinitely deep. As players hone their skills, they only find more unmapped tunnels, the depths rewarding them for their diligent exploration.

If live service games are defined, age-wise, by an impending death, *Brood War* and *Melee* age like wine. They are not necessarily "better" games than they were two decades ago, but they are different. Today's popular tactics and techniques are not a consequence of designer intention, but player innovation, and it's those players who define what it means to play *Melee* or *Brood War*. So-called "casual" players most likely moved on from them to more current games, but passionate players continue to venture into the unknown. Their efforts implicitly argue that, if someone, or some group, out there is willing to put in the effort, games do not end, the idea of them just changes to suit the needs of their players. While perhaps someday *Melee* and *Brood War* will cease to be actively played by such passionate communities someday, some games will always age like they have: changing not to bolster some bottom line, but because the act of play itself is transformative, whether or not the underlying code remains the same.

Remakes

The Turritopsis Dohrnii, otherwise known as the "immortal jellyfish," is one of the most interesting creatures in the animal kingdom. At all stages of its development, this jellyfish can revert

to its polyp-state and regrow anew from the beginning of its biological maturation. The process is surprisingly quick, and while it does not render the species indestructible, as it's still prey for other animals and dies to disease, its ability to reverse its biological cycles suggests a kind of aging which does not bend toward death, but perpetual rebirth.

Some video games age like the Turritopsis Dohrnii: remade and remastered rather than fading away into the past. Some of the time, we track these releases more like echoes than new life. *Super Mario Bros.,* the killer app of the NES and major touchstone of gaming history, is certainly an available game, released on nearly every Nintendo console, but each time it's released, it gains less fanfare: its presence is expected, not praised, and outside a 1993 remake, it's always the same game. *Super Mario Bros.* ages if we consider its vibrant speedrunning scene, but its code remains static like *Brood War* and *Melee*. Unlike the NES classic, the vast majority of games are never rereleased, remastered, or remade because their creators have little financial incentive to do so. So, it's only a slim few, usually culturally significant and financially successful titles, that receive the opportunity to be reborn.

This section is on video game remakes, though the word "remake" bears some scrutiny. It's easiest to define the term in opposition to two other words: "rerelease"[80] and "remaster." A rerelease is when a game is released again for another console but is not meaningfully changed in the process: it has the same visual appearance, controls, and gameplay as the previous edition. A layperson watching a computer monitor or television screen displaying the game would likely not be able to

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[80] Sometimes called a "port."

tell the difference between an original and rerelease. Remasters are games given a graphical face-lift, but their underlying systems are untouched. Often, remasters do not have a different art direction than their predecessors, but present older graphics with higher resolutions for modern computers that can handle the change. The *Brood War* remaster has a higher graphical fidelity the original *Brood War*, but no aspect of its gameplay was changed in translation. Lastly, a remake is a game recreated from the ground up, meant to enhance and modernize its predecessor, but with no direct relationship to the original code which made up the game. The degree to which remakes deviate from their source material varies significantly and is the primary concern of this section.

It's worth asking if remakes count as an example of games aging or if we should consider them apart from the original for this metaphysical metaphor. Remakes are new pieces of software, developed decades later with separate design teams and creators. So, from a development standpoint, they are wholly new games. Yet they are explicit attempts to revive the past, recreate the emotions and feelings of prior games. Typically, they retread the same gameplay and narratives of the original game and don't rock the boat too hard as to upset long-time fans. Fortunately, we have two other mediums to use as examples to better understand the remake phenomenon: films and theater. While we may compare movie remakes to their predecessors, they usually have different directors, scripts, and cast; audience goers may not even realize they're watching a remake, particularly if a work is remade in a new language[81] or the remake is a decades removed from the original. In theater, a revival may also have a new director and actors, but they perform mostly the same script, play in a

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[81] Like Martin Scorsese's *The Departed*, which adapts the Andrew Lau and Alan Mak's Hong Kong film *Internal Affairs*.

similar venue, and link themselves more explicitly to the history of productions of that play. You may

see three different versions of *Romeo and Juliet*, but they're still all *Romeo and Juliet*.

While a remake sitting on a shelf has more in common with a cinematic remake as a

technological reproduction of the past, the moment a player starts inputting directions into it,

playing on the stage, as it were, the game resembles a revival. I am not the first to note the

connection between stage and game players, but while the act of performance is transformative to

both and can have profound effects on the meaning of works within these mediums, performance is

not usually enough to warrant considering it another work entirely. Game originals and their

remakes typically share the same design and narrative decisions. For the player returning to a title

after some time away, remakes attempt to give them an experience of the game not as it was, but how

they remember it. For the player who never experienced the original, a remake attempts to give them

an idea of why the work is beloved in the first place. In either case, video game remakes are more

than visual or design updates, they're explicit attempts to recapture the past and offer it to a modern

audience.

The academic term "remediation" is also at play when describing video game remakes.

Originally used by Bolter and Grusin to explore "the representation of one medium in another" (45),

game remakes function well within the language of remediation. Bolter and Grusin contrast

immediacy and hypermediacy. For the former, we might imagine a work which remediates the past

with little trace of its own involvement. These works might resemble remasters more than new

games. Hypermediated remakes, on the other hand, take more liberties with the design and narrative

of their predecessors, they draw attention to the change reflected in their creation and recreate the past not by emulating it, but by using contemporary tools to find new ways to achieve similar outcomes. Over the course of this section, we will investigate three remakes: *Black Mesa* (a remake of *Half-Life*), *Resident Evil 2 (2019)*, and *Final Fantasy VII Remake*.

I've chosen these three games because the original games were all released in 1997-1998 and their remakes in 2019-2020. *Half-Life*, *Resident Evil 2 (1998)*, and *Final Fantasy VII* are all early 3D games which set standards in game design for years and are members of gaming's most popular franchises, but because they were built with early, and somewhat crude, 3D graphical engines, today their visual appearance is dated, and they are easy targets to be remade on modern hardware with better graphical capabilities. My goal is not to exhaustively compare and contrast these games with their remakes, but show how new design and narrative decisions reflect the aging of their predecessors. Despite their close temporal proximity, these games all hail from different genres: *Half-Life* is a first-person shooter, *Resident Evil 2* is a third-person survival-horror game, and *Final Fantasy VII* is a role playing game. Genre is important when analyzing these games because *Resident Evil 2* and *Final Fantasy VII's* brand of survival-horror and RPG are no longer in-vogue for modern AAA game design, so their creators made significant changes to fit them within contemporary commercial expectations. Each of these remakes is more hypermediated than the last and finds ways to create a fresh sense of contingency from well-worn games. Like the immortal jellyfish, they are reinvented with fresh potential, but carry with them the spirit of their predecessors. In the distance between them, we catch how both game designers and players have changed over time.

Black Mesa

Released by Valve in 1998, *Half-Life* was a seminal moment in the history of first-person

shooters. The genre first reached popularity in the early 1990s with the release of *DOOM (1993)* and

most early examples followed its lead: they were divided into short levels, focused on run-and-gun

gameplay, and had scant stories.[82] *Half-Life* was unique among its contemporaries in how it used a

large, interconnected research facility to give its levels a greater sense of space, had a much more

tactically driven combat system and used environmental storytelling to give its areas a sense of life

without disrupting the player's control of their avatar. While it can be difficult to quantify influence,

shooters after *Half-Life* look a lot more like *Half-Life* than any other game of the era. This is not a

novel opinion. In a retrospective of the first-person shooter genre which named *Half-Life* as the most

important of the lot, IGN's Staff claims the same: "When you look at the history of first-person

shooters, it all breaks down pretty cleanly into pre-*Half-Life* and post-*Half-Life* eras."

Despite its influence, history, and being the first game they developed, Valve has shown little

desire to revisit *Half-Life*. While the company ported the title to their then-new Source Engine in

2004, *Half-Life*: *Source* was given little attention and feels more like an incomplete exhibition of the

Source engine's capabilities than a meaningful reboot of *Half-Life*. Moreover, since the early 2010s,

Valve have kept their development focus on Steam, the largest digital games distribution platform,

and live service games like *DOTA 2* and *Counter-Strike*. Their lethargy for *Half-Life*, and long history

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[82] *DOOM* creator John Carmack once remarked "Story in a game is like a story in a porn movie. It's expected to be there, but it's not that important." (Kushner)

of encouraging modding of their games, opened the door for fans to take over and continue *Half-Life's* story with the development of *Black Mesa*.

*Black Mesa* is not a discreet piece of software released on a particular day like most games, but the combined efforts of over a decade of public development by fans. Originally, it was envisioned as a more genuine attempt to recreate *Half-Life* in the Source Engine (Further proof of *Half-Life*: *Source's* mediocrity). Announced in 2005, it won a 2007 Steam poll for "Most Anticipated MOD" and even Valve stated they were "as eager to play it here as everyone else," but a long development time plagued the volunteer team, who wouldn't release a standalone version of the game until 2012. This first release was incomplete, as it did not include the final third of the game known as "Xen" and cut chapters from earlier parts of the game. After its success, *Black Mesa's* developers approached Valve for permission to turn the free mod into a commercial release using the latest version of the Source Engine. Surprisingly, considering how tightly corporations tend to hold on to their intellectual property, Valve gave them their blessing, and today include it in marketing materials for the *Half-Life* franchise. What began as a group of disparate modders became a fully-fledged company named Crowbar Collective making an officially sanctioned remake of *Half-Life*.

*Black Mesa* may not be a Valve game, but Crowbar Collective went to great lengths to apply Valve's design philosophies to the project. The group gained access to *Half-Life* and *Half-Life* 2 design documents and took extensive notes on what makes Valve games unique. In NoClip's feature-length documentary on the game's development, Crowbar Collective's designers each explain that the core part of making *Black Mesa* was learning to design the Valve way. This sense of revision appears

counter-intuitive: weren't they remaking a game Valve already made? How could they possibly make it "Valve-ier"? Well, while *Half-Life* is a genre-defining game, it was also the first game Valve made. They honed their design philosophies for *Half-Life 2*, its two expansions, and for the *Portal* and *Left 4 Dead* series, all first-person games in the Source Engine. The Crowbar Collective deduced that, to make an authentic remake of *Half-Life*, they'd approach it like Valve might, which would require designing not like Valve did in 1998, but Valve does today.

*Half-Life: Source* was a shoddy attempt to bring *Half-Life* into the modern era because it was a one-to-one port of *Half-Life* and fundamentally failed to understand the purpose or meaning of remakes. While a bit of irony tinges how religiously the *Black Mesa* team followed the *idea* of Valve's lead (as Valve themselves had limited involvement in the project), their passionate adherence to Valve's updated design goals, regardless of how practically difficult it made their project, points to a simple, but powerful truth about remakes: they are not meant to recreate a game as it was, but a game as it would be if it were released today. Even when a remake is undertaken by fans of a game, many of whom had limited design experience, their impulse was not to port the past into the present, but place the present into the past, as though it had always been there. New design decisions for remakes are not just attempts to make the original better, or translate it to a new period, but manifestations of the older game's wrinkles. Remakes show the age of their progenitors, like holding up an old photo and comparing it to the subject decades after it was taken.

The biggest hurdle for the *Black Mesa* team was the greatest weakness of *Half-Life*: the game's "Xen" chapters. Without going too deep into its story, most of *Half-Life* is set in a giant science

research facility, where the player-character, Gordon Freeman, works as a theoretical physicist. Freeman and his colleagues accidentally open a portal to an alien realm, causing an inter-dimensional war to break out at the facility. Most of the game is spent traveling from one side of the facility to the other, fighting both human soldiers trying to cover up the accident and alien creatures. When Freeman catches up with what few surviving scientists are left, they send him to Xen to stop the mastermind controlling the alien race, like killing the queen of a bee colony. While the Xen chapters are some of *Half-Life's* most ambitious from an abstract perspective, they do not have the polish of the game's earlier moments and are generally viewed by fans of the game as its Achilles heel. These level's poor quality relative to the rest of the game is not necessarily the result of incompetence: design documents show Valve had many ideas written up for Xen but did not have time to enact them during their grueling and fast-paced development schedule. The *Black Mesa* team, meanwhile, had no hard deadline to release their remake, so they took seven years to figure out how to do Xen right.

Black Mesa's Xen has the same basic structure as *Half-Life's*, both have four chapters leading up to a climactic boss, but its Xen is considerably longer and more fully developed. For comparison, "Chapter 15: Xen" in *Half-Life* takes only a few minutes to complete, as Freeman performs some platforming challenges then jumps to the next chapter. *Black Mesa's* Chapter 15 begins with similar platforming but adds in an entire subplot where Freeman explores the remains of a scientific outpost. Each chapter in the new Xen has fresh puzzles and combat encounters with no corollary to the original game. Across the board, *Black Mesa's* Xen chapters completely reinvent *Half-Life's,* to the

point that, when pitched against each other, the two look like separate games. However, they don't

*feel* like two separate games because Crowbar Collective built Xen from Valve's original design

documents and with their design philosophies underpinning their artistic process.

The urge to reinvent the past, not simply recontextualize or update it for the present, may be

a thematic center to all remakes, but it's particularly surprising for *Black Mesa*. One would think

devoted fans would be more interested in preserving the past: they already love the game as it is and

have little financial incentive to put in the difficult work of modernizing its design, but crucially, as

*Black Mesa's* designers note in interviews, they aged with their own creation. When they started *Black*

*Mesa*, many of them were fresh out of college, hoping to use the experience as a springboard into the

industry. By the time they finished the game, they were veterans, having shipped a critically

acclaimed game in one of gaming's most storied franchises. The difference between the *Half-Life*

remake they envisioned in 2005 and the one they released in 2020 represents both their and *Half-*

*Life's* age. Perhaps seven years after its 1998 release, *Half-Life* only needed some graphical

improvements to be modernized, but two decades of distance required a more serious overhaul of

every aspect of the game.

Still, *Black Mesa* is a faithful reinterpretation of *Half-Life*: its designers oriented themselves

around the question "What would Valve do?" Thus, *Black Mesa* is an immediate remediation of its

predecessor. Despite copious changes to its source material, it does not try to be anything more than

the original *Half-Life*. At the end of the day, it's a first-person shooter with a focus on puzzles which

adheres to the same philosophical ideas that grounded its precursor. While a strict adherence to the

core qualities that made the original so beloved may seem like an obvious pursuit for a remake, the other two remakes we will cover in this section attempt more than *Black Mesa*'s sincere imitation.

In a strange twist of fate, a few weeks after *Black Mesa's* long awaited retail launch, Valve released the first original *Half-Life* game since 2007, *Half-Life: Alyx* (*Alyx*). *Alyx* represents another potential step into the future of game design, as it's Valve's first virtual reality (VR) game. Soon after *Alyx's* release, Valve made modding tools available to the public, and enterprising fans began porting the other *Half-Life* games into VR, including the original *Half-Life*. Perhaps in two decades they'll remake *Black Mesa*, not porting the past into the future, but implanting the future's idea of game design into the past to revive the immortal jellyfish yet again.

Resident Evil 2

*Half-Life* may be one of gaming's most influential series, but *Resident Evil* is one of its most culturally widespread. The horror franchise, whose first entry landed on shelves in 1996, was one of the first to successfully make the leap to other media, spawning a successful series of films, television series, novels, comics, and stage productions. While the original *Resident Evil* established the brand, *Resident Evil 2* (*RE2*) cemented it as a cultural mainstay in the decades after. Like many sequels, *RE2* is bigger and more expansive than its predecessor. *Resident Evil* takes place in a haunted house, whereas *RE2* is a sprawling adventure across a metropolitan area in the midst of a zombie outbreak.

While *Resident Evil* games have always mixed action and horror, *RE2* leans away from scares in favor of violence, significantly increasing the number of weapons and enemies to kill.

For all its success, *RE2's* ambitions were clearly held back by the technology at the time. The game incorporates then high-quality pre-rendered cutscenes to tell its story, but awkwardly cuts back and forth between them and the less graphically impressive gameplay. Like *Resident Evil*, *RE2* uses fixed camera angles to capture the action, giving it a cinematic flair, but those angles make it difficult for the player to control their avatar and perceive the events of the game. In *Resident Evil*, these design decisions feel like natural extensions of the haunted house aesthetic: the game slows the player down with unintuitive controls and by concealing information from them with fixed cameras, which heightens the feeling of suspense across the game's run-time. While *RE2* is still a revered game, these same design decisions feel out of place: they don't seem built to serve the game's thematic, ludic, or aesthetic direction.

These unfulfilled aspirations were finally addressed in *RE2's* remake *Resident Evil 2 (2019)*. While *Resident Evil 2 (2019)* lifts *RE2*'s characters, narrative, pacing, and environments, it's not interested in giving players an analogous experience, but a heightened one. This disposition is most clearly communicated through its graphics. Unlike *Black Mesa*, which presents a dramatic face-lift on *Half-Life's* appearance but retains its core look, *Resident Evil 2 (2019)* rebuilds its predecessor's entire look from scratch. Where *RE2* features blocky PSX era characters with flat expressions and simple animations moving through static environments, *Resident Evil 2 (2019)* has a photo-realistic appearance, each character's animations were motion captured, and its levels are dramatically lit and

active. Side-by-side they strike completely different aesthetic tones. For comparison's sake, *RE2* required two discs to reach a size of 757MB, while *Resident Evil 2 (2019)* is nearly 50GB big; most of that space used to store the game's art assets. Significant graphical improvements may be the norm for video game remakes, but *Resident Evil 2 (2019)* does not look like *RE2*. It adopts a different art style to further emphasize the age of its predecessor and present a remediated version of what *RE2* always *could* have been.

The most significant gameplay change between the two *Resident Evil 2s* is how they present the game world to the player. As previously noted, *RE2's* fixed-camera angles felt at odds with its ambitions even in 1998, so when modernizing the title, Capcom nixed them in favor of a "behind the shoulder" camera which hugs the player-character at all times. The *Resident Evil* franchise itself popularized this kind of camera in 2005 with the release of *Resident Evil 4 (RE4)*.[83] Like *RE2*, *RE4* was another step away from horror toward the action genre, and the different camera set-up was emblematic of the change. Prior *Resident Evil* games generate tension through the unknown, they suggest that what the player doesn't know is scarier than what they can see. By giving the player greater control over what they see, it's more difficult to set up cinematic moments, particularly the dutch angles the series used liberally in its early outings.

Shoulder camera games need to find different ways to generate suspense from fixed camera ones. They tend to do so by emphasizing gunplay and combat more. With fixed camera angles,

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[83] And emphasize the current state of remakes, Capcom released a VR remake and a full remake of *RE4* since I started work on this dissertation.

shooting a gun is an imprecise guessing game, but with the camera behind the shoulder it's trivial to aim and shoot your weapon accurately. In previous *Resident Evil* games, a single zombie, difficult to see when moving between different fixed cameras and difficult to shoot given the game's "tank" controls, was a potent obstacle. With the introduction of a new camera angle, hordes of zombies are required to challenge the player in the same way. It's difficult to stress just how different the two *Resident Evil 2* games feel to play. Fixed camera games deliberately enfeeble the player by making them less capable while shoulder camera games play into the power fantasy of being an action hero. For different games in the same franchise, these design choices represent a series evolving and trying new things. For two games with the same name, they represent aging: *Resident Evil 2 (2019)* dates *RE2* and attempts to supplant the original not by doing what it did better, but by doing what it aspired to do but couldn't.

*RE2's* primary antagonist is the enigmatic Mr.X. Mr. X is a "Tyrant" or an organic weapon who stalks the player-character. In the original game, Mr. X shows up for a few scripted moments to terrorize the player. While they can take him out with enough bullets, most players try to avoid him as they solve puzzles and advance through the game. He is usually fixed to a particular room or location, meaning the player can simply leave that room if they want to get away from him. The final action the player takes to complete the game is fire a rocket at Mr. X, killing their nemesis. In the 2019 remake, Mr. X is a far more imposing fixture in the game, as he follows the player from room to room and rarely yields. Made unkillable, his physical size is emphasized by the shift of the shoulder camera, which places the much smaller player-character in clear visual contrast. Yet Mr. X's evolution

here has another *Resident Evil* predecessor: Jack Baker from *Resident Evil 7 (RE7)*. Jack is similarly

unkillable, and stalks his game's protagonist from room to room, and serves as its final boss, once

again killed with a rocket launcher (a reoccurring theme in the franchise). Jack Baker's ludic design

was one of the most well-received aspects of *RE7*, and as *Resident Evil 2 (2019)* was the next game the

team worked on, so it seems reasonable to assume they translated what worked in *RE7* to the remake.

This decision once again emphasizes that Capcom weren't simply trying to emulate *RE2* as it was but

reimagine it as a different game developed at a different time. *Resident Evil 2 (2019)* feels as much an

extension of *RE4* and *RE7* as it does *RE2* and reflects the age of not just the game it shares a name

with, but the entire franchise that came before it.

Perhaps the strangest way *Resident Evil 2 (2019)* shows *RE2's* age is in how it fails to represent

the late 1990s. The plot of *RE2* is set in September 1998, nine months after the release of the game,

essentially the contemporary world for its developers, and thus it effortlessly evokes a 90s aesthetic.

Despite basing itself on a contemporaneous source, *Resident Evil 2 (2019)* struggles to consistently

maintain the illusion of its time period. The characters (particularly the women) wear clothes and

hairstyles fashionable in the 2010s, the cars mostly look like they're from the 1980s (and occasionally

the 2010s), and the technology mostly takes after mid-2000s devices. Despite ostensibly taking place

in 1998, the game fails to evoke any specific time period in its aesthetic. Alone, these criticisms of the

game are little more than hairsplitting, but in context, they suggest an incommunicable gap between

the original and remake which confirms the aged state of the former.

*Resident Evil 2 (2019)* is an extreme recreation of its predecessor. Through its attention to graphical fidelity, which goes far beyond remediating the past for a new audience, it reinvents the look of the game in line with modern expectations. Its gameplay takes a similar route, not adapting *RE2's* design tenets for a new era, but discarding them to, once again, match contemporary expectations. Despite all its changes, it does follow the original's story and characters closely. As a result, *Resident Evil 2 (2019)* enacts contingency in an odd way, when it considers "what could have been otherwise" it does not imagine a better looking *RE2* or one with modernized controls, but *RE2* as it would have looked in 2019 if the original never existed. This isn't to say the game doesn't take the occasional cue from *RE2*, but unlike *Black Mesa's* team, who tried to remake *Half-Life* the way Valve might have done it, Capcom remade their own game with little reverence for the original text. They chose to capture *RE2's* aspirational self, as a game limited by the technology of its time, rather than its actual self, the beloved game which popularized their best-selling franchise. *Resident Evil 2 (2019)* stands apart from *RE2*. It barely qualifies as even being in the same genre as the original, but through its many differences, it accomplishes a more nuanced translation of its source material and manages to remediate the past without making it wholly obsolete.

Final Fantasy VII Remake

It's difficult to overstate *Final Fantasy VII's* popularity and importance. Not only is it the first 3D member of one of gaming's longest running and best-selling franchises, *Final Fantasy*, it's also the most critically acclaimed and best-selling game in that franchise. Unlike most popular video games

with many sequels like *Mario* or *Zelda*, *Final Fantasy* is an anthology series rather than a succession of

games featuring the same character. Released on January 31, 1997 in Japan for the Sony Playstation,

*Final Fantasy VII's* cultural impact was cemented in the fall of that year when it became the first game

in the series to find mass appeal outside of its home country. This popularity led to a major motion

picture release,[84] two feature-length film adaptations, three adjacent games, and a variety of other

media crossovers. Its significance isn't just relegated to the domain of popular media: many academic

articles and book chapters have discussed its depictions environmental devastation, grief, and gender.

Like the other two remakes we've covered, *Final Fantasy VII* was released at the dawn of 3D graphics

and its visual aesthetic and gameplay were already dated by the turn of the century. As the crown

jewel of Square Enix's most significant IP, the most popular *Final Fantasy* game, and a massively

important cultural touchstone, for many the idea of a remake seemed less a question of "if" and more

a question of "when."

While *Black Mesa* and *Resident Evil 2 (2019)* are fascinating remakes, neither reckons with

their originals with a paradoxical sense of obsession and irreverence like *Final Fantasy VII Remake*

(*FFVII Remake*). If *Black Mesa* is essentially a modern retelling of *Half-Life*, and *Resident Evil 2 (2019)*

is *RE2* presented through the lens of another time and game genre, *FFVII Remake* is a self-conscious

and referential metacommentary on the game it happens to share a name with and the culture

around that game. *FFVII Remake* isn't even *all* of *Final Fantasy VII*: it remediates only the first third of

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[84] Which, while not based on *Final Fantasy VII*, probably would not exist without *Final Fantasy VII's* popularity.

the game.[85] *Black Mesa* also launched in 2012 as an incomplete game, only covering the first 2/3rds of its predecessor, but make no mistake, *FFVII Remake* is not incomplete: it somehow manages to be just as long and expansive as the entirety of *Final Fantasy VII*. Both are 30-40 hour games, so if *FFVII Remake* covers only the first 10 hours of *Final Fantasy VII*, it must expand on its content in a variety of ways and give the player an abundance of new material.

*Final Fantasy VII* is too dense to fully explain here, but a quick synopsis will give much needed context for our discussion of its remake. *Final Fantasy VII's* first act takes place in the mega-city Midgar. The player controls Cloud, a mercenary. He is hired by Barret, leader of an eco-terrorist organization named AVALANCHE, to sabotage Shinra, a megacorporation draining the planet of a vague, but essential, life force to produce energy.[86] Over time, and with the help of his childhood friend Tifa, he goes from reluctant participant to active member of the group. He meets a young woman named Aerith, who is both a romantic interest and a key story figure because she belongs to an ancient, near extinct, race attuned to nature. After Shinra finds AVALANCHE's headquarters and destroys the part of the city it's in, the group flee Midgar in pursuit of the enigmatic character Sephiroth while avoiding Shinra's soldiers. Sephiroth summons a meteor to destroy the planet and make himself a god. In a pivotal moment partway through the game, Sephiroth kills Aerith in front of Cloud. Eventually, the members of AVALANCHE defeat Sephiroth and stop the meteor. A flash forward 500 years reveals Midgar overrun by nature, indicating the planet healed from its wounds.

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[85] With two forthcoming sequels, turning *Final Fantasy VII Remake* into a trilogy.
[86] A thinly-veiled corollary to real world oil companies.

*FFVII Remake* covers the Midgar section of *Final Fantasy VII*. Nearly every aspect of the city is enhanced and expanded, so directly comparing the two Midgars would be a pointless exercise. While *Black Mesa* and *Resident Evil 2 (2019)* are not 1:1 recreations of their predecessors, for the most part they follow their scripts closely and don't tack on much additional content.[87] Comparing *FFVII Remake* and *Final Fantasy VII*, meanwhile, is like comparing a postcard of New York to walking down its streets. *FFVII Remake's* Midgar is a dense jungle of possibility which uses the original game as inspiration rather than blueprint. The remake adheres to a spirit of total excess, where every detail of Midgar is examined and nothing is left to the imagination.

The character who best represents *FFVII Remake's* aesthetic of excess is Jessie Rasberry. In *Final Fantasy VII*, Jessie is a minor character at best. She is a demolition expert and member of AVALANCHE who dies on the group's second mission. Her presence is barely felt, as she has less than 50 lines of dialogue in a script of 130,000 words. While her demise foreshadows Aerith's, Jessie is not a particularly memorable character in the grand scheme of the game. In *FFVII Remake*, Jessie is a major character with significant screen-time: a compilation of her scenes runs over an hour in length, each of her lines is voice acted, she has musical motifs which accompany her, and she is present for nearly every narrative beat until her death halfway through the game. Jessie is also given considerably more depth: she acts as a third love-interest for Cloud while her backstory and motivations for becoming a member of AVALANCHE, barely mentioned in the original, are thoroughly explained. When she dies, it feels less like the natural cost of doing eco-terrorism as it

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[87] Even if they do transform aspects of their original to match modern design principles.

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does in original, but a genuine loss for both Cloud and the player. After *FFVII Remake's* release, Jessie became a fan favorite character for her upbeat and flirtatious energy, surprising even the game's director, Tetsuya Nomura, who said he "never imagined she would be this popular." Unlike anything in *Resident Evil 2 (2019)'s* high fidelity and inflated world, which fills out what was already there, Jessie is not emblematic of something just under *Final Fantasy VII's* surface. While a character by the name "Jessie" appears in both games and has the same look, job, and narrative beginning and end, *FFVII Remake* practically invents her whole cloth. As a result, the remake's Jessie is not a fleshed-out version of a previous character, because that character did not meaningfully exist. She is a representation of the *idea* of that character if one were to imagine who she might have been beyond the text of *Final Fantasy VII*.

*FFVII Remake* "Jessie-ifies" practically every aspect of its predecessor. Characters with a single line are given more development and personality. Thirty-minute missions turn into three-hour adventures. Often, the game takes the license to dramatically change the meaning of *Final Fantasy VII's* various episodes. For instance, one of *Final Fantasy VII's* more infamous moments is Cloud's cross-dressing scene. In both games, Tifa infiltrates the local mafia's gang as a potential wife to the boss, Don Corneo, in hopes to gain information. Unfortunately, she is kidnapped in the process. As Corneo is a perverted misogynist who objectifies women, Aerith suggests Cloud cross-dresses as a woman and they present themselves as potential brides to get close to him and save Tifa. The plan works, they save their friend, and gain crucial information. While the narrative beats are practically identical, the tone of these two scenes differs dramatically between versions of the game.

In the original *Final Fantasy VII*, this short interlude is played for comedic effect, clearly meant to draw laughs at the idea of the hyper-masculine super-soldier Cloud dressing as a woman.[88] As a result, the scene treats drag, and by extension, queer identities and behaviors, as the butt of a crude joke, marginalizing and othering them. *FFVII Remake* attempts to rectify and reinvent the moment to be more queer-accepting while retaining Cloud's macho exterior. In the original, Aerith and Cloud go to a dress-maker's shop to pick up dresses, but in the remake Cloud and Aerith go to Andrea Rhodea (who does not exist in *Final Fantasy VII*) for help, as his approval allows them access to Don Cornea. Andrea is the queer-coded owner of a night club and it's his idea to cross-dress Cloud. The men publicly dance with each other, with Andrea taking the lead until he sits Cloud down and his employees give him a makeover. During the entire sequence, Aerith watches with delight, sincerely cheering and encouraging both Cloud's dancing and his drag transformation. Once Cloud's makeover is complete, the pair dance once more and Andrea says to him, "True beauty is an expression of the heart. A thing without shame, to which notions of gender don't apply. Don't ever be afraid Cloud." Andrea's speech flips cross-dressing from shameful moment of disempowerment to powerful liberation from society's expectation, fundamentally rewriting the meaning of the act in the original game. While *FFVII Remake* isn't a flawless reinterpretation of the problematic aspects of its predecessor, it is clearly aware of itself and its past and plays off the prior game's moments to establish and expand on fresh themes.

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[88] Though Cloud does have an androgynous look common for anime protagonists, he acts in a sterotypically masculine manner throughout the game.

To be clear, Jessie nor the cross-dressing scene are notable exceptions for *FFVII Remake*, they are emblematic of its overall goals as a massive reimagining of the original *Final Fantasy VII*. *FFVII Remake* applies this attitude to every aspect of its design, particularly in terms of aesthetics and gameplay. The original game is a turn-based RPG with an "active time battle" system like *Chrono Trigger*, but *FFVII Remake* is more of an action-rpg. While the player does select options in a menu to direct characters in combat like the original, they also control those characters in real time, blocking and making attacks like in other action games. *FFVII Remake* emphasizes a tactical idea of combat: characters move around, and the player can switch between characters as the live-action segments play out. In the original game, combatants sit still while fighting each other, waiting for their "time" meter to fill up before being prompted to take action, but the remake never has a dull moment in combat. While *FFVII Remake* borrows a great deal of the gamefeel, enemies, and combat scenarios from the original, each is repurposed for a different genre of gameplay, which attempts to find a kind of middle road where the game still feels indebted to *Final Fantasy VII's* game mechanics while adjusted for modern design sensibilities. Unlike *Black Mesa*, which Dario Casali, one of the *Half-Life's* original designers, said he revisits instead of the original when he wants to play it (Noclip), it's impossible to say *FFVII Remake* supplants its predecessor in matters of gameplay because the two are not comparable: they are fundamentally different games, where the later edition only takes inspiration from the former in how it feels to play.

Like *Resident Evil 2 (2019)*, *FFVII Remake* revamps its predecessor's visual appearance, aiming for a hyper-realistic look in line with other modern AAA games. In the 1990s, *Final Fantasy VII* was

lauded in its time for its graphical fidelity, particularly the game's many pre-rendered full-motion video cutscenes. For most of the play experience, the game's characters are small chibi-people, comparable in appearance to a LEGO figurine. However, in its cutscenes those same characters are rendered with some of the best digital graphics a game could muster in 1997. The contrast in quality between the two visual styles can be jarring. *Final Fantasy VII* stratifies narrative and gameplay, requiring both a leap of imagination to be believed, and, whether intentionally or not, privileging the former over the other with its aesthetic choices. *FFVII Remake* has no need to jump between pre-rendered and gameplay cutscenes, its game engine renders photorealistic graphics in real time. Thus, it collapses narrative and gameplay into a single experience, dramatically altering the emotional resonance and tone of the game's most critical moments.

For instance, let's consider *Final Fantasy VII's* most iconic moment: Aerith's death. Prior to this scene, the group failed to stop Sephiroth from obtaining a critical item and Aerith left the group to be alone in an ancient city. Cloud finds her praying at an altar. Because finding her requires the player's input, the scene begins with the aforementioned "chibi" graphics. When Cloud approaches Aerith, the screen tints red for a second, indicating Sephiroth attempting to control Cloud's mind.[89] Cloud's chibi body then moves to strike Aerith, out of the control of Cloud or the player. Cloud resists, and succeeds, pulling back in disgust. He asks "what are you making me do?" Only after this question does the game cut to a higher fidelity pre-rendered cutscene, where Cloud and Aerith share a look of understanding, believing they overcame a significant obstacle, before Sephiroth descends

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[89] A subplot, which while critical to understanding Cloud's characterization, is not necessary for our reading of the game.

from above and stabs his sword through her. When he pulls out the blade, Aerith slumps over dead.

Her musical theme plays and the camera cuts to a close of a bead from her hair tie which tumbles off

the altar into the water below. The game abruptly cuts back to the chibi graphics, with Sephiroth

rendered just as clunkily as Cloud. They have a brief exchange, Sephiroth summons a monster for the

group to fight, and upon its conclusion, Cloud releases Aerith's body into the water.

By rendering Aerith's death in higher definition, *Final Fantasy VII* does not just emphasize its

importance, but it uses it to thematically convey additional themes and meaning. By placing the first

part of the scene, where Cloud is in control of Sephiroth, in the chibi-style, the player feels the same

helplessness as Cloud: they should be able to stop the character from performing this action given the

graphical state of the game but cannot. When the game cuts to higher definition graphics, it's a signal

to the player to pay closer attention, as something important is about to happen. By placing Aerith's

death in a cutscene, the game emphasizes its permanence: chibi-Cloud, Aerith, and Tifa "die" (or

rather, are "knocked out") in the game's combat sections often. In a sense, what happens in cutscenes

is "more real" than what happens in the gameplay. Once Aerith is killed, the close-up of her hair bead

represents the game's theme of letting nature reclaim the earth, which wouldn't be possible with the

lower fidelity graphics. Once the scene cuts back to the chibi-style, the player knows any other

dramatic possibility for the scene is over: they'll regain control soon, and the narrative will progress

at its usual pace.

I emphasize this scene, which is one of many such instances of such visual style switches,

because it underscores just how essential the two dramatically different graphical styles are to *Final*

*Fantasy VII's* sense of storytelling. For comparison's sake, Jessie, who similarly dies in *Final Fantasy VII*, is given no prerendered sendoff, she simply speaks a few dying words to chibi-Cloud, and then the player continues with their mission. Simply put, *Final Fantasy VII* does not mark Jessie's death as important. Aerith's death, meanwhile, is a seminal moment in gaming history not only because it was one of the first instances where a playable character in a popular series was killed mid-narrative or because she had a well-received and developed personality, but because the game tells us it matters through the language of a high definition cutscene. Her death would likely have never been so powerfully received if it was entirely conveyed through the game's chibi-style. In *Games and Bereavement*, Sabine Harrer spends an entire chapter detailing the emotional response to this moment from fans, including some modding the game so they could keep playing with her. Their grief, and subsequent actions, speak to how powerfully felt Aerith's death was for fans of the game, as it remains one of the most consequential and memorable moment in popular games culture over 20 years after its release.

*FFVII Remake* collapses the original game's two modes of graphical expression, and can't make the same, or even similar, aesthetic decisions. It may look more impressive as a whole, but it cannot quite tell the same story or reach for the same impactful moments as its predecessor, because it's told through a different medium of narrative expression. For their part, *FFVII Remake's* creators seemed to understand this truth as they set out to develop the game. Across its runtime a new metaphysical group of cloaked grey spirits called "The Whispers" haunt the game's characters. The Whispers are shapeless embodiments of fate, they do not speak and, for the most part, the game's

characters cannot interact with them. They are only visible to those who meet Aerith and appear when the remake's plot deviates from the original game. Essentially, they act as conservative agents, keeping the characters on the leash as instituted by the original game. They ensure Jessie dies at the appropriate time, they revive Barret (who is alive at the end of the original game) when Sephiroth stabs him, and they carry Cloud away from a crucial location before he prematurely learns the truth of his past (which is revealed near the end of the original game). At the end of *FFVII Remake*, Cloud and the members of AVALANCHE fight The Whispers. During the fight, snippets of later cutscenes wiggle their way into the present, including Aerith's yet-to-be death. The group defeats the Whispers and Sephiroth confirms to Cloud that they're free to forge their own destinies. Almost immediately, the timeline starts to shift, as a variety of characters who die in the original game are saved from Shinra's attack. The group once again leave Midgar to pursue Sephiroth, though, as the game makes clear: with The Whispers gone, the future isn't certain. This ending suggests *FFVII Remake*, despite its name, is not a remake, but some mixture of meta-commentary, revival, and sequel.

Exactly what The Whispers are meant to represent is left open to interpretation. One could see them as a metaphor for fans of the series who want to find nostalgia in *FFVII Remake*, use it as an opportunity to revisit the original game how they remember it. The more changes made to the game, the further such players might be pulled out of their feelings of nostalgia and familiarity with the original game. The Whispers can also be seen as an extension of native elements present in *Final Fantasy VII*, a game in which the "lifestream," or the energy of the planet, contains the spirits of the dead. The Whispers could be a manifestation of those spirits attempting to preserve the planet's fate.

That said, I am not particularly interested in reading The Whispers as a literal entity in *FFVII Remake's* plot. Instead, I find they fulfill a thematic function as the spirit of remakes in general. Like a remake, The Whispers have paradoxical motivations: on the one hand, they strive to preserve the past, on the other, they keep changing it. When they intervene in *FFVII Remake*'s events, they remove any sense of contingency from the game's narrative, but that same contingency is part of the beauty of *Final Fantasy VII*, which is fondly remembered because it surprised players with its then-new 3D graphics, shocking plot twists, and memorable characters. To remove contingency from *Final Fantasy VII* is to fundamentally undo what makes it *Final Fantasy VII* in the first place.

The Whispers must be defeated to return that narrative possibility to the game. Joseph Packer and Ethan Stoneman argue the stripping of control is essential to reading *Final Fantasy VII*, explaining the game presents "the player with notions of agency only to swap it for the inevitable. Players fail to save Aerith and fail again, each time bringing into relief their powerlessness against a death that is theirs and from which there can be no escape" (136). *FFVII Remake* attempts to return this lost agency to the player. Somehow, despite revisiting and retelling one of gaming's most well-known stories, no one knows how the *FFVII Remake* trilogy will end. No one knows if Aerith will live or die. No one knows if Sephiroth will carry out the same plans as before. No one knows how Cloud and company will save the planet, or even if they still can with fate back in their hands. Whatever happens from this point onward will be a surprise: just like playing *Final Fantasy VII* for the first time. If it wasn't made by the same company that made the original game, with much of the same staff too, it may be almost more appropriate to call anything that happens from this point on

"fan fiction" rather than "recreation." *FFVII Remake* restores "that which could have been otherwise" to the game, and in the process, goes beyond simply reliving its predecessor, but genuinely expanding it, which puts into context and affirms every new decision, from the art to narrative to gameplay, which does not emulate *Final Fantasy VII*, but uses it as inspiration to do something new.

Due to this magic trick, *FFVII Remake* is more than just a remediation of a previous game. Unfortunately, a term like "sequel" doesn't quite fit either because we cannot read *FFVII Remake* apart from *Final Fantasy VII*, it's a game in constant conversation with the past. The presence of The Whispers purposefully invites the player to compare and contrast the two games and find meaning within change. While the game draws attention to itself in the same way we would expect hypermediated texts to, *FFVII Remake* is not fragmented version of the original, but an expanded metacommentary on it. Like the player plays with the game's systems and narrative through their in-game decisions, *FFVII Remake's* designers play with what it means for a game to even *be* "*Final Fantasy VII*" and suggest the act of recreation is fundamentally rooted in play and contingency. To remake a game, and then play it, is to age the original the game, because to play with an object (i.e. a game) is to change that object and imagine new possibilities for it, and what is aging if not greeting potential futures, living through them, letting them change you, and looking back on a now expended past?

A year after *FFVII Remake* was released, it received a significant update. This revision improved various aspects of the game's performance, allowed for more gameplay options, and added some additional narrative moments. The update was substantial enough for Square Enix to rename

the game, this time to the unwieldy *Final Fantasy VII Remake Intergrade*. This title reaffirms the transitory status of *Final Fantasy VII*, a game which once appeared finished, or "dead," but brought back to life through renewed contingency. The word "intergrade" is an excellent way to characterize how the games we discussed this chapter age. Intergrade, the verb, refers to the process of change, how a being passes into another form, which is exactly what aging is. Intergrade, the noun, refers to a being or object in some intermediate stage. Importantly, anything in an "intermediate" stage has a past and future, so like each game which ages, we can tell, looking back, at those moments where contingency mattered, and we can look toward the future and see possibility and potential. Video games, not through prebaked stories told within their code, but in the *histories of their play*, teach us what it means to age: it is not to fall further toward an inevitable death, but to acknowledge our intergrade status, to play with it, and, in the process, renew ourselves.

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# Conclusion

Too often we talk about games as an aspirational medium, one which hasn't yet reached its potential. Yet as far back as *Pac-Man*, the archetypical example of the age of video games as a medium,[90] games had valuable and interesting things to say on the nature of time, even if they seldom agreed on what it means. Over the course of this dissertation, while pointed in my interpretations of the many games we've discussed, I avoided putting forth any comprehensive theory or method for analyzing games and time. Instead, I wanted to understand what the games we already have say about time and weave a complicated tapestry, remarking on potent threads and themes. While this approach has its upsides—it allows some of my chapters to transparently conflict with one another and it gives me an opportunity to closely read a variety of games without always connecting them—it leaves any potential conclusion high and dry. This project's six chapters, as I noted in the introduction, are archipelagos, and taken together, we've traveled to many disparate islands, interrogated how each constructs its own "magic circle" not just with its own unique the rules of reality, but with its own representation of time.

The six chapters within this project are by no means an exhaustive look at games and time. Many unvisited archipelagos and islands, await further analysis and deconstruction. Within the

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[90] See *Action Button Reviews Pac-Man* 3:06-9:30 for a comprehensive list of times *Pac-Man* has been used as a shorthand to denote the age of the medium of video games ("video games have come a long way since *Pac-Man*"). Noah Wardrip-Fruin makes a similar observation that *Pac-Man* is a quintessential video game in *How Pac-Man Eats*.

games industry, we could examine how the concept of "crunch" affects how we should understand time, games, and game development, or we could develop different ways of understanding the history of game development and how it communicates notions of temporality. While we covered many different genres of games in this project, we did not examine many genres which bake unique senses of time into their ludic construction. So called "idle," or "incremental," games like *Cookie Clicker* force the player to grind out resources through repetitive tasks at first, and then passively generate those same resources with spent currency, representing an economic structuring of time around compounding interest. Computer role playing games, based off popular tabletop games like *Dungeons and Dragons*, tend to have a mix of turn-based and real-time gameplay, which present time not as malleable like in time machine games, but as experienced different depending on circumstances. Meanwhile, games like *Undertale* are meant to be played through more than once to receive different endings, but we did not examine many games in which player decisions result in alternate futures. Furthermore, I did not interrogate the ways players may manipulate time outside the bounds of regular gameplay use like speedrunning, save scumming,[91] or reaching kill screens.[92] While this dissertation covers a variety of interesting ways games communicate notions of temporality to players, just as human beings have an endless number of ways of experiencing time, so too do we have an endless amount of ways to represent time in our art. I hope to see further theorists pick up the mantle of games and time and analyze what meaningful senses of temporality are developed in the games they find intriguing.

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[91] Where a player continually reloads a previous save point to attempt an implausibly difficult task over and over until they succeed.
[92] A kill screen is the unintended final level of arcade games, where the game ceases to work, usually due to overflow errors.

More importantly than games and time, I'd like to suggest game studies should more seriously examine the phenomenological experience of playing games. While I am by no means the first theorist to profoundly connect phenomenology and games,[93] it seems we too often discuss games in the abstract. Discussion of game design often treats design as innate, and when done well, unerring, as though it exists beyond its designers or players. The "magic circle" metaphor tends to be used to distinguish the "real" world from the "virtual" one, but phenomenologically speaking, any experience in a digital world is just as real as one in the "real" world (see Juul's *Half-Real*). Meanwhile, while theorists like Marx, Foucault, or Deleuze offer valuable frameworks for understanding the construction, proliferation, and meaning of media, when we graft their theories onto games without considering what it feels like to play them, our exercises can feel hollow, only faintly connected to games and their meaning. Of course, these examples are not meant as a wholesale dismissal of certain ways of reading games, or the field of game studies as a whole, but rather I believe our understanding of games can be thoroughly and meaningfully enriched if we choose to consider games as an experience as well. What might it mean to read games a subjective experience within the magic circle of another's construction? What about conjoining an abstract and objective understanding of "good game design" with the personal experience of playing those games? Games are manmade, constructed by human beings seeking, whether intentionally or not, to put new meaning out into the world. Rather than exclude any literary, cinematic, social, or otherwise

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[93] David Sudnow's *Pilgrim in the Microworld* is perhaps the first instance of video games inspiring phenomenological thought. In recent years Ian Bogost (*Alien Phenomenology*), Noah Wardrip-Fruin (*How Pac-Man Eats*), Melissa Kagen (*Wandering Games*), and Raiford Guins (*Game After*) have produced works which intersect a distinct sense of being with games.

theory, I'd like to suggest that, within the phenomenology of playing games, all exist at once, and to critique and understand games is to come to them with a wide and deep enough pool of knowledge to combine our experience as temporary creatures with the meaning our art chooses to elevate and preserve. In a sense, when one human being designs a video game for another, they impart an interpretation of their own experiences to another and give them an opportunity to experience and interpret it themselves. What rich and powerful potential the medium carries!

The relationship between games and time are a potent site of meaning because they affirm both the experiential nature of games, and the experiential nature of being. Video games are not stable artifacts of code sitting on cartridges, compact discs, or hard drives. You cannot hold in your hands "all of *Pac-Man*" or "all of *Chrono Trigger*" because your experience of them does sit on a shelf. Experiences do not physically exist in the world. They are ethereal and temporary, just like us. Each time we embrace a game, allow its sense of temporality to overcome us, we inevitably embrace our own temporal existence, not because of what the game communicates, but because of *how* it communicates it. Games have always, and will always, remind us of our own meager reservoir of time. As we play them, we trade our limited time to inhabit the perspective of someone, or something, else. Our time as them is finite, and when it ends it reminds us that our experience as *us* is also in short supply. While such a suggestion may seem distressing, I hope this dissertation has shown games have a beautiful, if implausible, tendency to give us more time than we put into them.

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