A Rhizomatic Reimagining of Nintendo's Hardware and Software History

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A Thesis

in

The Department

of

Communication Studies

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montreal, Quebec, Canada

April 2017

CONCORDIA UNIVERSITY
School of Graduate Studies

This is to certify that the thesis prepared

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Entitled *A Rhizomatic Reimagining of Nintendo's Hardware and Software History*

and submitted in partial fulfillment of the requirements for the degree of

Master of Arts in Media Studies

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

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Since 1985, the American video game market and its consumers have acknowledged the significance of Nintendo on the broader development of the industry; however, the place of Nintendo in the North American history primarily focuses on the company's most successful hardware in their catalogue. This study takes a multidisciplinary approach to reconceptualise the popularized history of Nintendo and challenge the positivistic narrative that privileges the most profitable innovations. While the Nintendo Entertainment System and the Wii are influential hardware creations worthy of their dedicated literature, the generalized history of interim consoles lacks necessary critical analysis; and formal literature on the company tends to discuss failed consoles in relation to their popularized predecessors or successors. Inspired by Deleuzoguattarian theory, Nintendo's creative ideology of lateral thinking and repurposing of outdated technology is examined through a temporal synthesis of deterritorialized and reterritorialized innovative design. This theoretical framework takes consideration of the connectivity and flows of ideas in an experimental milieu, rather than focusing on their most profitable developments. Perceiving the video game industry and Nintendo, within a rhizomatic space, informs a different perspective of Nintendo's hardware and software history. Overall, this reconceptualization of Nintendo allows for an alternative understanding of the video game industry as a rhizomatic network of creative and experimental thought, which can emphasize a non-linear approach to the history of video game products.

Acknowledgements

To Dr. Mia Consalvo, I am incredibly thankful for her endless support and insight into the field of Game Studies. Her encouraging dedication to my academic development has been an unbelievable honour and privilege. I am indebted to her for all the wonderful opportunities and experiences I have been afforded. No words can express my gratitude for everything. Thank you.

To Dr. Fenwick McKelvey I am so fortunate to have been able to seek guidance on many rhizomatic conundrums. His patience and enthusiasm were truly inspiring, and his dedication to helping me develop a theoretical basis has fundamentally shaped my academic perspective. Thank you for all your assurances and time.

To Dr. Elizabeth Miller I am so very thankful for her constant enthusiasm and valuable time. Her drive and passion for learning and life has been incredibly enlightening. I will cherish the Shoreline much more now.

To my colleagues at mLab and TAG [Technoculture Arts and Games], their insight over the past two years have provided untold contributions to the development of my thoughts. Lying in bean bags yelling about rhizomes while playing video games will be a series of treasured memories.

Specifically, to Robyn Hope, you are an undeserved master of the English language. What did I do in life to deserve such a master of letters, queen of grammar, and God of the Oxford Comma.

To my mother and father, Ani Sugiarto and Lloyd Bowcott, for their endless support in my academic endeavours. My mother's kindness and thirst for knowledge has defined my perspective in life and my father's care for my future has been very gratifying.

To my siblings, Steven and Mary-Anne Bowcott, I cannot express my thanks for their constant encouragement and love.

And to all my friends in distant worlds, you are all Super Stars.

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The illustration used for chapter headings was created by Marilyn Sugiarto, featuring characters from across The Legend of Zelda franchise.

Introduction

For me, the word Nintendo brings to mind many values and concepts: games, childhood, family, and Mario, just to name a few. Many children born in the 1980-1990s across North America likely also consider the word Nintendo as almost synonymous with many of these concepts. I spent my youth hearing my mother complain about me spending all my time on the 'Nintendo', regardless of whether or not the console was actually their product; I aimed to fit in with friends that raved about their Pokémon card collection and traded Pokémon in the newest games; and I strategically purchased Nintendo products with my cousins, so we could all experience our favourite worlds together. My experiences are not unique and are quite common among my age group of 20-30 year olds in North America, as can been seen through online forums, videos, podcasts, and social media, where people continue to show enthusiasm for an aging yet powerful brand name. Our lives have been constructed around a commercial love for this company's cultural commodities. Nintendo, in turn, has defined perspectives and habits on consumption in the video game industry. For some like myself, this has created a love-like dependency on the company, which makes me both qualified to talk about their products and overly biased towards an affectionate rather than critical examination of the company; however, it is also this positionality which affords me an interesting perspective on Nintendo literature.

My research began as an examination of how fanatic nostalgia for Nintendo could be understood as a rhizomatic construct. What I discovered was a curious development in the relevant literature: a canonical history of Nintendo that neglected to highlight parts of the company that were genuinely fascinating and important. In particular, Nintendo's innovations are considered as linear progressions that privilege profits as the primary definition of successful technological developments. There is a trend within popular and academic literature to understand the methodologies, histories and applications of Nintendo's most profitable hardware using a linear timeline of product manufacturing and development, but this model does not take into consideration how thought and creation themselves are not linear processes. Rather, ideas flow through a chaotic and interconnected network that builds upon itself to form new cultural creations. Within game studies, and published literature in general, very few writers have approached the video game industry or its companies through this perspective; rather, authors' discussions of Nintendo reinforce a linear chronology that privileges the most profitable hardware as the pinnacle of the company's innovative development.

When I first approached this linear chronology, I was disappointed as a fan. While I can't deny the number of units sold, these approaches to Nintendo's history often dismiss entire periods with very little dedicated analysis to relevant software or hardware. This neglect of the failures, the supposedly unpopular, and the not quite good enough, made me curious as to how this historical narrative could be challenged and how it could be interpreted differently. To do this, my first chapter approaches literature on Nintendo from a historiographic perspective as opposed to a traditional literature review. By looking at how authors determined relevant historical narratives, gaps in the company's literary history could be isolated and questioned more thoroughly.

Questioning the Established Narrative

Popular and academic literature on Nintendo, from the early 1990s to 2016, have shown a remarkable focus on two major periods of the company's history in correlation to their most popular consoles: The Nintendo Entertainment System (NES) and the Nintendo Wii. These consoles are prominent fixtures in the Nintendo lexicon, which are consistently re-examined and analyzed from different perspectives. From medical journals to pop culture works, these consoles are highlighted for their interesting corporate practices such as their Blue Ocean marketing strategy, or potential medical applications for rehabilitating stroke patients.[1] Yet this develops a problematic narrative that privileges the most profitable consoles as ground-breaking, new and innovative. The reality of these developments is much more complex. Interim consoles, hardware released between the NES and Wii and handheld devices, lack the same volume of critical analysis despite their significant technological advancements or contributions to popular software. When these consoles are discussed, it is often in relation to the console's more profitable predecessor or successor.

Through an overview of Nintendo literature two narratives became apparent in relation to these consoles. Works such as *I AM ERROR* by Nathan Altice, *Game Over: Press Start to Continue* by David Sheff, *Playing with Power in Movies, Television, and Video Games: From Muppet Babies to Teenage Mutant Ninja Turtles* by Marsha Kinder, *Video kids: Making Sense of*

[1] Hollensen, Svend. "The Blue Ocean that Disappeared: the Case of the Nintendo Wii." *Journal of Business Strategy,* 34, no. 5 (2013): 25-35.
And Deutsch, Judith E. et al. "Nintendo Wii Sports and Wii Fit Game Analysis, Validation, and Application to Stroke Rehabilitation." *Topics in Stroke Rehabilitation.* Vol. 18, no. 6 (2011): 701-19.

Nintendo by Eugene F. Provenzo Jr., emphasized a narrative around the NES similar to a popularized super hero origin story. Nintendo, a saviour from a distant land, heroically arrives to save a desolate market and delivers fun to middle-class children everywhere. Alternately, works such as *Codename Revolution: The Nintendo Wii Platform* by Steven E. Jones and George K. Thiruvathukal, and *Playing to Wiin: Nintendo and the Video Game Industry's Greatest Comeback* by Daviel Sloan, treat the Wii as more of a comeback story about the beaten down underdog who takes America by storm—despite the odds. Both historical narratives privilege the new and profitable as innovative and glamorous, while the unsuccessful and interim are left forgotten or barely mentioned. Yet creations and innovations do not spawn from nothing; rather, they build off of other influences, thoughts and creations. Creation is a synthesis of past, present and future, in order to repurpose the old to cultivate future growth. This thesis's exploration of academic and popular histories of Nintendo highlights the issues and gaps in these retellings of linear chronologies and privileging of profits as a definition for success. By examining the established narrative, this study reveals the literary gaps and considers how the creation of popular and failed products are all interconnected.

Nintendo's Hardware Design Philosophy

There are many potential ways to consider the video game industry and Nintendo in opposition to the established narrative; however, using theory founded in mapping concepts relationally allows for far more flexibility in an imagined network of ideas and creation. The second chapter of this thesis uses Deleuze and Guattari and their critics to build a perceptual framework to visualize creations as products of interconnectivity. Deleuze and Guattari's understanding of rhizomes as a perception allows for a fluid mapping of creativity within, outside, through and around assemblages—in this context assemblages are groupings of concepts under a single context like a mechanic, a game, a company, a console, joint-ventures, or even the industry itself. I also incorporate concepts of deterritorialization and reterritorialization into this framework, to understand the creative process as breaking down the past in order to create a profitable standard. Dyer-Witheford and de Peuter, as well as Cremin, contribute to this understanding in direct relation to the game industry. In their application, deterritorialization is a creative process that fulfills a corporate interest in profits while reterritorialization encloses these

ideas in legal boundaries, which then become territory or blueprints for future ideas to build off of later.[2]

This framework becomes more complex because its understanding of time must be acknowledged as fluid together with thought. For this, Henri Bergson's concept of duration and clock time are considered as dual conceptions of time; in his work, duration can be understood as an immediate awareness of difference that perpetually creates a sense of the absolutely new.[3] On the contrary, clock time is less abstract, as it refers to the time we use in society to function—days, hours, minutes, and seconds. These concepts are integrated with Deleuze's interpretation of movement as the present. For Deleuze, "Space covered is past, movement is present, and the act of covering,"[4] where the movement or the present is also an immediate awareness of difference, constantly on the cusp of all the potential multiplicities of the future. This understanding of the present complements a rhizomatic network, which is constantly in a state of fluid movement and growth. The network of thought is a map of the past; lines of flight reaching out are the present; and the creative and experimental milieu it occupies is the future. Acknowledging Bergson and Deleuze's two complementary concepts of time contributes to an understanding of how both times can be applied to this framework; this is especially necessary when discussing ideas of difference and repetition. These two senses of time highlight the significance of sameness and difference in the production of repetition, and how they contribute to an assemblage or abstract machine. An abstract machine is itself an assemblage, a grouping under a single context; however, this grouping integrates necessary sameness into lines of flight that must pass through it. This gives these ideas a sense of continuity within the relevant context: the brand, the franchise, the series, or the characters. These concepts are developed more fully in the third chapter where Nintendo's software development process is discussed.

One benefit of using this framework is how it parallels Nintendo's own design philosophies. As an example of how this rhizomatic network can be imagined, I apply Nintendo toy designer Gunpei Yokoi's philosophy of 「枯れた技術の水平思考」or "lateral thinking for withered technology" to a Deleuzoguattarian analysis of hardware design. Essentially, this

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[2] Dyer-Witheford, Nick, and Greig De Peuter. *Games of Empire: Global Capitalism and Video Games*. Minneapolis: University of Minnesota Press, 2009. 74.
And Cremin, Colin. *Exploring Videogames with Deleuze and Guattari.* New York: Routledge, 2015. 8-9.
[3] Bergson, Henri. *Creative Evolution*. New York: Cosimo Classics, 2005. 14.
[4] Deleuze, Giles. *Cinema 1: The Movement Image.* New York: The Athlone Press, 1986. 1.

philosophy encourages the repurposing of old technology for creative solutions, which parallels the cyclical relationship of deterritorializing old ideas to create a profitable standard to deterritorialize again later. With Nintendo's transition from toys to games, this approach to design continues into Nintendo's current products in the market today. It is also this persistence and connection of thought across different creations that contribute to this practice of repurposing, which can be mapped through this rhizomatic framework.

Nintendo's Repetitive Software

The next chapter follows a more chaotic and complex mapping of software design for Nintendo hardware. This mapping requires a thorough understanding of the influences that Nintendo's initial software developer Shigeru Miyamoto may have acquired as inspiration; Jennifer deWinter's analysis on Miyamoto's design influences provides the basis for an overview of his deterritorialized ideas, influences and practices. From the Japanese cultural context to his corporate responsibilities, deWinter's discussion takes many potential sources of influence into consideration.[5] The contexts that shaped the lead designer's external and internal influence, together with the Deleuzoguattarian framework, allow for an opportunity to imagine the history of The Legend of Zelda series rhizomatically, as an assemblage within the Nintendo and video game industry's networks of creation and ideas. This framework allows for considerations of integrated software and hardware development; an interpretation of how a continuity and sameness within the series and franchise can be imagined through assemblages or abstract machines; and how rereleases, remakes, and remasters can be understood as repetitions of previous ideas. This exploration of a rhizomatic history of The Legend of Zelda considers one possible way of conceptualizing the series, while emphasizing the framework's potential multiplicity of understandings of the same assemblage. The example highlights the natural chaos and inconsistency of creation and development itself as a foundation for historical imaginings.

Conclusion

This thesis is itself an exploration of one possible alternative approach to understanding innovation and creativity in the video game industry, and Nintendo specifically. It fills a gap in Game Studies and other Nintendo literature, which does not currently take advantage of a more theoretical approach to one of the most culturally significant corporations in the video game

[5] deWinter, Jennifer. *Shigeru Miyamoto: Super Mario Bros., Donkey Kong. The Legend of Zelda.* New York: Bloomsbury Academic, 2015.

industry. With the release of the new Nintendo Switch console, the company finds itself in a mode of transition and market adaptation. At this vulnerable point in time, looking across Nintendo's history provides valuable insights into this company's legacy and its continuous production of cultural commodities—many of which have been neglected within established Nintendo literature.

The development and application of the Deleuzoguattarian-inspired framework described in Chapters 2 and 3 aims to offer a starting point from which the perception of Nintendo's corporate and creative histories may be reimagined. Because of this framework's fluid nature, its potential applications could yield theoretical possibilities querying how nostalgia is formed from the past, how competing networks interact, or the condition of creativity in a AAA market fueled by repetitive intellectual properties. Before this framework can be addressed in detail, however, Nintendo-centric literature must first be thoroughly investigated.

Chapter 1

The History of Nintendo and its Literature

The video game industry's current cultural and economic success can, in many ways, be attributed to Nintendo's entrance into the American market after the infamous video game crash of 1983-1985.[6] Academics from multiple disciplines as well as pop culture authors have written extensively on this history, which has become strongly embedded into the cultural memory of the surrounding video game culture. This chapter aims to explore these histories through popular and academic literature on the company. These works from recognized publishers, journals, university presses and popular media websites span across perspectives, disciplines, and, most significantly, time; the fascination with Nintendo in published literature ranges from the early 1990s to the present day. These works provide insight into Nintendo's history, innovation, and design throughout its time as a software and hardware developer and publisher, yet they also reveal the privileging of development and innovation as a linear progression. By taking a more historiographic and literary approach, this chapter will consider how Nintendo is critically analyzed and discussed from the Nintendo Entertainment System (NES) to the Switch, emphasizing how the literary trends neglect certain histories and privilege profit as a determining factor for innovative success.

Nintendo's Grand Entrance

When Nintendo entered the North American market with the NES in 1985, the academic community became fascinated by the company itself, the implications of having their video game console in family's homes, and the kind of narratives and behaviours it could instill in young children. Before the 1990s there was widespread concern, as Nintendo began to accrue nearly 80% of the market share, about the company becoming a benevolent dictator of children's entertainment.[7] The concern and fascination is visible in books such as David Sheff's originally titled *Game Over: How Nintendo Zapped an American Industry, Captured Your Dollars, and Enslaved Your Children.* The book itself is actually fairly pragmatic, and less fearmongering than the title may imply; but it is a reflection of pervasive beliefs shared by people within the American video game industry, the American government, academics, and parents. In the first chapter of his book Sheff writes:

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[6] Altice, Nathan. *I AM ERROR: The Nintendo Family Computer/entertainment System Platform*. MA: MIT Press, 2015. 82-85.

[7] Kinder, Marsha. "The Nintendo Entertainment System: Game Boys, Super Brothers, and Wizards." *Playing with Power in Movies, Television, and Video Games: From Muppet Babies to Teenage Mutant Ninja Turtles*. Berkeley: University of California Press, 1991. 90.

> Nintendo infiltrated every conceivable market until the question was not whether Nintendo's invasion would succeed but what the invaders would leave in their wake.
>
> What, asked parents, teachers, and sociologists, were the long-term effects of so much game playing on kids' self-images, relationships, and social skills? How did Nintendo affect learning? Did the games encourage violence? Did they empower kids or make them passive? Did the impact vary among different age groups and genders?
>
> …Besides the attempts to figure out the effect of Nintendo's invasion, there was also a great deal of intellectualizing about *why* Nintendo had become so pervasive.[8]

Sheff also writes that despite the academic discourse circuitously engaged in these questions, Mario and Nintendo were becoming ingrained in the collective consciousness, and were overwriting Disney values of hard work and harmony with individualistic kill or be kill mentalities.[9] From here, Sheff discusses Nintendo under a different framework; instead of featuring statistics and sales, and emphasizing the concerns and fervour surrounding the company, he tells a very personalized narrative of major figures and their family's histories. Hiroshi Yamauchi, Masayuki Uemura, Gunpei Yokoi, Shigeru Miyamoto, Henk Rogers, Minoru Arakawa, and Howard Lincoln are just a few iconic names that are featured in this analysis merging biographical and historical narrative experiences. His style of writing emphasizes the

Figure 1: The Nintendo Entertainment System released NA in 1983. Image from The Vanamo Online Game Museum

[8] Sheff, David. *Game Over: Press Start to Continue.* New York: Random House, 1999. 9.
[9] Ibid. 9 – 10.

motivations, ideologies, and more human aspect of the so-called 'invasion' to support his quantitative and qualitative analysis of Nintendo's corporate development. Overall, this book helped stimulate further discussion and critical discourse on corporate Nintendo because of its incomparable biographical and analytical insight. Nintendo has developed a notorious reputation for keeping their corporate information secret, and therefore little information directly from Nintendo has been published by third-parties without thorough vetting.[10] Because of Nintendo's thorough secrecy, Sheff's final release of his book as *Game Over: Press Start to Continue* in 1999 continues to be cited as a valuable source of information unparalleled by other authors since.[11]

A primary example of Sheff's influence would be Marsha Kinder's book *Playing with Power in Movies, Television and Video Games.* In her chapter "The Nintendo Entertainment System: Game Boys, Super Brothers, and Wizard," she refers to Sheff's work as the basis for her historical and corporate overview.[12] Her analysis extends to critically interpreting Nintendo's alternative marketing strategies and their influence on the development of young boys and their adoption of consumerist values. She focused primarily on how the movie *The Wizard,* as an advertisement for *Super Mario Bros. 3* (1990), encouraged young boys to accommodate consumerist values at an earlier age and promoted masculine dominance in game spaces.[13] Product placement in movies was obviously not a new phenomenon for companies in the 1980s. However, the "…centrality of the product promotion…" appeared as if it were meant to "…teach young spectators that such commercial intertextuality [was] the cultural norm," and therefore builds and normalizes a consumerist identity focused on Nintendo products from a young age.[14] She references other marketing material, including "Club Mario," which featured Nintendo's Intellectual Properties (IP) in cartoons; "The Super Mario Brothers Super Show;" and

[10] This reputation is common knowledge in the video game community, but is also described from personal experience attempting and failing to obtain information from representatives at Nintendo of Canada and Nintendo of America.
[11] Sheff's work has been cited in several other author's works on Nintendo, including literature from Marsha Kinder, Mia Consalvo, Nathan Altice, Steven E. Jones and George K. Thiruvathukal, and Daniel Sloan—all of which will be addressed later in this chapter.
[12] Kinder. *Playing with Power in Movies, Television, and Video Games.* 90.
[13] Ibid. 119.
[14] Ibid. 94.

promotions aimed directly at adults as their main demographic aged. These, too, contributed to the construction of a male gamer identity, which Nintendo became primarily focused on.[15]

As time has passed, academic and popular works on Nintendo in the 1980s and early 90s have naturally become more retrospective, and reflective of economic and cultural developments in the gaming industry as a whole since that time. The sociological and psychological literature on games' effects have become saturated with studies on children's development and behaviour. As Eugene F. Provenzo Jr. discusses in his book *Video Kids: Making Sense of Nintendo,* many of those studies remained inconclusive or were not adequate in analysing the long-term effects of video games on behaviour—and this book was only published in 1991.[16] To this day, articles are published across disciplines mirroring the same fears Sheff observes within both the general public and academic community. Twenty-five years after his book and Provenzo Jr.'s *Video Kids* were published, works such as "The Relationship between Videogame Use, Deviant Behavior, and Academic Achievement among a Nationally Representative Sample of High School Seniors in the United States," and "Can Video Games Influence Levels of Real Violence?" were published without conclusive evidence.[17] Whether the goal of these types of analyses is to prove, disprove or speculate on the effects of video games on behaviour, it is obvious that there is a popular belief behind these types of literature that has continued to persist through time.

As the industry has experienced rapid growth, the breadth of games-related literature has also grown considerably. Many newer works focus on the significance of Nintendo in the past and present, or must take the time to acknowledge Nintendo's role in developing the innovative atmosphere that allowed for further industry evolution and economic growth. For example, *I AM ERROR* by Nathan Altice from 2015 focuses entirely on the Famicom (the original Japanese console) and Nintendo's rebuilding and rebranding of that console into the NES for its North American release; the book takes into consideration hardware design, aesthetic, and software

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[15] Ibid. 109

[16] Provenzo Jr., Eugene F. Video kids: Making sense of Nintendo. Cambridge, MA, US: Harvard University Press, 1991. 70.

[17] Concepcion, Luis, Marilyn Nales-Torres, Ana Rodriguez-Zubiaurre. "The Relationship between Videogame Use, Deviant Behavior, and Academic Achievement among a Nationally Representative Sample of High School Seniors in the United States," *American Journal of Educational Research.* Vol. 4, No. 16. 1157-1163. Doi: 10.12691/education-4-16-6.
And, Gunter, Barrie. "Can Video Games Influence Levels of Real Violence?" *Does Playing Video Games Make Players More Violent.* Palgrave Macmillan. London: 2016. 147-164. Accessed January 10, 2017, http://link.springer.com/chapter/10.1057/978-1-137-57985-0_6.

translations, including everything from their fundamental processes up to their wider cultural acceptance. Altice's book was published over 30 years after the console was released, which shows how interest in this era is still quite prevalent in current video game culture and academia, and also demonstrates the NES's significance in the industry's history.

The book describes Nintendo's struggles and victories throughout the tumultuous development and maintenance of what is possibly one of the most important consoles to have ever existed, selling nearly 62 million units over its lifetime and saving a dying industry in North America from a full collapse.[18] Nintendo's success was attributed in part to their focus on propriety control and localized design—both topics which Altice heavily details throughout his chapters. In response to Atari collapsing under the weight of poor quality games flooding the market place, Nintendo took several precautions in software and hardware design to discourage illegal reproductions of software, or the development of unregulated games for their platform.[19] Analyses of their measures were done in Sheff and Kinder's work, but they attributed it to applying the 'razor marketing theory,' which focused on the development and sale of software that would only be compatible with the company's unique hardware.[20] With the benefit of being removed in time, and therefore able to look retrospectively on Nintendo's actions, Altice details at length the more complex conditions and decisions that were made pre-emptively and

Figure 2: The original Japanese Famicom released in Japan in 1983. Image from The Vanamo Online Game Museum

[18] "IR Information : Sales Data - Hardware and Software Sales Units." Nintendo Co., Ltd. Accessed March 09, 2017. https://www.nintendo.co.jp/ir/en/sales/hard_soft/.
[19] Altice. *I AM ERROR.* 167.
[20] Kinder. *Playing with Power in Movies, Television, and Video Games.* 91.

responsively to pirates.

Localized design is a significant topic which is not discussed in much of the other Famicom or NES literature. Altice describes how Nintendo took exceptional consideration into localizing the aesthetic appeal of the hardware for American audiences. It needed to distance itself from Atari and the negative connotations of cheap, poor quality children's games associated with it. His writing is exceptionally detailed and specific in its descriptions of hardware components, as expected from a work in MIT's Platform Studies series; yet despite the computational arguments, he produces a comprehensive account of how the childish aesthetic of the Famicom would have been a major setback for Nintendo in its North American release. Instead, a subdued design that hid the games from sight (despite the negative effects that had on the hardware itself) and the name Entertainment System helped differentiate the console enough from being negatively associated with previous consoles and its market competition at the time.[21]

While works from authors like Altice prove that there is still a pervasive captivation with detailing Nintendo and the industry's history, these fascinations with the early Nintendo era are often returned to out of necessity, to demonstrate how Nintendo informed the innovative climate other players in the industry had to face. In Mia Consalvo's book *Atari to Zelda: Japan's Videogames in Global Contexts*, she analyzes how the Japanese video game industry shaped the development of video games widely, taking into consideration the involvement of small groups online to major corporations.[22] To fully appreciate the interconnected complexities faced by Japanese developers and their audiences abroad, the relationships between companies in the industry during critical periods of their development are of significant importance. The 1980's to the early 90's was a period in which Nintendo solely dictated worthy cost and value, especially in terms of localizing products for the North American market. Thus they are unsurprisingly present in all corporate histories, directly or indirectly, because of their development of the Famicom and NES. [23] Even when Nintendo is not the primary focus of texts, it is ever-present in historical analyses of video games and the industry.

Nintendo during the NES era strongly influenced children and academics alike; Nintendo and Mario's influence over the collective consciousness was unmatched by even major American

[21] Altice. *I AM ERROR.* 86-89.
[22] Consalvo, Mia. *Atari to Zelda: Japan's Videogames in Global Contexts*. Cambridge: MIT Press, 2016.
[23] Ibid. 153-159.

icons like Disney and Mickey Mouse.[24] Their power over the industry during that time still remains a constant focal point in the industry's history, and it is still capturing new academic interest. Like the retellings of the origins of Batman and Superman, or the details in biographical films, origin narratives remain popular in contemporary storytelling and are not lost when recounting history. Perhaps this fascination and ingraining of the NES into cultural memory is a symptom of media obsessions with 'the beginning.' In addition, the context of the video game industry at the time privileges the NES as a victor in a desolate western market, while neglecting discussion on hardware competition in Japan. The NES was not the first console, but it was the most profitable; other consoles also entered the Japanese market around this time, such as Sega's first console, the Sega SG-1000. While Sega did find global success later with its third console, the Sega Master System in 1986, its first two attempts are often left forgotten in lieu of the Famicom and NES.[25] Therefore the NES narrative is one of a victor, which privileges the most profitable and globalized creation as the most historically innovative. One of the few historical narratives that provides insight into the early Japanese market is "Foundation of Geemu: A Brief History of Early Japanese video games", written by Martin Picard. While analytically brief, Picard sheds light on the development and popularity of 'amusement machines,' TV games (also referred to as TV geemu or terebi geemu), and micro-computers (mai-con) before discussing Nintendo and the release of the Famicom.[26] His approach to the Japanese video game market allows for a more glocal understanding of the industry's development and more critical considerations of forgotten influences from hardware and software developed prior to the Famicom/NES. As his title implies, the article is brief; however, his writing is an excellent example of a rare historical narrative which attempts to renegotiate the problematic privileging of the Famicom and NES.

Declining Success: From SNES to GameCube

While writings on the Famicom and NES are extensive and detailed, the interim period between the NES and the Wii lacks the same breadth of detailed analysis and discussion. This section considers how the current writing about interim consoles between the NES and the Wii is

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[24] Sheff. *Game Over.* 9.

[25] Benj Edwards October 22, 2015 10 Comments Slideshow. "7 Japanese Game Consoles That Never Made it to America." PCMAG. Accessed March 09, 2017. http://www.pcmag.com/slideshow/story/338766/7-japanese-game-consoles-that-never-made-it-to-america.

[26] Picard, Martin. "The Foundation of Geemu: A Brief History of Early Japanese video games." *Game Studies*, vol. 13, no. 2 (2013). http://gamestudies.org/1302/articles/picard (accessed March 11, 2017).

anecdotal, dismissive, and is often used as a conceptual landscape to emphasize the significance of the later hardware.

The Super Nintendo Entertainment System

Writing on the Super Nintendo Entertainment System (SNES) is comparatively minimal, often appearing anecdotally in works about the NES or in historical overviews in Nintendo related literature. In Sheff's work specifically, he takes note of the SNES and how observers gave gleeful projections of lower sales; however, Nintendo's SNES and Super Mario World bundles allowed Nintendo to sell exceptionally well within its first year. Sheff quotes a press release stating that the SNES was selling at a rate of twelve units every retail minute.[27] Rather than this opening up a discussion for the release of the SNES, it was mentioned to emphasize Nintendo's strong positionality in the American market as of 1991. While there is some discussion of the console's capabilities and design, it is the context of Sheff's discussion of market competition from Sega's Genesis console and later Sony's PlayStation. His focus in these sections is on how corporate Nintendo stayed relevant and interesting in an increasingly competitive marketplace through its design, published software, and marketing strategies, rather than an analysis of its innovations like the NES.

Similarly, in his book *Playing to Wiin: Nintendo and the Video Game Industry's Greatest Comeback,* Daniel Sloan only mentions the SNES to discuss the breakdown of Nintendo and Sony's initial partnership to design a proprietary CD-ROM drive for the 16-bit SNES. When an agreement on royalties could not be established, Nintendo looked to Phillips instead, and created a drive that ultimately fell short of expectations. The breakdown of their relationship led to several legal disputes and a strong determination from Sony president Norio Ohga to build their own console; their PlayStation was the starting point for one of the most profitable console franchises in the world today.[28] The other mention of the SNES is included in Sloan's discussion on industrial design, which was an "essential element of success for Nintendo's consoles dating back to the Super Nintendo Entertainment System in the early 1990's."[29] The SNES's presence

[27] Sheff. *Game Over.* 11.
[28] Sloan, Daniel. *Playing to Wiin: Nintendo and the Video Game Industry's Greatest Comeback.* Singapore: John Wiley & Sons (Asia) Pte. Ltd., 2011. 84.
[29] Ibid. 148.

in the literature is more of a comparative point, to emphasize the existence or development of another console, and not an analysis of its own merits.

This approach to historicizing the console in relation to other products is also found in Altice's work in his discussion of backward compatibility. The Super Famicom (the Japanese version of the SNES) could not properly emulate Famicom games, despite its microprocessor being almost twice as fast as its predecessor's CPU.[30] While they did develop a peripheral device to play Game Boy games on the Super Famicom called the Super Game Boy, the Super Game Boy was limited in its functionality.[31] Most modern consoles now give players the opportunity to run a vast collection of software from earlier consoles, but hardware at the time was not developed with backwards compatibility in mind; rather, manufacturers focused on the belief that consumers bought new consoles for new games.[32] While it is limited, this is one of the few larger discussions of the Super Famicom and SNES with consideration of their hardware functionality and attempted innovation within Nintendo literature.

Figure 3: The Super Nintendo Entertainment System released in NA 1991. Image from The Vanamo Online Game Museum

[30] Altice. *I AM ERROR.* 300.
[31] Ibid. 300.
[32] Ibid. 300-301.

Console Wars: Sega, Nintendo, and the Battle That Defined a Generation, by writer and filmmaker Blake J. Harris, takes an in-depth exploration of the aforementioned competition that arose during the early 1990s. While sometimes coming off as dramatized, or as a novelization of the facts, this book does highlight the popular discourse of North American youth at the time, as well as the significance this 'war' had on the video game industry and its consumer's collective memory. Nintendo had maintained a position of power for nearly a decade, and with the SNES came increasing competition from several players—both large and small. While Harris focuses on Sega specifically throughout the book, he does highlight smaller competitors that were neglected in other analyses of the period. In particular, between 1993-1994 Electronic Arts and The 3DO Company founder Trip Hawkins aimed to disrupt the hardware industry with the ambitious 32-bit system called 3DO; Atari planned to return to the industry with their unprecedented 64-bit system called Jaguar; NEC launched their 32-bit system Iron Man a few years after the unsuccessful launch of their Turbo-Grafx console in 1989; and Bandai attempted to get their foot in the proverbial door with their console Playdia (codenamed BA-X). Of course, at the same time, Sony was also working on the PlayStation, which was released later in 1995 in North America.[33] While almost all of these consoles were not considered noteworthy in other literature regarding the SNES and the console wars, their acknowledgement in this book does help to paint a slightly different historical landscape than what is given in Sheff, Sloan or Altice's works. Rather than two or three titans of the industry battling for market superiority, there were actually several smaller corporations, both new and returning, who had different stakes in their potential breakout successes. While the outcome is expressed the same in all the works discussed in this section, with Nintendo still maintaining superiority at approximately 49.10 million units sold and increasing popularity of iconic franchises such as Super Mario and The Legend of Zelda on the SNES, Harris' acknowledgement of other consoles details a much more complex competitive environment than other works.[34]

[33] Harris, Blake J. *Console wars: Sega, Nintendo, and the Battle that Defined a Generation*. New York: HarperCollins, 2014. 394-395

[34] "IR Information : Sales Data - Hardware and Software Sales Units."

The Nintendo 64

The N64 was the beginning of Nintendo's financial downturn, despite it being a technically superior machine to other consoles on the market.[35] It is often overshadowed by the GameCube, which suffered a significantly greater decline in popularity than the N64. One of the more thorough chronicles of the console can be found in Daniel Sloan's *Playing to Wiin.* He introduces the N64 in the context of Square, a game development company, leaving Nintendo to develop exclusively for Sony's PlayStation. Software company politics and hardware competition are contributing factors as to why the N64 failed to win over consumers.[36] Limited and delayed software also contributed to the console's decline; however, IPs like Mario helped it from sinking completely. The creation of *Super Mario 64* (1996) had a significant impact on the industry because of it's transition from 2D to 3D player space, and is still considered one of the greatest Mario titles ever created. TIME placed it 2nd in their list of the top 50 video games of all time, and IGN ranked it 11th in their list of 100.[37] Other major titles from this console have also become almost legendary in their status among Nintendo fans such as *The Legend of Zelda: Ocarina of Time* (1998). TIME placed this Zelda 3rd, and IGN placed it 8th on its list.[38] Some third party titles grew their own enthusiastic fan bases as well, such as *Donkey Kong 64* (1999),

Figure 4: The Nintendo 64 released in NA in 1996. Image from The Vanamo Online Game Museum.

[35] Sloan. *Playing to Wiin.* 71-72.
[36] Ibid. 37.
[37] "Best Video Games of All Time: TIME's Top 50." Time. Accessed March 13, 2017. http://time.com/4458554/best-video-games-all-time/
And "Top Games Of All Time." IGN. Accessed March 13, 2017. http://ca.ign.com/lists/top-100-games/11.
[38] "Best Video Games of All Time: TIME's Top 50."
And "Top Games Of All Time." IGN. Accessed March 13, 2017. http://ca.ign.com/lists/top-100-games/8

GoldenEye 007 (1997) and *Banjo Kazooie* (1998), all of which were developed by the company Rare; however, difficult and costly software production drove many developers towards Nintendo's competitors instead. The market conditions were also unideal for Nintendo and their consumers, who needed to spend $20 more on N64 cartridges than PS discs.[39] The increase in hardware competition and limited software selections resulted in a decline in consumer interest for Nintendo. These issues also caused investors to lose confidence in the company, starting a stock market trend of decline that lasted until 2005.[40]

Similar discourse on the N64 appears in other articles on the Nintendo Wii. In an article out of the Chalmers Institute of Technology and Gothenburg University, Jan Jornmark, Ann-Sofie Axelsson, and Mirko Ernkvist's discussion of the N64 is nearly identical to Sloan's; the delayed release of the N64 in 1996 (in addition to the Virtual Boy's flop in 1995) were framed as signs of Nintendo's decline and detachment from the rapidly changing industry. Their determination to stick to cartridges rather than disks increased production costs, and the commercial price wars with Sony were resulting in unfavourable profits.[41] While there had also been a decline in sales with the SNES, there were several additional factors which began to discourage consumers and investors alike during this console's life cycle, leading to the N64 selling only 32.93 million units over its lifetime.[42]

The GameCube

The books and articles that discuss the N64 also take note of Nintendo's next console, the GameCube. Just as with the N64, discourse around the GameCube is mostly about its status as transitional systems, as authors move through time to the more interesting and successful consoles that form their central focus. In Sloan's book, the GameCube is featured as the direct predecessor to the Wii, and therefore all its shortcomings are discussed at length to emphasize the significance of how the new Wii hardware was developed. One of the benefits of Sloan's book, as opposed to Steven E. Jones and George K. Thiruvathukal's *Codename Revolution: The Nintendo Wii Platform,* is the amount of context given to social, cultural, economic, and internal

[39] Sloan. *Playing to Wiin.* 72.
[40] Ibid. 188.
[41] Jörnmark, Jan, Ann-Sofie Axelsson, and Mirko Ernkvist. "Wherever Hardware, There'll be Games: The Evolution of Hardware and Shifting Industrial Leadership in the Gaming Industry."Digital Games Research Association DiGRA. (paper presented at DiGRA 2005 Conference: Changing Views—Worlds in Play). 9-10.
[42] "IR Information : Sales Data - Hardware and Software Sales Units."

corporate politics. While Sloan's analysis of the N64 is less developed, there is much more consideration given to the history of the GameCube. He discusses how the GameCube had an unideal launch period, initially arriving in Japanese stores in September 2001 when the world was preoccupied by the 9/11 attacks and global sales were at a low. This was then followed by severe competition with Microsoft's new XBox launching in the North American market in November of that year.[43] The market conditions would only get progressively worse, as the PlayStation 2 (PS2) grew in popularity and dominated 75% of the market share, with the remainder split very closely between Microsoft and Nintendo.[44]

Popular discourse on the GameCube was also unfavourable at the time; the median demographic of players was aging, and Sony was able to cater to those interests with adult-themed games like *Grand Theft Auto* (2001). Even Microsoft was developing a niche for hard-core gamers with the science fiction-themed, first person shooter game *Halo: Combat Evolved* (2001), which became a phenomenon within the industry itself.[45] Nintendo's iconic franchises, featuring games like *The Legend of Zelda: The Wind Waker* (2002) and *Super Mario Sunshine* (2002), were not enough to persuade users to buy Nintendo consoles as they had been before with the SNES or even N64. With more competition in the American market, and less interest in

Figure 5: The Nintendo GameCube released in NA in 2001. Image from The Vanamo Online Game Museum.

[43] Sloan. *Playing to Wiin.* 9.
[44] Ibid. 34.
[45] Ibid. 34.

video games occurring in Japan, Nintendo was in a difficult position, selling only 21.74 million GC units over its lifetime.[46]

As a console, Nintendo designed the GameCube to be more competitive than the N64 by increasing its CPU power and visual fidelity, while still allowing for easier software development. Nintendo's earlier strides to create a powerful console with the N64 had actually discouraged developers from making games for the system. But while they succeeded in creating a comparatively powerful machine in the GameCube, its aesthetic design was perceived as childish, and a lack of compelling software diminished popular interest.[47] The GameCube is also briefly described in *Codename Revolution: The Nintendo Wii Platform*, from the same MIT platform studies collection as Altice's book. As aforementioned, it does not give considerable context for the conditions within the industry to help explain the complex factors that discouraged consumers; however, it gives some insight into more of the negative arguments made against the GameCube, which informed the design and development of the Wii. In the progressive trend among console manufacturers to develop the most powerful hardware with higher performance and detailed graphics, there is a necessary increase in power consumption and size. This was something that all competitors were dealing with in the industry, including Nintendo with the GameCube. Their primary goal moving forward with the Wii was to increase or maintain performance, while significantly decreasing power consumption—and therefore development costs.[48]

As previously mentioned, Sloan details the corporate politics that were occurring during this period. For example, President Yamauchi, who was a notoriously strict and aggressive leader of the company, planned to step down after the launch of the GameCube no matter what the results of the console's sales—this is significant, because in 2002 he chose not to pass the company to someone in his family (namely his son-in-law Arakawa who ran Nintendo of America), but rather the comparatively youthful Satoru Iwata to inspire a new direction for the company.[49] Much like with David Sheff's work on Nintendo, Sloan's discussion of the internal

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[46] Ibid. 11.
And "IR Information : Sales Data - Hardware and Software Sales Units."
[47] Sloan. *Playing to Wiin.* 76.
[48] Jones, Steven E. and George K. Thiruvathukal. *Codename Revolution: The Nintendo Wii Platform.* Cambridge: The MIT Press, 2012. 49-50.
[49] Sloan. *Playing to Wiin.* 25-26.

politics features a more human and emotionally involved historical narrative of console development that *Codename Revolution* lacks. It highlights the working ideologies of the time, and the conditions and expectations that were and were not being met. Like the other consoles discussed in this section, the GameCube lacks significant literature of its own, despite its genuinely significant technological advancements and innovative creations. For example, much like how they attempted to merge handheld play and console play with the Super Game Boy periphery for the Super Famicom, the GameCube also attempted to innovate traditional console play by allowing connectivity with the Game Boy Advance via a link cable. These kinds of innovations are often overshadowed or dismissed in all writing of these interim consoles, in order to highlight the revolutionary design implemented by the Wii.

Codename Revolution: The Impact of the Wii

This section will consider literature that focuses on the Wii; in particular, works that analyse the creative innovation of the hardware, the Wii's mimetic interface, and Nintendo's unique marketing strategies implemented to garner outsider interest. The Wii is the most successful selling home video game console for Nintendo, selling 101.63 million units over the course of its lifetime, only outsold in its own catalogue by the Nintendo DS (acronym for Dual Screen) handheld gaming device, which sold 154.02 million units.[50] With this significant increase in hardware sales from the GameCube, a fascination has developed with the console, which is often expressed through victory or comeback narratives, fostering a comparatively significant amount of literature on the Wii and its conditions for success.

While Sloan's work has already been discussed at length, it would be remiss to ignore the main topic of his work. The historical context of the Nintendo company and its products provide a majority of the book's analysis, with Sloan not beginning his discussion of the Wii until the end of his eighth chapter. Sloan creates a comprehensive overview of the economic and social success of the Wii, taking into consideration not only the position of Nintendo of Japan and its major figure heads, but also the influence of President Reggie Fils-Aime from Nintendo of America (NoA) in garnering interest in the console.[51] He also discusses how its largest

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And "E3 2002: Yamauchi steps down." GameSpot. Accessed March 13, 2017. http://www.gamespot.com/articles/e3-2002-yamauchi-steps-down/1100-2867848/

[50] "IR Information : Sales Data - Hardware and Software Sales Units."

[51] Sloan. *Playing to Wiin.* 163.

competitor, Sony, was losing its position of superiority in the market to Microsoft's Xbox360, and then later to the Nintendo Wii. Sloan details the difficulties that the company faced at the Wii's extremely unexpected success, which swept across the world: demand for the Wii quickly outpacing the ability to manufacture enough supply, issues with a lack of 3rd party developers for new and different games to play, and generally maintaining interest for the console in fast paced media markets like Japan. As he did with the other consoles, Sloan takes a tremendous amount of consideration for the historical, political, economic and social contexts which made the console a major success. While the historical set up of the company takes up a considerable section of the book, it provides greater insight into the company's development over the course of some 25 years. As seen through his title *Playing to Wiin: Nintendo and the Video Game Industry's Greatest Comeback,* he structures his book and the company's history to accentuate the negative aspects of the Wii's predecessors. This lengthy build-up then emphasizes the unprecedented success of the Wii, and neglects the contrary sentiments that developed after the console's release. Much like the origin story, what follows the hero's initial success is of little interest.

Sloan's book also lacks a detailed analysis of the actual console functionality. Similar to Altice with the NES, Jones and Thiruvathukal analyse each aspect of the Wii's hardware,

Figure 6: The Nintendo Wii released in NA in 2006. Image from The Vanamo Online Game Museum.

peripherals, and interface, and how their design informed a sense of sociality in play. *Codename Revolution*'s interdisciplinary analysis uses hardware design as the focal point, to give context to a change in technology and gaming culture more generally—as opposed to Sloan, who gave a massive amount of historical and social context to the development of the console, and lesser so its design. One particularly interesting section is their discussion of mimetic interface gaming, or a "system [that] mirrors the player's movements."[52] Essentially, the Wii uses a sensor and accelerometer to detect and track the movements of the controller (called a Wii-mote or Wii Remote), and translates its movements visually on the screen. This allows for an extension of the play from the space inside the screen out into the physical space of the player. Jones and Thiruvathukal's discussion of these controls focuses on the simple and therefore accessible design of the controller, as well as the opportunities its design had for developing peripheral controllers to alter the experience of play in the physical space, such as the Nunchuck and MotionPlus extension.[53] They also dedicate an entire chapter to The Wii Balance Board, a periphery which allowed players to use their entire body to control the game, as opposed to just the Wiimote alone.[54] That chapter emphasizes an argument made throughout the book about the social element of physical movement and play.

While some of the arguments made in the book are, ultimately, not especially compelling, and are often lost in their technical examinations of the console design, their exploration of the mimetic interface hardware is elaborated on in Jesper Juul's analysis in *A Casual Revolution: Reinventing Video Games and their Players.* Unlike Sloan, and Jones and Thiruvathukal, Juul primarily focuses on the experience of the players and the games they play. Through his book, Juul observes the shifting normalization of games in North American culture, the increase of casual play in people's daily lives, and the actual interpretation and meaning of playing 'casual' games. This focus on the 'casual' has a direct relation to Nintendo and the Wii, as popular consumer discourse at the time determined that Nintendo was no longer catering to their dedicated audience of hardcore Zelda-loving fans; instead, the Wii was designed with another type of consumer in mind. Juul begins his first chapter with a small sentiment about the Wii, stating:

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[52] Jones and Thiruvathukal. *Codename Revolution.* 2.
[53] Ibid. 54-77.
[54] Ibid. 79-98.

> Spending the winter of 2006-2007 in New York City, I was beginning to lose count of the times I had heard the same story: somebody had taken their new Nintendo Wii video game system home to parents, grandparents, partner, none of whom had *ever expressed any interest whatsoever* in video games, and these non-players of video games had been enthralled by the physical activity of the simple sports games, had enjoyed themselves, and had even asked that the video game be brought along for the next gathering. What was going on? [55] (emphasis in original)

He goes on to explain how video games were being reinvented, and the image of who played games was also changing—in part due to the introduction of the Wii into the market. His book considers trends in what he calls the *casual revolution*, the stereotype of the casual and hardcore player, and how players and casual games interact, all while trying to integrate casual games into the history of video games and non-digital games.

In his discussion of casual players, he introduces the topic with an excerpt from an interview with NoA President Reggie Fils-Aime's and his description of the casual player as being a person with little knowledge of video game conventions and a lack of interest in graphics.[56] This kind of ideological perspective of their potential consumer base is evident in their hardware and software design, as Jones and Thiruvathukal discuss in their book. However, Juul argues that Fils-Aime's interpretation is flawed, and the definitions of casual and hardcore games, as well as casual and hardcore players, require closer scrutiny. What is particularly relevant in this section of his study is his analysis of which games are casual and which games are not; one of his primary examples of a casual game is Nintendo's *Wii Sports* (2006). He argues that the cartoony and friendly fictional space, easy-to-use mimetic interface, small required time investment, player engagement in positive feedback loops, and relaxed social gameplay make it an ideal example of a casual game.[57] However, while there is a prevalent social perception that Nintendo primarily caters to children and casual gamers, Juul argues that not all of their games are necessarily casual. He explains how *Super Mario Galaxy* (2007) on the Wii does have a cartoony fictional space, but lacks a positive emotional fiction because of the incorporation of monsters and the 'save the princess' narrative. In addition, it doesn't use mimetic controls, which requires the player to be comfortable with navigating a 3D space with more traditional two-handed controls. The difficulty and punishment structure of the game also

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[55] Juul, Jesper. *A Casual Revolution: Reinventing Video Games and Their Players.* Cambridge: The MIT Press, 2010. 1.
[56] Juul, *A Casual Revolution.* 28.
[57] Ibid. 58-59.

limits accessibility, and lacks the same intense positive reinforcement for basic actions and tasks that games like *Wii Sports* enforces.[58]

The mimetic component integral to these two examples is discussed in more detail later in the book, where Juul explains that while "…more traditional three-dimensional games force players to imagine a bodily presence *in* the game world, mimetic interface games allow players to play from the perspective of their physical presence in the real world" (emphasis in original).[59] While games like *Wii Sports* have a 3D space, the mimetic interface creates an illusion that the player space flows continuously into the virtual space. He looks specifically at how the Wii and the Wii-mote, being the first generalized controller for a mimetic interface, benefit from their simplistic design. In particular, he emphasizes the attraction of how players can mimic the actions performed in the real activity (golf, tennis, archery, etc.), without the actual physical demand and strain of the activity itself.[60] This kind of interaction spawned academic explorations into the possibilities and validity of the Wii as a tool for long-term care residents and stroke rehabilitation. In an article called "The Use of Nintendo Wii with Long-Term Care Residents," Kristen Brandt and Miguel A. Paniagua engaged in a 4-week study to determine the effects the Nintendo Wii served long-term care residents. They found that residents' experience with the Wii were positive overall, and were actively "…chosen for the exercise, socializing, nostalgia, and competition."[61] They determined that the Wii had the potential of creating engagement despite physical limitations, and would provide easy administration for limited recreation staff.[62] In another study, "Nintendo Wii Sports and Wii Fit Game Analysis, Validation, and Application to Stroke Rehabilitation," academics from Rivers Lab at the University of Medicine and Dentistry of New Jersey, and Kessler Institute for Rehabilitation, analysed games for clinical application. Their findings were relatively positive, and encouraged further study into characterizing games that demonstrate positive opportunities for rehabilitation, as well as more effort on either adapting games from their original recreational use to rehabilitation, or the

[58] Ibid. 60-61.
[59] Ibid. 107.
[60] Ibid. 114-116.
[61] Brandt, K, and Paniagua MA. "The Use of Water Nintendo Wii with Long-Term Care Residents." *J Am Geriatr Soc* (JAGS). Vol 59, no 12 (2011): 2395.
[62] Ibid. 2395.

production of rehabilitation specific games.[63] The design of the Wii not only encouraged a re-evaluation of the significance of player space for regular players, but it also inspired academics outside of games to consider the legitimacy of the Wii as an interactive platform.

In Juul's book, he describes how the physicality of the console and this fundamental change to an active player space is something that Nintendo actively promoted in their advertising by featuring family and friends of varied ages, races and genders enjoying the "spectacle of player space."[64] How the Wii was advertised and marketed to the general populace is another area of focus that many scholars have taken interest in; of particular interest is President Iwata's 'Blue Ocean' strategy, which has been credited for the Wii's immense popularity. Sloan described this strategy as "…laying nets where others were not fishing, or finding markets without competitors," a bold strategy that was initially met with strong resistance from within Nintendo and among shareholders.[65] Svend Hollensen's article "The Blue Ocean that disappeared – the case of Nintendo Wii," in the *Journal of Business Strategy* details Nintendo's implementation and management of their innovative strategies. His first point outlines the significance of the Wii's name, stating:

> - Wii sounds like "we", which emphasizes this console is for everyone.
> - Wii can easily be remembered by people around the world, no matter what language they speak.
> - Wii has a distinctive "ii" spelling that symbolizes both the unique motion controllers and the image of people gather to play.
>
> The genius of the Wii is that it has changed the rules and invented a type of gaming with massively enhanced interaction between player and game.[66]

The language here is similar to the awestruck, and sometimes reverential, tone other authors use when writing about the console; and it is understandable why this favourable language is used when considering how Nintendo created something quite exceptional in the market. Hollensen explains that rather than providing incremental hardware upgrades, as they had done previously (a model their competitors were still following), they differentiated the experience of play. Nintendo's Blue Ocean strategy was to provide this unique gaming experience, using the mimetic interface discussed prior, while keeping the costs of their console lower than Sony and

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[63] Deutsch et al. "Nintendo Wii Sports and Wii Fit Game Analysis, Validation, and Application to Stroke Rehabilitation." 718.
[64] Juul. *A Casual Revolution.* 117.
[65] Ibid. 165.
[66] Hollensen. "The Blue Ocean that disappeared – the case of Nintendo Wii." 28.

Microsoft's hardware. He refers to this as *value innovation,* defined as developing new or different values that currently experience minimal competition at a low cost.[67] Hollensen analyses the factors of competition and relative performance level perceived by consumers relating to hardware price, computer processing unit (CPU) power, storage, HD video, DVD drive, online connectivity, motion controls, unique gameplay, and family orientation. He found that Microsoft's Xbox 360 and Sony's PlayStation 3 had relatively similar value curves, meaning that they catered to very similar needs and expectations of their perceived consumer base. They had very powerful CPUs, HD graphics, DVD drives, and online connectivity with multi-player functionality. On the contrary, the Wii's CPU had a very low processing speed, standard definition graphics, no DVD compatibility, and no online play. Instead the Wii offered a lower price point, motion (mimetic) controls, unique gameplay, and a large focus on family and social play.[68] Their advertising campaigns on television focused on different demographics (of age, race, and gender) experiencing the console. Their focus on creating value for the non-traditional user maximised their potential consumer reach, which became visible through their consistent sales across Japan, North and South America, and other markets.[69]

Much of the research discussing the Wii was published during or near the end of the Wii's life cycle, but Hollensen's article was published a year after the next console was launched, allowing for a retrospective analysis on the end of the Wii's life that other authors could not discuss without some minor speculation. Hollensen describes how the Wii peaked in its sales and took the lead in hardware sales in 2008 with 24.8 million units sold – over 13 million more than Microsoft and 7 million more than Sony – but finally fell below both competitors in 2011 before the release of their next console.[70] One potential reason for this decrease in sales could be attributed to competitors developing their own hardware peripherals to accommodate similar gameplay to the Wii. Sony released their PlayStation Move in late 2010 which used a 'wand' controller and the PlayStation Eye camera to track player's movements. Microsoft released the Kinect soon after; the device was a motion sensing camera with voice command functionality and no additional controllers.[71] Hollensen argues that Nintendo implemented their Blue Ocean

[67] Ibid. 28.
[68] Ibid. 29.
[69] Ibid. 30-31.
[70] Ibid. 27.
[71] Ibid. 31.

strategy and found success with the Wii, but with the increased competition, there was the potential of it turning into a 'Red Ocean' – in other words, reverting to a heavily competitive market. He explains how their next console, called the Wii U, was an attempt to re-establish Nintendo's Blue Ocean, but initial market sales at the time of the article indicated that the company would likely be unsuccessful.

From history to geriatrics, the Wii is a unique console that has inspired many writers from various fields to find interest in the hardware for one reason or another. While some of these works discuss the competition, the Wii is still written about with a positive fascination that does not necessarily take enough consideration of the negative discourses that have developed around the console. When the Wii was launched, some dedicated fans of the company felt forgotten or neglected by Nintendo's new strategy and focus on casual gamers. Several online forums appeared where heated arguments erupted over Nintendo's treatment of the IPs and their fans. With forum discussions like "I feel like Nintendo forgot Hardcore gamers like me" and "Nintendo fans, do you feel alienated by the Wii?" there was a negative sentiment among the gaming communities that is overshadowed by sales statistics in the literature.[72] More study of these sentiments could possibly inform why their next console, the Wii U, was such a colossal disappointment for Nintendo and the market at large.

The Wii U and the Death of Nintendo-like Profits

Since the release of the Wii U in 2012, little has been written on the current conditions of the once fearsome Nintendo. Hollensen writes about the Wii U, and Nintendo's attempts at differentiating it from the Wii and the games market further. Ultimately, Nintendo returned to the hardcore gaming market due to the hardware's design. Compared to its competition, the Wii U is noticeably less powerful, with less graphic fidelity, and a gaming touch tablet. While it provided a new form of play that Nintendo called 'asymmetric gaming', which allowed for simultaneous yet different perspectives of the same game, it represented a shift back towards the hardcore

[72] "Nintendo Fans, Do you Feel Alienated by the Wii?" GameSpot (Forum). Accessed March 13, 2017. http://www.gamespot.com/forums/system-wars-314159282/nintendo-fans-do-you-feel-alienated-by-the-wii-25756505/
And "I Feel like Nintendo Forgot Hardcore Gamers like Me." GameSpot (Forum). Accessed March 13, 2017. http://www.gamespot.com/forums/system-wars-314159282/i-feel-like-nintendo-forgot-hardcore-gamers-like-m-26653104/

market because of the more traditional control scheme on the side of the tablet's screen.[73] Hollensen's discussion of the unpromising market condition of the Wii U is reflected in other literature's anecdotes. For example, returning to Consalvo's work and her abbreviated history of Nintendo, she mentions how the Wii U was not meeting sales targets with a mere 5.86 million units sold by January 2014. As of September 30, 2016, the Wii U has only sold 13.36 million units, and with a new console releasing March 2017, those numbers are unlikely to increase significantly. The only thorough examination of the Wii U can be found in Daniel Sloan's book; however, the console was not released at the time of the book's writing. The discussion in *Playing to Wiin* remained speculative based on Nintendo's announcements, so very little critical analysis was possible.[74]

While most literature on the Wii is narratively framed as a triumphant and clever comeback, the Wii U gets little recognition in published popular and academic literature. Popular media, however, is quick to remind consumers of its shortfalls. The console has not been popular since its launch, but particularly in the wake of the announcement of the Nintendo Switch launch, the Wii U became the target of thoroughly negative comparative analyses against its future

Figure 7: Wii U and Wii U Gamepad released in NA 2012. Image by Author.

[73] Hollensen. "The Blue Ocean that disappeared – the case of Nintendo Wii." 32.
[74] Sloan. *Playing to Wiin.* 235.

successor. Online articles such as WWG's "The Nintendo Switch Will Succeed Where the Wii U Failed," Kotaku's "The State of the Wii U in 2016," and Wired's "A Farewell to Wii U, the Game System for Nobody," are examples of popularized sentiments towards the console.[75] Each of these articles provide insight into the prevalent disappointment with the console's dual screen design and limited game catalogue. Like the literature on the interim consoles, writings on the Wii U are largely comparative, discussing the Wii U only in relation to the Wii or the Switch. Therefore, they lack a thorough analysis of its software and hardware design. Perhaps with time, more literature may develop with retrospective insights on the console's general performance.

The History of Handhelds and Peripherals

The history of Nintendo is generally presented as a history of their consoles. As already discussed, the focus on the Famicom/NES and the Wii has resulted in little literature for the consoles in-between, and even less about their handheld consoles. What literature can be found often bundles their history generally, and does not analyse handhelds in as much specific detail as home game consoles. This is odd considering Nintendo's handheld development has proven to be a profitable market; the historical narrative is thus privileging home console hardware over handheld consoles. The most significant discussion of handhelds can be found in some of the works already discussed.

Game Boy Series

In Sheff's book, he writes briefly about the Game Boy, Nintendo's extraordinary success, designed by Gunpei Yokoi's Research and Development 1.[76] Sheff's discussion is simply a primer to discuss Yokoi, a significant figure in Nintendo's history who contributed heavily to their approach to product design, which is still visible in its products today. Sheff reintroduces the Game Boy in a much later chapter to set up the challenges faced by President Arakawa (of NoA) in obtaining the handheld rights to *Tetris* (1984). He begins by detailing the Game Boy's success, envied by Sony and its executives, emphasizing its low price point and viable software market. While the original system lacked a colour screen to keep down production costs and

[75] Fahey, Mike. "The State Of The Wii U In 2016." Kotaku. December 19, 2016. Accessed March 13, 2017. http://kotaku.com/the-state-of-the-wii-u-in-2016-1790268694.
And "The Nintendo Switch Will Succeed Where the Wii U Failed." WWG. January 02, 2017. Accessed March 13, 2017. http://wwg.com/2017/01/01/the-nintendo-switch-will-succeed-where-the-wii-u-failed/.
And Kohler, Chris. "A Farewell to Wii U, the Game System for Nobody." Wired. December 22, 2016. Accessed March 13, 2017. https://www.wired.com/2016/12/goodbye-wii-u/.
[76] Sheff. *Game Over.* 41.

engineering difficulties, that limitation had little effect on sales. Competitors like Sega, Atari and NEX released handhelds with coloured screens, and they only sold a small fraction in comparison. He also discusses how the demographic for the Game Boy was not just children; Nintendo had marketing campaigns directed specifically at adults.[77] Sheff offers the example of an ad run in an airline magazine stating:

> "If you're reading this ad, you're very bored… You've mastered the safety instructions in every language and the flight attendant won't give you any more almonds. Now what?" The choices: "Travel to another galaxy, golf…[all with Game Boy]. Game Boy won't ask you for your dessert, and fits just as neatly into the mouth of that screaming child beside you as it does into your briefcase…"[78]

Sheff describes how Yamauchi's prediction of 100 million units sold would be topped with the help of a 'monster game', *Tetris.* Yamauchi's estimations were not far off, with the Game Boy (including Game Boy Colour) selling 118.69 million units total over its lifetime.[79] A majority of the analysis around the hardware directly relates it to the game *Tetris,* or recaps sales figures to emphasize Nintendo's economic and cultural impact across international markets.[80]

Figure 8: Nintendo Game Boy (Left) released in NA in 1989.
Figure 9: Game Boy Colour (right) released in NA in 1998.
Image from The Vanamo Online Game Museum.

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[77] Ibid. 294-296.
[78] Ibid. 295.
[79] "IR Information : Sales Data - Hardware and Software Sales Units."
[80] In Sheff's chapter "From Russia with Love," is where these discussions of Tetris are primarily found, as well as some mentions in his next chapter, "The Tetris Song." In his chapter, "Borders," he discuses the sales figures and market conditions across different international markets, with particular focus on countries in Europe (though not exclusively.

Due to the time period of the book's release, nothing is said about other handheld devices. Sloan fills in some of the gaps, providing a small section on the Game Boy that reiterates what Sheff discusses in less detail. He does make mention of the Game Boy Color, emphasizing how the hardware is less important than the entertaining software it could run, and citing Yamauchi's comment on Pokémon being one of Nintendo's top-selling software products.[81] Sloan also discusses the comparatively lukewarm reception of the Game Boy Advance, and its backward compatibility with Game Boy Colour titles.[82] Despite his generally thorough contextualization of Nintendo's product history, he does completely neglect to mention some handhelds in the series, such as the Game Boy Advance SP. The hardware design of the Game Boy Advance was completely altered to a sleeker, smaller design that allowed for the console to fold in half for easy storage. The neglect of this product is surprising, as this design feature was passed on to the design of the Nintendo DS, which Sloan discusses for an entire chapter.

Figure 10: Game Boy Advance released in NA in 2001.
Figure 11: Game Boy Advance SP released in NA in 2003.
Images from The Vanamo Online Game Museum.

Nintendo DS

Sloan discusses how, much like with their goals for their home consoles, Nintendo needed to rise out of their slump with a new form of play to engage handheld players. They were in competition with Sony and their PSP handheld device, but by using several marketing campaigns directed at non-gamers as part of their aforementioned Blue Ocean

[81] Sloan. *Playing to Wiin.* 67.
[82] Ibid. 68.

strategy, they appealed to a diverse demographic of consumers just like the Wii. Sloan details some of the new DS-specific IPs that garnered notable attention after release; these titles include *Nintendogs* (2005), the Brain Age series, and *Animal Crossing: Wild World* (2005). He also goes into detail about the DS hardware iterations that followed the original, including the DS Lite, the DSi XL, and their respective receptions.[83]

In Consalvo's book, she describes how Nintendo's handhelds became relatively synonymous with handheld gameplay until the popularization of mobile play.[84] She provides an insightful regional analysis of the Nintendo DS, revealing a disparity in popularity among different markets. She found that roughly 11 percent of the North American population owned the handheld, in comparison to 26 percent of Japanese consumers. Meanwhile, the popularity of home consoles showed the reverse, with the ownership of the Wii at 11 percent in North America and 8 percent in Japan.[85] Sheff and Sloan both take a historical approach, being careful not to draw many definitive analytical conclusions or open discussion for possible interpretations, whereas Consalvo uses similar information to reinforce her study of the Japanese and North American industries.

Nintendo 3DS

The only detailed writing found on the Nintendo 3DS is found in Sloan's last chapter and epilogue, speculating on Nintendo's next generation of hardware based upon shareholder information meetings and official announcement details.[86] Since the 3DS was released, it has developed several hardware iterations, including the 3DS XL, 2DS, new 3DS and new 3DS XL. The popularity of this handheld is significantly lower than its predecessor; sales show the Nintendo 3DS only sold 61.57 million units total over its life time, significantly less than half of the previous generation sales. Much like the Wii U, the lack of critical attention could be attributed to the comparative newness of the console, the lack of success with the hardware, or the persistence of other Nintendo consoles that take precedence in the video game industry's cultural perception of Nintendo.

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[83] Ibid. 101-120.
[84] Consalvo. *Atari to Zelda.* 157.
[85] Based of Consalvo's population statistics. North American population of approximately 528 million and Japan's population of approximately 127 million. Pg. 158.
[86] Sloan. *Playing to Wiin.* 224, 233-234.

Literature on Success, and its Missed Opportunities

This chapter has considered some of the most Nintendo-focused literature available. The primary problem in regards to Nintendo literature published so far, due to the collective fascination with specific successes in their hardware history, is the lack of critical analysis on Nintendo's ideological and practical innovation strategies that reach across time to develop something different at every hardware release. By favouring the NES and the Wii, and consequently dismissing interim consoles in brief general histories, there has been a missed opportunity to critically analyse the 'failures' and the ideas that were not fully actualized in the market. The literature in this section is mostly historical, framing Nintendo's expansion as sequential, progressive growth across time, and not a synthesis of their past, present and future. Even works that attempt to forgo a distinct linear chronology still attempt to draw the lines between cause and effect, attempt and result, and the privileging of new over old. In the next chapter, an alternative approach to conceptualizing innovation and development will be explored in hopes of taking greater care and consideration of the significance of 'failed' products. In addition, the analysis will show how this perspective complements Nintendo's own ideological conceptions of innovation, design and corporate growth.

Chapter 2

Rhizomatic and Lateral Thinking

This chapter considers an alternative framework for understanding innovation of Nintendo's video game hardware through a system of interconnecting ideas. Understanding this network of ideas is not without its conceptual difficulties; mapping such relationships would be virtually impossible to accomplish due to the infinite possibilities and varying degrees of influence ideas can carry. Therefore, this analysis chooses to focus on literature about relationships, connections and flows of ideas across space and time, as opposed to concretizing a map or timeline of all influences. In particular, taking a rhizomatic approach from Deleuze and Guattari's work will allow a more comprehensive interpretation of how creators and companies have functioned within the industrial assemblage. This approach will challenge the perception of innovation as successively iterative, and consider alternative ways of understanding technological advancements in console design without privileging power and graphical fidelity as primary features – as is common in popular media today.

Perceiving the Industry

A rhizome, as described by Deleuze and Guattari, is a "…concept that 'maps' a process of networked, relational and transversal thought, and a way of being without 'tracing' the construction of the map as a fixed entity."[87] It is an open multiplicity that is always in a mode of change. It is without firm or fixed boundaries to contain the movement and development of thought; ideas sprout "…from the middle, through the middle," come and go, instead of starting and finishing.[88] Conscious and unconscious networks of communication and ideas can be rhizomatic, producing stems and filaments like roots that in turn produce and shift as they extend, creating an experimental milieu of constant change.[89] This conceptual framework of the flow of thought can be applied to how ideas, Intellectual Properties (IP), and corporate ideologies interact in the industrial space. Rhizomatic networks can be understood as an experimental milieu, where necessary social interactions stimulate innovation.[90] This can be seen in the video game industry with cross-industry relationships, corporate partnerships and splits, market competition, and user experience research as social constants which drive innovation further. As Peter Zackariasson and Timothy L. Wilson explain in their chapter "Marketing of Video Games,"

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[87] Colman, Felicity J. "Rhizome." *The Deleuze Dictionary,* edited by Adrian Parr. Edinburgh*:* Edinburgh University Press, 2005. 231.
[88] Ibid. 59.
[89] Ibid. 59.
[90] Parr, Adrian, "Creative Transformation." *The Deleuze Dictionary.* 59.

in *The Video Game Industry: Formation, Present State, and Future,* the video game industry feeds on itself:

> The game industry has a proven track record of evolutionary growth and of assimilating new technology, driving the technological change into their products. Put another way, the growth of the video game industry together with constant improvement of internet technologies have provided us with an environment where the market and digital entertainment have converged. [91]

Rhizomorphous structures mutate and shift because of the naturally innovative environment that encourages their growth; from Zackariasson and Wilson's description of the video game industry, we can see this paralleled by the assimilation and improvement of technology to allow for evolutionary growth in digital entertainment. It is also possible and important to recognize in this case that several networks of ideas can be present in one space, within or outside another network, connecting and disengaging with one another in multiple places. If we consider the video game industry as a rhizomatic network, it must develop alongside other creative and technological industries, and also contain smaller rhizomatic networks involving companies within it, a franchise, or even a single game mechanic. These various networks can also be considered what Deleuze and Guattari refer to as assemblages, or grouping of things under a single context.[92] Smaller and smaller rhizomatic assemblages connect at micro and macro levels, obtaining or giving influence to other creative industries. These systems are never closed; it is possible for connections to form within, between, or around other assemblages, but they are all integrated and connected in some way.

New ideas develop as new lines of flight rupture out of the rhizomatic assemblage, and extend outward through a multiplicity, but what is occurring at this first instance of rupture and extension must be closely understood. To accomplish this, we must consider deterritorialization and reterritorialization. Deterritorialization, in the context of the video game industry, can be seen in the breakdown of old practices and ideas in lieu of something new and fresh.[93] Dyer-Witheford and de Peuter tell us, in *Games of Empire*, that this practice is necessary in a corporation's quest for profits; however, deterritorialization is not a limitless process that occurs without resistance. They go on to explain:

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[91] Zackariasson, Peter and Timothy L. Wilson. "Marketing of Video Games," *The Video Game Industry: Formation, Present State, and Future.* New York: Routledge, 2012. 72.
[92] Message, Kylie. "Territory." *The Deleuze Dictionary.* 275.
[93] Dyer-Witheford and de Peuter. *Games of Empire*. 74.

> …capital simultaneously 'reterritorializes' this flux, enclosing innovations as property, drawing around them new legal boundaries, and policing access so that new technical machines and cultural creations appear as commodities produced and sold for profit.[94]

In other words, ideas which develop through deterritorialization are subsequently slowed or stopped through legal processes, such as copyright laws or patent protection. As established previously, in the description of rhizomes, there are supposed to be no firm or fixed boundaries preventing a rhizomatic network's growth, which this definition of reterritorialization seems to conflict. However, while reterritorialization's boundaries may fix specific intellectual properties to one corporate entity, it does not actually prevent deterritorialization from occurring again; instead, the previously deterritorialized idea becomes a territory from which a new line of flight may erupt, mutating again. While reterritorialization slows the development of new ideas, and binds it in specifics with its legalities, it is important not to give reterritorialization a negative connotation regarding this restriction. Rather, reterritorialization is just as important in creating a sustainable ebb and flow of ideas, that could lead to different kinds of deterritorialization or mutation. In *Exploring Video Games with Deleuze and Guattari,* Colin Cremin explains deterritorialization and reterritorialization in relation to the creative space and software:

> It begins with a creative process, a virtual one, in which new ideas are experimented with, then actualised as a completed product that sells on the market. The game then becomes a blueprint for future iterations. Now the 'smooth' space of creation is 'striated' by commercial interests, 'deterritorializations' are *re*territorialized as a standard.[95] (Emphasis in original)

The smooth space described here refers to a heterogeneous expanse of creative possibility; whereas the striation by commercial interest refers to the development of a homogeneous space. These spaces are oppositional: however, they are not a concrete dichotomy, as "…they only exist in complex mixed forms."[96] One cannot substitute for another; instead, forces may cause the space to react, becoming more striated or smooth while simultaneous developing other forces to create more change.[97] Essentially, the creative space and the standardized space function simultaneously, revealing variation and subtleties in their interconnected complexities. Deterritorialization functions within the experimentation of the new, or the different, while

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[94] Ibid. 74.
[95] Cremin. *Exploring Video Games with Deleuze and Guattari.* 8-9
[96] Lysen, Flora and Patricia Pisters. "Introduction: The smooth and the striated." *Deleuze Studies.* Vol. 6, no 1 (2012): 1.
[97] Lorraine, Tamsin. "Smooth Space." *The Deleuze Dictionary.* 254.

reterritorialization returns these ideas and settles them into the territory. Both Dyer-Witheford and de Peuter, and Cremin's description of these processes, provide simpler interpretations of how to visualize Deleuze and Guattari's theories and apply them to the general production cycle of games. However, this framework can be problematized further by examining the role of time within it.

Rhizomatic space does not have a measurable chronology of time.[98] Because of the interconnectivity of ideas' lines of flight, mapping time is virtually impossible, but that does not mean it is not present. Rather we can conceptualize time through movement/space and difference. Before delving into how time is applied to the Deleuzoguattarian framework, it is important to first take Henri Bergson's concept of 'duration' into consideration. Duration is pure heterogeneity, "…which emerges continuously in the absolutely new."[99] This continuity Bergson describes is an elaboration of the absolutely new, as it is the means of invention and the creation of forms.[100] It is also unforeseeable, because to foresee is to project "…into the future what has been perceived in the past…but that which has never been perceived, and which is at the same time simple, is necessarily unforeseeable."[101] In other words, the concept of duration defines the reality of time itself, because if something is foreseen or old, it is a repetition—which is "not in any sense a reality."[102] To elaborate further, duration is more of an immediate awareness of change that constitutes difference and associations.[103] Duration is also indivisible, and not quantifiable; in this sense, it can be contrasted with physical time or 'clock time.' In the context of this thesis, duration is only relevant due to its theoretical relationship with clock time and its inspiration for Deleuzian interpretations of movement. Clock time is the practical time in which society functions: however, it distorts duration's continuity through abstraction.[104] As evidenced by these definitions, duration's abstracted relationship with the past could unnecessarily complicate potential applications of the already chaotic network of thought. Instead, this framework utilizes Deleuze's interpretations of movement together with Bergson's notion of clock time as different and simultaneous concepts of time.

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[98] Parr. "Creative Transformation. *The Deleuze Dictionary.* 58.
[99] Cunningham, G. Watts. "Bergson's Conception of Duration." *The Philosophical Review.* Vol. 23, No. 5. (1914): 527. Accessed December 1, 2016. www.jstor.org/stable/2178586.
[100] Bergson. *Creative Evolution.* 14.
[101] Cunningham. "Bergson's Conception of Duration." 527.
[102] Ibid. 528.
[103] Stagoll, Cliff. "Duration." *The Deleuze Dictionary.*79.
[104] Ibid. 79.

Inspired by Bergson, Deleuze wrote extensively on cinematic forms, reconceptualising time, movement and space. For the purpose of this study, how he distinguishes movement from space allows for the possibility of understanding time in relation to the video game industry's network of thought and ideas. Deleuze states in *Cinema 1: The Movement-Image,* "Space covered is past, movement is present, and the act of covering."[105] Thus a similarity can be drawn between movement and duration, as they are both concepts founded in a sense of immediacy. However, Deleuze's movement incorporates direct relations between past, present and future. Through these interpretations, a rhizomorphous network can be understood as constantly in a state of movement where territory is the past, and deterritorialized lines of flight, moving towards the unforeseen in an act of covering space, are the present. However, the difficulty in this model arises from the state of reterritorialization in relation to movement. Reterritorialization, as a process of change from the deterritorialized idea into territory, can also be understood as the change from the absolute new to the standard. In this case, it is possible to interpret reterritorialization as the process which creates the past, immediately behind what is being deterritorialized. The moment it is conceptualized as part of the rhizomatic structure is also the moment it is subdued under reterritorialization and formed into territory; once the idea is constructed it is no longer unforeseeable or absolutely new, nor is it in the process of covering space. The rhizomatic network itself is the space covered, and therefore the past.

For Bergson, duration is an immediate interpretation of difference and association, while repetition is to enact what has been foreseen, and is therefore divorced from reality. Deleuze expands on this notion, discussing at length the direct relation between repetition and difference. He suggests the concept of repetition of difference as a means to relatively measure sameness. [106] Every repetition may be a re-enactment of what has already been foreseen; however, no repetition can truly be exactly the same. Some variable is present to mutate the repetition, producing a comparative difference within their sameness. Therefore, clock time is not completely forfeited in this temporal framework: rather, it is incorporated as a variable in these repetitions. In the rhizomatic network, nearly identical deterritorialized lines of flight may rupture from the center out, maintaining a relative sameness and similar trajectory into the open space, yet they are different because of their respective clock times.

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[105] Deleuze. *Cinima 1.* 1.
[106] Stagoll, Cliff. "Difference. *The Deleuze Dictionary.* 72.

This differentiation through repetition is a concept that is ideologically ingrained into the designers and creators of Nintendo's iconic franchises. To quote Shigeru Miyamoto, creator of many Nintendo properties, including The Legend of Zelda, "I try not so much to create new characters and worlds, but to create new game-play experiences."[107] The process of deterritorialization and reterritorialization within the Nintendo assemblage focuses repetition of difference to develop variants on the same experience over time. Bergson's duration as an elaboration of the absolutely new, and Deleuze's perception of movement as the present, are visible in this rhizomatic network of thought and innovation in the industry; however, the framework thus far does not address any sense of continuity for the repetition that Nintendo experiences. Perhaps within this framework lies an abstract machine of the franchise, which "places variables of content and expression into continuity."[108] Lines of flight, whether absolutely new or repeated, pass through the abstract machine as they reach out into the creative space to integrate sameness and develop a perceivable continuity. To understand this from the consumer's perspective, The Legend of Zelda series has a lengthy history of eighteen signature games as part of the official canon universe, including their recently released *The Legend of Zelda: Breath of the Wild* (2016). Each game has comparatively similar mechanics, aesthetics, narrative elements and game structure; they are fundamentally the same product developed into a series of repetitions. Yet each one is still different, allowing simultaneously for a comparable sameness to other Zelda games and a new experience within the franchise. Passage through the abstract machine ensures that deterritorialized lines of flight can be reterritorialized with variations of content, expression and experience within Nintendo's own continuity—or franchise catalogue. This rhizomatic framework, though complex and abstract, is engrained and practiced aggressively at Nintendo. While the following chapter will apply these theories to Nintendo's software development and player consumption, the theoretical application of Deleuze and Guattari's concepts can also be explored further through an investigation of Nintendo's hardware design philosophy.

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[107] Sayre, Carolyn. "10 Questions for Shigeru Miyamoto." Time. July 19, 2007. Accessed March 14, 2017. http://www.time.com/time/magazine/article/0,9171,1645158-1,00.html.

[108] Deleuze, Giles and Felix Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia.* Minneapolis: University of Minnesota Press, 1987. 511.

Lateral Thinking and Hardware Design

Many hardware producers are primarily concerned with iterative development through increasing power and graphic fidelity; however, Nintendo's innovative process functions in a slightly different way. In this case, it can be argued that its competitors are primarily focused on differentiation in repetition with hardware design, where the variables which shape the repeated difference are clock-time and technological power. However, one of the fathers of Nintendo's creative philosophy, Gunpei Yokoi, famously articulated his design philosophy as:

> 「枯れた技術の水平思考」, which translates to English clumsily as "lateral thinking for withered technology." In English, "lateral thinking" denotes a creative, unexpected approach to problem solving, a strategy Yokoi applied to outdated, inexpensive, or otherwise "off-the-shelf" technology. Yokoi famously devised the Game & Watch concept after noticing a train commuter whiling away the time on a pocket calculator.[109]

As Nathan Altice explains, Yokoi's philosophy focuses on reinventing old technology—or, in this case, deterritorializing old innovations for a new profitable purpose. In this quote, Altice describes the famous situation that sparked a profitable innovation and the development of the predecessor to one of the most successful Nintendo devices ever created: The Game Boy. A rhizomorphous perspective supports this creative philosophy that has ubiquitously guided Nintendo's corporate development practices to this very day. Yokoi's lateral thinking can be interpreted through the previously discussed Deleuzoguattarian framework. A case study of hardware iterations would emphasize the relational quality of rhizomatic networks, and the ebb and flow of deterritorialized and reterritorialized ideas throughout Nintendo's corporate history. One of the more interesting examples which will be mapped here is handheld and home console hardware connectivity.[110]

The first instance of handheld and console connectivity at Nintendo came very quickly with The Wide Boy and the Famicom. The Wide Boy is a development unit and relatively rare piece of hardware used exclusively by licensees to test GameBoy games on a television screen or

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[109] Altice. *I AM ERROR.* 23.

[110] This analysis only takes into consideration products developed specifically by Nintendo. There are other accessories have been developed by different companies, some of which are significant in the cultural memory of Nintendo like the Game Genie or Game Shark. While it would be valuable to take influence from outside Nintendo into consideration, this theoretical example hopes to focus primarily on Nintendo's internal innovative processes.

monitor.[111] There were subsequent models of the Wide Boy for the SNES and N64, but for the purpose of this analysis, the original Wide Boy provides an acceptable point of departure. The Wide Boy featured a large circuit board, normally covered by black plastic, that plugged directly into the top-loading Famicom. The game cartridge fit onto the circuit board, while the actual Game Boy attached through a series of wires to provide player input.[112] The possibility for capitalizing on this dev kit was likely realized by Nintendo, because in 1994 the Super Game Boy was released. This commercial product allowed for Game Boy and Game Boy Colour games to be played on the SNES through a small cartridge adapter. The Game Boy cartridge would fit inside a larger SNES cartridge adapter that contained a separate CPU to process the game, while the console itself managed the graphic output and user input.[113] This connectivity created a synthesis of play spaces, allowing for Nintendo products to be experienced continuously without much interruption. The shift from the developer-only Wide Boy to the

Figure 12: Super Game Boy cartridge released in 1994. Image from The Vanamo Online Game Museum.

[111] "Wide-Boy64." Wide Boy 64. Accessed March 14, 2017. https://web.archive.org/web/20050126092807/http://www.zyx.com/chrisc/wideboy64.html.
[112] Due to the rarity of this device, no public domain images could be found. However, a more detailed breakdown of the devices components can be found at this online source.
"Nintendo Game Boy Wide-Boy (for FamiCom)." Handheld Games Museum. Accessed March 14, 2017. http://devkits.handheldmuseum.com/GB_Wideboy.htm.
[113] "Super Gameboy Speed Fix." Sound of Silver. Accessed March 14, 2017. http://soundofsilver.co.uk/blog/2015/02/super-gameboy-speed-fix/

commercial Super Game Boy is a prime example of Dyer-Witheford and de Peuter's understanding of deterritorialization and reterritorialization. The Wide Boy was deterritorialized in a quest for something new and for profits, and subsequently reterritorialized by proprietary hardware control and legal patents. Alternatively, from Yokoi's perspective, it is an old technology which can be repurposed. In this way, this old technology not meant for public consumption became something new and game changing.

Figure 13: Transfer Pak. N64 connector (Left), Game Boy cartridge slot (Right). Image from The Vanamo Online Game Museum

Nintendo's next attempt at connectivity was released in 1999 and was called the Transfer Pak. Rather than being able to uniformly play any Game Boy or Game Boy Colour game on the SNES through the adapter, the Transfer Pak only allowed for game data to be transferred from the Game Boy Colour to the N64. For games like *Mario Tennis* (2000), the Transfer Pak allowed players who owned versions for the N64 and Game Boy Colour to share a single character on both platforms. This made gaining experience points much quicker, since it could be played outside or at home.[114] *Pokémon Stadium* (2000) allowed for Pokémon from *Pokémon Red, Blue* (1996) and *Yellow* (1998) to be uploaded and used in battles, mini-games, storage or trade. Unlike other games of this console generation, but similar to the Super Game Boy, *Pokémon Stadium* let users play the aforementioned handheld titles on the television through their Game Boy Tower feature.[115] The design of the Transfer Pak resembles a hybrid of the original

Figure 14: N64 Controller with Transfer Pak and Pokemon Fire Red Game Boy cartridge. Image by Author.

[114] "Game Boy Accessories." Revolvy.com. Accessed March 14, 2017. https://www.revolvy.com/topic/Game%20Boy%20accessories&uid=1575.
[115] "Transfer Pak." Bulbapedia, the community-driven Pokémon encyclopedia. Accessed March 14, 2017. http://bulbapedia.bulbagarden.net/wiki/Transfer_Pak.

Wide Boy and the Super Game Boy.[116] The device featured a discrete slot for the Game Boy cartridge, much like the Super Game Boy's sleek design. However, it was not designed to look like an N64 cartridge: rather, the Transfer Pak features a large plug on the reverse side, much like the Wide Boy. The device also plugged directly into an N64 controller, unlike the Wide Boy and Super Game Boy devices which plugged into the console itself.[117] Rhizomatically, this can be understood as a convergence of deterritorialized design features from both creations to create something new. Alternatively, if we were to perceive this as a single and continuous line of "handheld and home console connectively," then it is possible that the line is passing through itself to integrate ideas within its own past.

In 2003, Nintendo released the Game Boy Player, which allowed Game Boy, Game Boy Colour, and Game Boy Advance games to be played on a television. The device is essentially a repetition of the Super Game Boy, serving the same functionality but for the GameCube. Since the GameCube used minidiscs instead of cartridges, the device design is different; however, it still prioritized sleek integration onto the main console. The Game Boy Player attached to the GameCube's base, and Game Boy cartridges could slip through a port directly on its front. It also features a link cable port for a Nintendo GameCube Game Boy Advance Cable, which connected a Game Boy Advance directly to the console for dual screen supplemented gameplay, as an enhanced controller, or for multiplayer games.[118] This device is a repetition where sameness can be measured in its basic functionality. This sameness and the inherent corporate value of this sameness is emphasized by the significant differences which can be seen

Figure 15: Game Cube disconnected from Game Boy Player. Game Boy Advance cartridge inserted into Game Boy Player base. Image from The Vanamo Online Game Museum

[116] "Pokémon Stadium" Pokémon-France.com. Accessed March 14, 2017. https://www.pokemon-france.com/jeux/gen1/stadium/stadium/.
[117] Ibid.
[118] "Game Boy Accessories."

through a simple comparison. The deterritorialized line of flight, striving for a new connectivity between hardware, follows a similar or parallel trajectory of design and innovation; yet clock-time is the most obvious differentiator, with nearly nine years between each device release. The device's shift from simulating a cartridge to simulating hardware is another, which was caused by yet another line of flight that occurred elsewhere when Nintendo switched from proprietary cartridges to minidiscs. Other innovative developments which created the GameBoy Advance's smaller cartridges, the Game Link Cable, and the GameCube's design also connect and alter the trajectory of this line. For Deleuze, this is a repetition of difference; and for Yokoi this is lateral thinking.[119]

The Wii and the WiiU did not share similar connectivity with their respective handheld releases and instead followed other lines of flight. However, this is not to say these ideas, which are now territory within the video game industry, are not still moving. The Nintendo Switch, released in March 2017, once again deterritorializes various lines within the rhizomatic network from their past to form something absolutely new. The Switch is both a handheld and home console hybrid device. The handheld portion features a tablet with removable handles (which act as controllers), a kickstand, and small cartridge port possibly similar to a Nintendo DS or 3DS. The tablet can then slide directly into a base, which would be connected to a television or monitor. The handles/controllers can be used separately in each hand, or be attached to a separate controller for home use.[120] Nearly all of these features are not new. As shown, hardware connectivity has been a commercial reality for Nintendo since 1994: the return to cartridges for home

Figure 16: The Nintendo Switch with handheld controls attached to mobile tablet (standing on the right). Home console base (left). (Image by Andrei Zanescu)

[119] It should be noted that this kind of example is only possible with Nintendo due to their positionality in the market place as the leading handheld and home console developer in the video game market at the time. While competitors such as Sony and Sega have tried to gain traction in the market with console and handheld connectivity, these repetitions under different corporate entities did not have the same reach as Nintendo.

[120] Martin, Chris. "Nintendo Switch news – release date, UK price, features, specifications and games." TechAdvisor. Accessed March 14, 2017. http://www.pcadvisor.co.uk/new-product/game/nintendo-switch-news-release-date-uk-price-features-specs-games-3608381/

consoles and the continuation of cartridge for handhelds; the sleek plug and play design integration in nearly every iteration; the control/tablet design similar to the WiiU gamepad—each of these ideas are not new. However, these ideas culminate, connect, react with one another, and form something new and different from what Nintendo created before and what other companies are developing. Old ideas are obviously being repurposed, and established territories are broken down.

Concluding Thoughts

The primary reason for focusing on Nintendo's hardware in this rhizomatic exploration of ideas within the video game industry is the inherent difference in innovative process Nintendo goes through in comparison to its competitors. One reason why Nintendo and its competition can be perceived differently in this network of thought is because Nintendo is both a hardware and software developer, whereas its competitors, Sony and Microsoft, are primarily hardware developers.[121] Nintendo's corporate structure allows for a unique synthesis of hardware and software design, which other companies in the video game industry do not have as much control over. While Nintendo does use third-party developers, their primary and most well-known IPs are managed in-house. Since a majority of software developers for Sony and Microsoft are third parties, the dynamics of how ideas and relationships are formed operate differently. In addition, prior to entering the video game market, Nintendo had a long history of being a toy and card game developer, which Gunpei Yokoi contributed to prior to the company's transition into video games. By contrast, Sony and Microsoft were focused on software and hardware technology before entering the games market. Their perspectives on design and play have been aligned differently; therefore, Nintendo's connectivity with other assemblages in the market, and the flows of thought within its own assemblage, are unique from Sony and Microsoft. Even when considering how Sony's PlayStation and Microsoft's Xbox follow processes of differentiation through repetition in their hardware design, Nintendo's hardware development philosophy flows differently because of Yokoi's lateral thinking.

[121] Sony and Microsoft both own several game development studios. The Sony Interactive Entertainment Worldwide Studio is comprised of several subsidiaries which develop games specifically for the PlayStation consoles; however, because they are subsidiaries of the parent company, they do not have the same corporate structuring that affords Nintendo certain flows of thought/creation. This is also the case for Microsoft Studios and the Xbox consoles. The more removed these companies become, the more possibility for corporate politics to reterritorialize ideas. In addition, many of the same creative figures work in both areas of software and hardware development because of the corporate structure, which allows for more continuous flows of thought within the same assemblage.

While this rhizomatic framework and Yokoi's design philosophy have their conceptual difficulties, they do suggest an alternative mode of thinking that challenges generally iterative thinking about innovation and design history. By using Deleuze and Guattari's model, thought can be considered relationally across creative space, rather than using the popular media's trend of looking successively and generally within clock-time. In the next chapter, an analysis of Nintendo's software design will be conducted using this framework.

Chapter 3

Designing Software for Lateral Hardware

At the closing ceremonies of the 2016 Summer Olympics in Rio de Janeiro, a figure in a Super Mario costume emerged, crouched down, from a green warp pipe. As he stood, Prime Minister Shinzo Abe tore off the iconic costume and waved to the crowds with Mario's classic red cap, commemorating the official announcement of the 2020 Summer Olympics in Tokyo.[122] Nintendo, being one of Japan's most popular international brands, is embedded in the cultural memory of many people, who vary in age, gender, race, class, and country. The use of the Nintendo brand to connect with global audiences leveraged the fondly established memories of children and adults alike.[123] But these icons, which are easily recognizable today, were not created from nothing. Consumers are constantly made aware of Nintendo icons through their periodic reintroduction into the marketplace. Through the previously described Deleuzoguattarian framework, potential influences upon Shigeru Miyamoto, the creator of these iconic characters, are considered and expanded through a rhizomatic examination of The Legend of Zelda series.

The previous chapter's discussion of mapping hardware design rhizomatically provides a significant basis for understanding Nintendo's software development history and current strategies; however, the influence of Miyamoto, the use of Nintendo's IPs and their franchises' legacies require further examination. Analyses of Nintendo in the following section are primarily based off external research; unfortunately, due to Nintendo's strict public relations policies, I was not able to obtain any information regarding the company's history, IPs or creative practices directly.

The Godfather of Video Games: Shigeru Miyamoto

Nintendo very rarely creates new IPs, and when they do, those IPs share similar qualities to the rest of Nintendo's catalogue. This is because Nintendo's software development is primarily focused on creating new experiences with old IPs or their established aesthetics, rather than creating something entirely new.[124] As previously described, deterritorialized lines of flight

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[122] Chandran, Nyshka. "Super Abe was a taste of Tokyo's 2020 Olympic campaign," CNBC. Accessed March 14, 2017. http://www.cnbc.com/2016/08/22/super-abe-was-a-taste-of-tokyos-2020-olympic-campaign.html

[123] Nagata, Kazuaki. "Exporting culture via 'Cool Japan.'" The Japan Times. Accessed March 14, 2017. http://www.japantimes.co.jp/news/2012/05/15/reference/exporting-culture-via-cool-japan/#.WHlTllMrJhE

[124] This can be observed through their history of first party software production. While Nintendo has actually published quite a few new but lesser known IPs by over the past five years by 3rd party developers, the public position of the company remains tied to this notion of new experiences of old IPs like Zelda and Mario. This can be

or new software creations extend into the creative space and pass through an abstract machine to establish the new idea's place in Nintendo's continuity. It would be disingenuous to say this process is unique to Nintendo, as most other major software developers also depend on successful franchises. Call of Duty, Halo, Elder Scrolls, Final Fantasy, Dragon Quest, God of War, Grand Theft Auto, Resident Evil, and Assassin's Creed are just a few franchises within the video game industry that have many sequels, prequels, spin-offs, apps and more. However, Nintendo can be differentiated from other developers due to both their expansive history of repetition and their position as a hardware and software company, allowing for more direct connections between their hardware and software design. Nintendo's focus is always inward, in order to grow and perpetuate their own styles and aesthetics, with priority given to their quest for profit through repetition. So while Nintendo is not unique in in franchise development, the scale of their franchises is significantly larger, allowing for a more expansive approach to software than other corporations.

The integrated development of their products can be attributed to several conditions, including their production history transitioning from toys into video games; however, much of their success can be credited to the creator of their most prized franchises—Shigeru Miyamoto. Miyamoto is one of the most influential designers in video game history. His work and design influences must be thoroughly examined when analyzing software development, as he defined much of Nintendo's creative and developmental trajectories. One of Miyamoto's notable influences was his mentor, Gunpei Yokoi, whom Miyamoto was paired with early in his career. This mentor relationship formed a basis for Miyamoto's approach to software and hardware design, particularly Miyamoto's ability to openly discuss his observations and industrial design based analyses with Yokoi.[125] Of course, other influences were also present in the development of his design philosophy. Jennifer deWinter's book *Shigeru Miyamoto: Super Mario Bros., Donkey Kong, The Legend of Zelda* breaks down his influences into a matrix containing four contexts: Japanese Cultural Context, Business Context & Early Training, Experience Design & Storytelling, and Hardware & Software Development.[126] For the purpose of this analysis, deWinter's matrix will provide the basis for understanding Miyamoto's influences, and in turn

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seen with the previously mentioned quotation "I try not so much to create new characters and worlds, but to create new game-play experiences," from Sayre, "10 Questions for Shigeru Miyamoto."

[125] deWinter. *Shigeru Miyamoto.* 5-6.

[126] Ibid. 8.

how his designs can be read through Deleuze and Guattari. Many of the following influential contexts are areas where Miyamoto deliberately or unintentionally deterritorialized influences to reterritorialize them within Nintendo's commercial products.

Japanese Cultural Context

The cultural context Miyamoto was raised in plays a significant role in his creative inspirations. Using deWinter's analysis here is immediately challenging, as she is a non-Japanese person interpreting Japanese cultural contexts; however, she thoroughly supports her arguments with historiographic and linguistic analyses. Therefore, her work is theoretically positioned well enough to be included in my analyses.

In deWinter's matrix, she cites "a tendency toward perfectionism and polish,"[127] as being one of the Japanese influences found in Miyamoto's designs. Whether a specific attribute of Japanese culture or not, Miyamoto has been an advocate for perfectionism in his work. In her discussion of this influence, she quotes Miyamoto discussing his staff's fear of him. He has been known to completely scrap projects and begin them again from scratch, and to reject proposals he does not like. A more public example of his perfectionism is his famous quote: "A delayed game is eventually good, a bad game is bad forever."[128] Nintendo has a well-known reputation for software delays; however, they have not released a first party game with any memorable game breaking bugs or major software issues. This is quite significant, since the current state of the video game market often sees software released with significant issues and/or release day patches for bug fixes. There are several examples of this occurring on competitors' consoles or on PC, such as *Assassin's Creed: Unity* (2014)*, Batman: Arkham City* (2011) and *SimCity* (2013). All of these games contained many software issues upon release that resulted in the games being almost unplayable to some consumers. Ubisoft released an official apology after the release of *Assassin's Creed: Unity* due to the overwhelmingly negative reaction from consumers about severe graphical glitches, frame rate problems and crashes.[129] Similarly, *Batman: Arkham City* faced significant graphical issues on PC, and corrupted or disappearing save files on the

[127] Ibid. 8.
[128] Ibid. 16.
[129] Kelion, Leo. "Ubisoft apologises for Assassin's Creed Unity bugs." BBC News. Accessed March 14, 2017. http://www.bbc.com/news/technology-30226586

Xbox360.[130] The reputation of these launches are notoriously bad within the Western video game community, and are constantly revisited through online articles, such as Gamezone's retrospective article on *SimCity* called "Revisiting SimCity two years after its horrific launch: Is it time to close the coffin on SimCity?"[131] This is not to say Nintendo does not have poor quality games on its systems, as Sega's unfortunately broken *Sonic Boom: Rise of Lyric* (2014) on the WiiU proves it really does,[132] but its first party software development is always very polished, despite this unfortunate trend in the industry as a whole.

In this section deWinter also claims Japanese culture to be "an adaptive or derivative culture," where Japanese innovations in several industries adapt and improve upon other people's ideas.[133] She historicizes this understanding in the Japanese adaptation of Western medicines and technology during their trade period with the Dutch and into their isolation after the Tokugawa isolationist policies took effect.[134] She emphasizes these concepts with the idiom "Adapted Western Ideas, Japanese Essence" in English, likely referring to 「和魂洋才」*Wakon Yosai* in Japanese, as a suggestive summarization of this practice of adapting ideas without losing touch with Japanese culture.[135] This sense of adaptation can be seen in much of Miyamoto's work, including the designs of his characters. DeWinter credits Mario's creation as being partially based off of the Nintendo of America branch's landlord at the time, Mario Seagali; however, there are Japanese critiques that suggest Mario was influenced by the Japanese television show「ひょっこりひょうたん島」*Hyokkorihyoutanjima* and the similar look of the puppet character Don Gabacho. [136] In addition, Miyamoto's own history of wanting to become a manga artist and his interest in Disney influenced the kind of aesthetic Mario would have. This is

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[130] Rowland, Matt. "WB Reaches Out to Players to Pinpoint 'Batman: Arkham City' Corrupted Save Issue." GameRant. Accessed March 14, 2017. https://gamerant.com/batman-arkham-city-lost-saves-bugs-row-116457/

[131] Liebl, Matt. "Revisiting Sim City two years after its horrific launch." GameZone. Accessed March 14, 2017. http://www.gamezone.com/originals/revisiting-simcity-two-years-after-its-horrific-launch-jsx6

[132] I admit that I am bias in my distaste for this game, however a forgiving 32 out of 100 on Metacritic based on 28 critiques, and 3.5 out of 10 based on 592 ratings (as of February 15, 2017) is a fair justification for my judgement on the quality of this title. For perspective, *Assassin's Creed: Unity* ranged from 70-72 out of 100 and 3-4.9 out of 10 depending on the console.

[133] DeWinter. *Shigeru Miyamoto.* 8.

[134] Ibid. 14.

[135] Ibid. 15.

DeWinter does not actually cite the Japanese for this analysis, just the translation of "Adapted Western Ideas, Japanese Essence." Based on my rudimentary Japanese, I have determined that she is likely referring to 和魂洋才 found here: "Four-Kanji sayings pack an educated wallop: Kanji Clinic #37." KanjiClinic.com. Accessed March 14, 2017. http://www.kanjiclinic.com/kc37final.htm

[136] DeWinter. *Shigeru Miyamoto.* 16.

in line with Deleuzoguattarian concepts of deterritorialization and reterritorialization, as well as with Dyer-Witheford and dePeuter's interpretation of the theory. Past concepts, thoughts, creations, and even iconic traits of the familiar are broken down in a quest for something new; then, these deterritorialized concepts are reterritorialized. In this case, the design of Mario is being reterritorialized not only by Nintendo through copyright protection of their character, but it is also being reterritorialized by Japanese aesthetics, informing future interpretations of what an Italian man looks like.

Deterritorialization and reterritorialization in the Japanese cultural context can also be seen in what deWinter believes to be an "interest in Nature as an active character," stemming from Shintoist beliefs.[137] This is visible in many of Miyamoto's works, but especially in The Legend of Zelda series, where anthropomorphic characters such as the Great Deku Tree and the Maku Tree act as guiding spirits for the protagonist. These characters possibly recall the kodama spirits that reside in trees in Japanese folklore.[138] This is also reflected in the plant-like Korok race who inhabit the forest in the series. The traditional imagery of this familiar folklore is therefore deterritorialized to create characters that are appealing to Japanese and North American

Figure 17: Koroks from *The Legend of Zelda: The Wind Waker*, resembling tree spirits. Screenshot by author.

[137] DeWinter. *Shigeru Miyamoto.* 14.
[138] Ibid. 14.
In deWinter's analysis she relates the Great Deku Tree to *kami,* or spirits of nature. In my analysis I refer to them specifically as *kodama,* or spirits that inhabit trees for specificity. Other iconic races in many of The Legend of Zelda games could also be attributed to this influence of other *kami* or *yokai* (demons); for example, the humanoid fish race called Zora could be derived from Japanese water spirits/demons called Kappas who share similar physical characteristics.

audiences, and then reterritorialized into the Legend of Zelda franchise and canonical universe.

While not part of the matrix, deWinter also discusses the cultural significance of play as a concept.[139] In Japanese, the words for *play* have significantly more connotations than their English counterpart. Asobu 遊ぶ【あそぶ】and its conjugations are translated as *to play*, however, they would more accurately correlate to English translations of *to do* or *to go* in general contexts of leisurely enjoyment. For example, to hang out with friends, to be idle, to go drinking, and to go outdoors can all be understood as playing in the Japanese context.[140] This is unlike the English interpretation of play as a childish construction, or as a concept directly associated with an activity like games or sports. The English use of play is more associated with the verb する, which verbalizes nouns to describe the association.[141] In this context, the usage is better translated as *to do*; for example, Gēmu suru【ゲームする】 is translated into English as *play game*, but is understood as *do game* or *do gaming*. This relates to Miyamoto's sense of design, because of the inherent cultural understanding of play as being a diverse multiplicity of experiences that encompasses many possible areas of activity. This perception aligns with his background in industrial design and his production of hardware and software for leisurely and exploratory play. To play a Miyamoto game is to experience the joy of play in this more abstract sense of the word. These cultural contexts provide some insight into some of the aesthetic and creative influences Miyamoto had, especially early in his career when many of Nintendo's primary IPs were being designed; the next section considers how these influences were actualized through learned design practices.

Business Context & Early Training

Despite Miyamoto's artistic inclinations, he received a more business-oriented degree in industrial design, which is often cited as a significant factor in his design practices.[142] While industrial design is generally associated with the development of mass producible physical

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[139] Ibid. 13.
While deWinter's analysis inspired this discussion, my analysis in this paragraph is primarily based off my own linguistic training and familiarity with the terms. In deWinter's book, she compares the term Asobu 遊ぶ with Johan Huizinga's conception of play *Homo Ludens* which I found to be unnecessary, and the linguistic commentary slightly lacking.
[140] "遊" tangorin. Accessed March 14, 2017. http://tangorin.com/kanji/遊.
[141] "為る" tangorin. Accessed March 14, 2017. http://tangorin.com/general/為る.
[142] DeWinter. *Shigeru Miyamoto.* 8-9.

technologies, such as phones or microwaves, it is not usually associated with cultural products like games; yet this perspective on design is visible in his approach to making widely approachable games for all audiences. The original *Donkey Kong* arcade game (1981), for example, utilized familiar imagery in its character design and story, borrowing from films such as *King Kong.*[143] These recognizable story elements fostered consumer recognition in young children and adults alike, increasing the game's widespread appeal. Bringing these characters from the arcade to the NES also contributed to this sense of accessibility because of their integration into daily home life. This approach to mass producing for an iconic figure has continued with Mario in games, as toys, put on clothing or marking accessories. The lengthy and culturally significant legacy of Mario and the character's affiliated games is a testament to the power of mass producing a franchise and icon. In addition, Miyamoto's training was refined and applied together with Gunpei Yokoi, whose lateral thinking and revitalization of withered technology influenced Miyamoto's approach to games: creating something new by using old properties. These influences are also reflected in Miyamoto's focus of bringing the intergenerational mass appeal of games into the home with multiplayer and solo games alike. Again, the *Donkey Kong* arcade cabinet being one of the first projects Miyamoto started with in his video game design career brought the communal arcade experience into the home, influencing future designs that encompassed multiplayer and shareable secrets among players.[144]

Experience Design & Storytelling

Video game culture often focuses on experience design and narrative as the foundations of Miyamoto's design philosophy. Essentially, Miyamoto focuses on developing a narrative using the environment so players *experience* the story as opposed to being *told* a story. This is particularly noticeable in early works, which often featured heroes such as Mario or Link starting in a world with little context other than the booklet that came with the game. This experiential design potentially stems from two other influential factors. The first is a particular hardware constraint in the early days of Nintendo games. As Altice describes in detail in his book *I AM ERROR,* building software for arcade cabinets and the Famicom was difficult and required creative manipulation of code and graphic tiles to make the game run effectively; limitations with storage and the processing power of graphic processing units and computer processing units

[143] Altice. *I AM ERROR.* 63.
[144] DeWinter. *Shigeru Miyamoto.* 19-20.

in particular made sprite animations and tile variety a particular challenge.[145] It likely would have been impossible to incorporate heavy narrative elements, texts or cinematic sequences in such a technologically limited era. However, this limited style persisted with many of Nintendo's first party games, establishing a spatial narrative only available to the player through exploration. This is significant, as Miyamoto is considered to be the first designer to use the exploration of game space and the utilization of game mechanics to create a progressing narrative.[146]

As video games have grown as a medium, aesthetics and techniques from film and cinema have been deterritorialized and reterritorialized into the video game industry.[147] This has created games with visually stimulating cinematics that incorporate film's use of camera perspectives, framing, and more immersive and lifelike graphic fidelity. These elements have contributed to the development of an entire genre of video games that can be referred to as cinematic games; an example of this trend can be seen within the Metal Gear series, with *Metal Gear Solid 4* (2008) specifically being notorious for having one of the longest in-game cutscenes in gaming history at a total of 27 minutes.[148] While not all cinematic games spend quite as much time on cutscenes as *Metal Gear Solid 4*, they do embrace these visual cinematics to *tell* the player a story. The trend of *telling* rather than *experiencing* a story also comes from a long history of text adventures games, tabletop games, roleplaying games (RPGs), and fantasy or science fiction texts. Written text continues to be a very important narrative device in many genres including Japanese Role Playing Games (JRPGs), tactic games, or simulations. For example, the original *Dragon Quest* (1986) game was a fantasy driven JRPG that was primarily menu based. From walking up stairs to interacting with non-playable characters (NPCs), every piece of information and the characters' actions were determined by managing on screen text. As

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[145] Much of Altice's work discusses the computational complexities of the platform—as is the nature of a platform studies work. His insight into porting the arcade version of Donkey Kong onto the Famicom highlights many of the hardware limitations and the creative manipulation of the graphic process unit (otherwise known as a PPU or Picture Processing Unit for the Famicom specifically). This can be found on pages 118-161 of *I AM ERROR*.

[146] DeWinter. *Shigeru Miyamoto.* 29-30.

[147] This context of deterritorialization and reterritorialization can be understood as another way of describing processes of remediation. As video games are developing it is remediating other forms to justify itself as a legitimate commodity. This isn't brought into the analysis because of the Deleuzoguattarian framework deterritorializing more than just other media forms. Cinematic narratives can be discussed in the context of remediation, but for the sake of consistency it is being approached in this way.

[148] Fox, Matt. *The Video Games Guide: 1,000+ Arcade, Console and Computer Games, 1962-2012.* Jefferson: McFarland & Company, Inc., 2013.

the genre developed, menu management was phased out to only a few instances such as merchant interactions; however, the use of text persists as a way of *telling* the story.[149]

These two approaches to storytelling are not mutually exclusive, which can be seen through games such as *Final Fantasy VII* (1997), which incorporates text based cutscenes where dialogue is read by the player, and cinematic cutscenes to indicate major turning points in the story. This leads to the second possible influence in experience design: competition. Miyamoto purposefully does not integrate these elements into many of his games, and has been quite vocal about their lack of necessity in games generally.[150] His intentionally vocal neglect of more cinematic, realistic or text driven environments does not mean there is no rhizomatic connection between the Nintendo assemblage and competing games; rather, this conscious awareness of creating uniqueness or difference in opposition to these titles is in itself a relational connection to elements outside of the assemblage. It should be noted that despite Miyamoto being against these storytelling elements in favour of his experience design, it does not mean that Nintendo has not attempted to incorporate these elements either. *Super Mario RPG* (1996) and the later Paper Mario RPG series incorporate heavy text elements akin to competing JRPGs on other consoles. Miyamoto worked as a producer on *Super Mario RPG* and the early Paper Mario games;

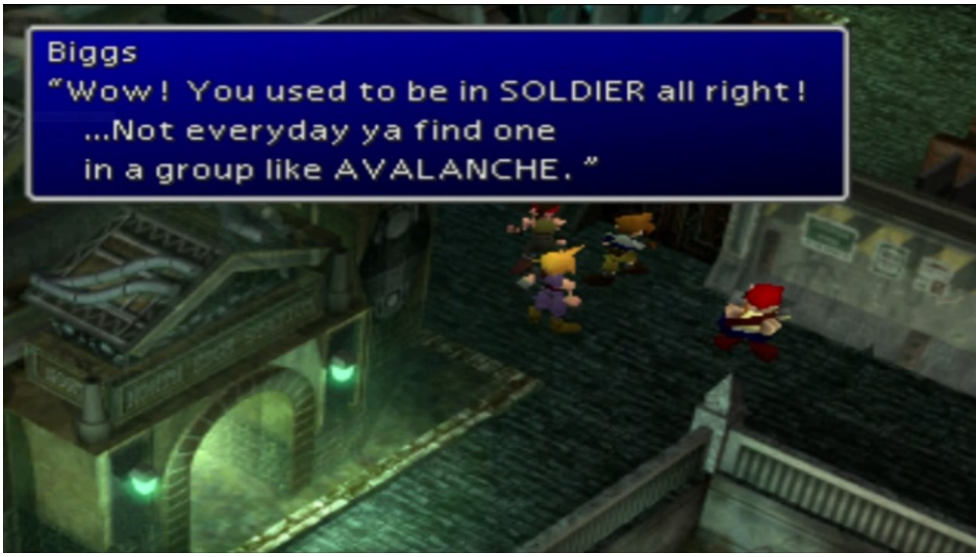

Figure 18: Text based cutscene from Final Fantasy VII, featuring minor character Biggs talking to protagonist Cloud Strife. Screenshot by author.

[149] Altice. *I AM ERROR.* 217-220.
[150] Johnston, Chris. "Miyamoto Talks Dolphin at Space World." GameSpot. Accessed March 14, 2017. http://www.gamespot.com/articles/miyamoto-talks-dolphin-at-space-world-and14599/1100-2460819/

however, they were primarily developed by external developers. His involvement as a producer could likely be attributed to ensuring continuity among the Mario games, as well as maintaining the approachability of the previous Mario games despite the genre for these titles being RPGs.

Hardware & Software Development

Discussing Nintendo's hardware or software relationally can be quite difficult because of how closely integrated these sections of the company are; as Nintendo has grown, and Miyamoto's influence has driven the company's creative direction, these technological sectors have become heavily reliant on one another. As will be discussed later in this chapter, this is evident in how Nintendo's software maximizes and utilizes every affordance of their hardware. For example, the Nintendo 64 was a significantly more powerful console than the preceding Super Nintendo Entertainment System, and they utilized their hardware to develop 3D game engines capable of creating an entirely new kind of environment to explore with their established franchises. In this era this close relationship between hardware and software led to the development of some of the most beloved games in Nintendo's entire catalogue, such as *Super Mario 64,* and *The Legend of Zelda: Ocarina of Time.* In particular, Miyamoto wanted to incorporate a strong sense of immersion into these 3D spaces, which he managed through his continued involvement in the console and controller designs.[151] This is evident in the design of the N64 controller's joystick. The joystick allowed for a wider range of fluid motion for character's like Link in *Ocarina of Time*; in contrast, Zelda games on the NES, SNES and Game Boy relied on Nintendo's initial 'D-pad' design for navigating the 2D space. Link could only move up, down, right and left. The joystick on the N64 controller also allowed Link to walk or run depending on how far the stick was pushed.[152] This was incorporated in many scenarios in *Ocarina of Time* where Link needed to slowly sneak through certain areas without getting detected. The controller became a much more involved device, allowing players a more engaging and immersive experience. This strong interconnectivity is imperative to understanding the significance of perceiving Nintendo rhizomatically, as it is the utilization of hardware and the development of unique mechanics that take full advantage of the hardware capabilities that have contributed to these IPs being continuously repeated as a new and different experience.

[151] DeWinter. *Shigeru Miyamoto.* 20-22.
[152] Figure 14 for reference of N64 controller.

Reterritorializing Influences

These varying influences are important to consider as persistent ideas that other lines of thought may pass through to alter their development. This collective of ideas should be considered as an area where thought was deterritorialized by Miyamoto; significant franchises such as Donkey Kong, Super Mario Bros., The Legend of Zelda, and Pikmin are just a few of his leading projects that reterritorialize these different influences into cohesive cultural commodities. Miyamoto is, of course, not the only creative figure in the company, but he set up a precedent early in his career with his fundamental designs that have persisted even as Miyamoto has obtained a more overarching position as Representative Director and Creative Fellow at the company.[153] In the following example, as The Legend of Zelda's history is considered rhizomatically, it should be noted that these influences have grown and shifted as Miyamoto, other creative figures in the company, the video game industry, and Japanese culture themselves have changed.

The Rhizomatic Legend of Zelda

There are several possible ways of approaching a rhizomatic examination of Nintendo's software history; focused case studies of game mechanics, aesthetics, use of narrative, or story elements could plausibly be mapped within Nintendo's assemblage, the greater video game industry's assemblage, or outward towards Eastern and Western film and literature. However, for the purpose of this study, The Legend of Zelda will be considered as its own internal assemblage through its relationships with aspects of itself and other areas of Nintendo only. This understanding will be developed through interpretations of Miyamoto's design influences and philosophies, in addition to the established Deleuzoguattarian framework.[154] It should be noted that while The Legend of Zelda is a first party property, some of the titles were made by third party developers such as Capcom; however, these can still be understood as strongly related to Miyamoto's design influences and principles, because of their franchise ties with his original games. These games were also developed under the supervision of Nintendo and Miyamoto, which assumes a level of control over Capcom's ability to deterritorialize the property heavily. In addition, Yoshiki Okamoto, the Capcom game director for *The Legend of Zelda: Oracle of*

[153] "Notice Regarding Personnel Change of a Representative Director and Role Changes of Directors." Nintendo Co., Ltd. Accessed March 14, 2017. https://www.nintendo.co.jp/ir/pdf/2015/150914e.pdf

[154] This is not to imply that The Legend of Zelda or Nintendo are entirely different from other game companies, just that they have unique features and provide and interesting case study.

Seasons and *Oracle of Ages* games (both 2001) admitted in an interview that he needed Miyamoto's guidance on the game design:

> It's been taking up money for ages now, with all the people we've brought in. So I came in, and I saw that nothing was working out, and I went up to Miyamoto and was like, "Help me!" The members of our team weren't agreeing over the direction that game development should take. I thought that we should produce a new version of the first Zelda game (released for the NES in the U.S.) for Game Boy Color. Then, if it went well, we could move on to the next stage (making a more ambitious game). But, my people wanted to skip that first phase and create their own Zelda game from the beginning. Mr. Miyamoto normally creates the game scenario (story and characters) after the initial game play is designed. If the action part of the game is solid, the scenario can be developed from there. We started by using the Capcom scenario creation company, Flag Ship, to create the scenario first. Then, we created maps and started developing the game. I don't believe that worked. [155]

Therefore, despite these titles being developed by Capcom as a third-party, these games can still be understood as functioning within the rhizomatic network and Nintendo assemblage because of Miyamoto's guidance during the design process. As will be discussed later in this section, the Zelda games' integration of sameness was not only necessary for ensuring a foundational identity of Zelda as a series, but Nintendo's creative trajectory of sameness establishing a qualitative precedent and protection over their IPs.

The Legend of Zelda (1986) was originally designed as another Mario game that focused on exploration of natural environments, partially inspired by Miyamoto's youth exploring forested mountain sides in Japan.[156] The game emerged from the initial designs for *Super Mario Bros.* (1985), where mechanics and aesthetics that did not necessarily fit with Mario were being creatively constructed.[157] Therefore, the Mario franchise at this point was deterrititorialized and reterritorialized as a new IP. However, the series' creative influences do not stem from Mario only. As previously described, influences for the Zelda series were derived from Japanese folklore, as well as Miyamoto's own personal interest in the Japanese countryside.[158] In addition, as the games developed in parallel, ideas developed from *The Legend of Zelda* came to influence the development of *Super Mario Bros.* and its successors; for example, the Warp Whistle is an item found in *The Legend of Zelda* that teleports a player to a previous point in the game, while

[155] "The Legend of Zelda: Oracle of Seasons Interview Part I." Nintendo. Accessed March 14, 2017. http://web.archive.org/web/20050311025108/http://www.nintendo.com/gamedev?gameid=m-Game-0000-314
[156] DeWinter. *Shigeru Miyamoto.* 13-14.
[157] Altice. *I AM ERROR.* 170-172.
[158] DeWinter. *Shigeru Miyamoto.* 14.

an identical item also called the Warp Whistle sends players to a farther point in *Super Mario Bros. 3.* Despite the slightly different game mechanics, the item in both games feature the same tune when operated.[159] While Zelda stemmed from the center of the Mario assemblage its development was not a linear progression away from it, but a continuous and simultaneous growth through and around the other franchise. This close integration can be attributed to many of Miyamoto's influences, such as the adaptation of other work to include more Japanese aesthetics, previously described as the idiom 「和魂洋才」*Wakon Yosai*. The original *Donkey Kong* game was Mario's debut, with *Mario Bros.* (1983) and *Super Mario Bros.* being *Donkey Kong's* successors. *Donkey Kong* was initially meant to sell arcade cabinets in the North American market, and not necessarily for the Japanese market.[160] Therefore, even though Mario was originally created by Miyamoto and Nintendo, the North American or westernized context of its games was subsequently broken down and infused with Japanese cultural themes and aesthetics to make Zelda. This could also be related to influences from Yokoi's lateral thinking, but ultimately shows the necessity of considering the two games simultaneously.

Figure 19: The original Legend of Zelda game released in 1986. Protagonist (Link) kills enemy octorok on right of the screen. Screenshot by author.

[159] "15 Things You Might Not Know About *The Legende of Zelda.*" Mental Floss. Accessed March 14, 2017. http://mentalfloss.com/article/62244/15-things-you-might-not-know-about-legend-zelda
And "Warp Whistle." Nintendo Wiki. Accessed March 14, 2017. http://nintendo.wikia.com/wiki/Warp_Whistle
[160] Consalvo. *Atari to Zelda.* 42.

Figure 20: Castlevania on the NES released in 1986 (left), Zelda II: Link's Adventure on NES originally released in 1987 (right). Screenshots by author.

The shared thoughts across and between these game franchises did not remain consistent as this rhizomatic network of ideas expanded outward. This can be seen through the development of *Zelda II: The Adventure of Link* (1987), which instead featured gameplay and aesthetics that were similar to the Castlevania series of games published by Konami for the Famicom. Both games feature a side-scrolling perspective, as opposed the original *The Legend of Zelda* which used a top down perspective. In addition, the inclusion of a magic bar and experience system made *Zelda II* fundamentally different from its predecessor—which had neither of these elements. Aspects of the original Zelda, as well as mechanics from games published outside of Nintendo, were therefore deterritorialized in a quest to profit from previous ideas, and valuable concepts from the previous territory were reterritorialized by the Zelda IP and Nintendo's copyright protection.

Yet once again there is a lack of consistency, as shown by the third installment in the series *The Legend of Zelda: A Link to the Past* (1991), which more closely resembles a graphically improved repetition of the original *The Legend of Zelda.* However, it actually incorporates many elements from both of the previous games. The aesthetic, camera perspective, and combat strongly resemble those found in the first game. The convention of health being represented as hearts was also brought back from the first game, as the second game used a health bar instead. The interface for the third game clearly showing important items such as keys and bombs was also re-instated in *A Link to the Past,* despite being replaced by a menu system in *Zelda II.*

However, despite *Zelda II* being (retrospectively) considered a black sheep of the franchise, some mechanics from this game were used in later Zelda titles, and have come to be considered fundamental gameplay elements for the franchise. Specifically, *Zelda II* introduced a 'magic bar' that could be depleted through the use of certain items. This can be understood as *A Link to the Past* being a series of repetitions within what is forming as an abstract machine or assemblage within Nintendo itself. Again, an assemblage is a grouping of things under a single context, while an abstract machine is an assemblage that establishes a sense of continuity. Simply put, the abstract machine defines characteristics of the franchise; that way, subsequent passage through the abstract machine allows new ideas relating to mechanics, aesthetics, and story to be integrated into an expected level of sameness together with the other Zelda games. The franchise repetitions become a part of, and define a necessary sense of, continuity and sameness that reterritorializing ideas must pass through to become part of the Zelda franchise. Each repetition creates a new growth in this system, which may align itself closely, pass through, or merge in or out of similar repetitions—mostly only being perceivable as being different due to the clock time of their initial sprouting, or what idea may or may not be passing through it. These chaotically similar trajectories and this network's relational behaviour of ideas continued from *A Link to the Past* through the Zelda handheld games up to and including the most recent title, *The Legend of Zelda: Tri Force Heroes* (2015), released for the Nintendo 3DS. Repetitions, and their integrations of sameness within the abstract machine, are necessary for the franchise to be defined as a continuous series; but simultaneously difference is necessary to provide a sense of newness and growth within the Zelda assemblage. Many of these differences take the form of unique mechanics dependant on the relevant hardware, evident in the following examples.[161]

[161] As discussed in the previous section on Miyamoto's influences, this can be understood from his perspective as maximizing the close association between software and hardware through unique game mechanics.

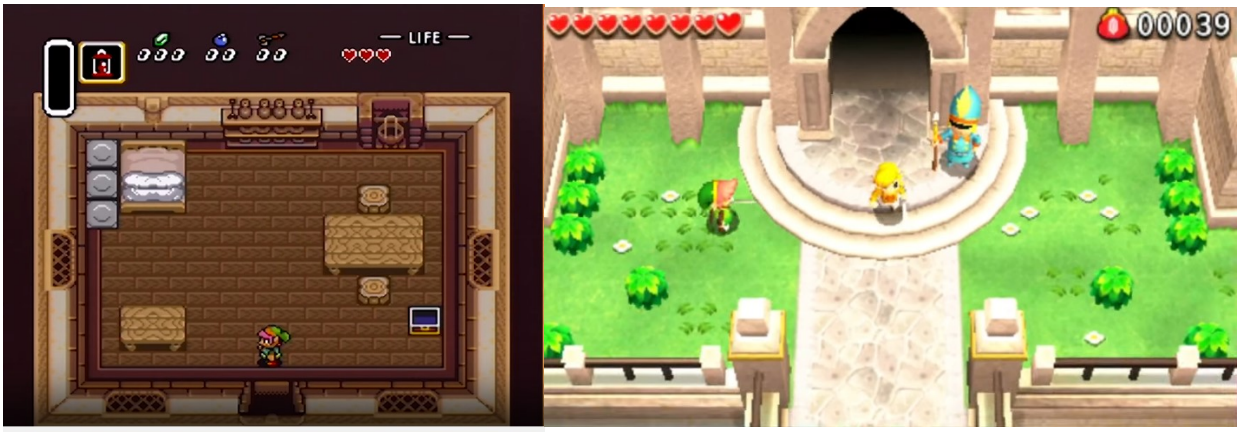

Figure 21: The Legend of Zelda: A Link to the Past (left) compared to The Legend of Zelda: Tri Force Heroes (right). Screenshots by author.

While each Zelda game is fundamentally the same, there are usually one or two mechanics that completely alter the game experience despite the core elements (other mechanics, gameplay, story, characters, use of spatial narrative, etc.) remaining the same. What differentiates these from competitor's franchisal developments is the hardware 'gimmick' that is featured to emphasize the certain mechanics only possible on Nintendo hardware. For example, in *The Legend of Zelda: Oracle of Seasons,* for the Game Boy Colour*,* the seasons are out of sync. This allows Link to go from Winter in one area to Summer in another, which provides unique puzzle mechanics and manipulation of the environment. This not only showed the capability of the hardware's processing power, but also how colour could be utilized as a function on the Game Boy Colour—an obviously significant function for the handheld device given its name. In addition, the game was also released at the same time as *The Legend of Zelda: Oracle of Ages,* both of which could be played together utilizing a trading system and unlockable passwords via the Game Boy Link cables—once again developing mechanics which emphasized Nintendo's unique hardware capabilities. Another example is *The Legend of Zelda: Phantom Hourglass* (2007) on the Nintendo DS, which featured puzzles and mechanics that required the use of the secondary touch screen, in-game microphone, and even the handheld's folding design. While Yokoi's lateral thinking of withered technology persists within Nintendo likely in part due to his influence on Miyamoto, it is Miyamoto's establishment of this franchise's repetitions and maximization of hardware potential that has produced this chaotic yet perceptible pattern. The incorporation of hardware capabilities is also what differentiates Nintendo's software development processes from other developers. Many of Nintendo's consoles have specific hardware designs that allow for a particular gameplay experience; other examples on the home

consoles include the central design of mimetic or motion controls around mechanics like firing arrows with the Wiimote and Nunchuck periphery in *Link's Crossbow Training* (2007) on the Wii, combat in *The Legend of Zelda: Skyward Sword* (2011) on the Wii, or puzzle solving with the WiiU and Switch release of *The Legend of Zelda: Breath of the Wild*. Competing software occasionally does this, such as *Infamous: Second Son* with its utilization of the PlayStation controller's motion control to create graffiti art. While software made for the PlayStation and Xbox consoles certainly has hardware considerations, these designs rarely affect gameplay to the same extent as Nintendo; in other words, the centrality of the hardware design capabilities remains a primary feature of Nintendo's software, but does not extend to other consoles.

Aesthetically and mechanically, the home console Zelda games took a stark turn after *A Link to the Past.* The console games can be imagined as separating from the previous Zelda games to form an adjacent and related abstract machine or console Zelda assemblage—although theoretically these may both be perceived simultaneously as being within a single Zelda assemblage as well. While interconnected through their canonical story lines, characters, mechanics, etc. the handheld and console games can be perceived as diverging with the development and release of *The Legend of Zelda: The Ocarina of Time* in 1998 on the N64. As mentioned previously, the N64 created a three-dimensional player space, which fundamentally altered the experience of the spatial narrative established in previous games. The game ostensibly *feels like* a Zelda game because of its repeated themes, story, and mechanics; each Zelda game continues to feature a young male protagonist clad in a green tunic on an adventure relating to a princess named Zelda, a mystical artifact called a triforce, and a great world-ending evil. Each game features a series of the same weapons, characters, monsters and villages/areas. However, the shift in the player space in *The Ocarina of Time* required significant deterritorialization of its own franchise to accommodate and integrate hardware capabilities. After this, later console Zelda games grew from *The Ocarina of Time* rather than *A Link to the Past,* creating two simultaneous assemblages interacting with one another. The aesthetics, stories, and mechanics are shared relationships between the handheld and console games, but these hardware connections also appear in repetitions of complete games; the perceivable difference from the past being small adjustments such as the clock-time of their release and the hardware they appear on. Here I am referring to the common Nintendo and wider industry practice of rereleases,

remasters, and remakes. When these games are redone, they contribute to the abstract machine which reinforce a continuity and perceivable legacy of the series.

Figure 22: The Legend of Zelda: Ocarina of Time, exiting Kokiri Village to visit The Great Deku Tree. Screenshot by author.

With only a few exceptions, nearly every Zelda game published by Nintendo, up to and including *The Legend of Zelda: Skyward Sword* from 2011, has been either remade, remastered or rereleased on hardware other than their original—many of these include digital releases on the Wii or Wii U virtual console, or Nintendo DS or 3DS eShop. These repetitions can also be understood as part of Miyamoto's goal, influenced by his knowledge of industrial design, to mass produce games for the benefit of the business. They can also be understood as the monopolization of nostalgic regression of their products. Regressive nostalgia can be defined as a longing for a past that often intentionally omits negative attributes of the history or memory;[162] for rereleases, remasters and remakes, the differences (improved graphic fidelity, bug fixes, etc.) in these repetitious creations emphasize the qualities of sameness in the titles that lie parallel with a desired experience by nostalgic consumers. Many dedicated fans of Nintendo long for those experiences they positively remember, without the potential issues surrounding actually

[162] Pickering, Michael and Emily Keightley. "Retrotyping and the Marketing of Nostalgia," *Media and Nostalgia: Yearning for the Past Present and Future.* Edited by Katherina Niemeyer. London: Palgrave Macmillan UK, 2014. 84.

reliving the negative aspects of the experience. For example, it is possible to set up *The Legend of Zelda* on a Nintendo Entertainment System connected to a modern television, but it is not without its technological complications. This is not just due to the advancement of technology, but the system itself was notoriously sensitive in the mid-1980s and would be difficult to run without the device being properly maintained. Instead the experience can be relived again, without these complications or problems, via the Nintendo 3DS' eShop. This type of rerelease or repetition passes from the original lines of thought into the handheld, re-establishing it into the continuity.

These abstract machines, which integrate continuity and sameness, are necessary for maintaining a sense of brand quality and canonical lore within the franchise. There was a short period of time in Nintendo's history where they licensed the use of their characters for different games, which led to several iconic characters like Mario and Link engaging in very different imagined worlds; these games integrated substantial difference that conflicted with the style and quality originally established by Nintendo, yet also monopolised, profited off of and competed with their original work. The notorious examples for the Zelda franchise are the Phillips CD-i games *Link: The Faces of Evil, Zelda: The Wand of Gamelon,*(1993) and the Viridis CD-i game *Zelda's Adventure* (1994). These games can be imagined in this network of ideas as lying within and outside of Nintendo depending on the context of the assemblages. As games that have

Figure 23: *Link: Faces of Evil* gameplay, featuring similar side perspective to *Zelda II: The Adventure of Link.* However, the player interface and mechanics are noticeably different from the Nintendo games. Screenshot by author.

deterritorialized the original games' narrative structure, mechanics, characters, etc., they are inherently interconnected with Nintendo-created games; however, because they were not created by Nintendo, they do not necessarily belong in its assemblage. Rather, deterritorialized ideas from the original games pass through and culminate outside of the Nintendo assemblage, out into the wider assemblage of video game creation. Much like *Zelda II: The Adventure of Link,* which featured significantly different gameplay mechanics, the CD-i games were relatively well received in their time; however, this external use of Nintendo IPs can be seen as disadvantageous for Nintendo, especially considering *Link: The Faces of Evil* and *Zelda: The Wand of Gamelon* were released in 1993, at the same time as Nintendo's first party *The Legend of Zelda: Link's Awakening.* Licensing their characters created unnecessary competition with their own property. After these games, Nintendo did not allow their Legend of Zelda characters to be used externally again; instead, developers using their IPs were put under Nintendo's supervision, or were made in-house.[163] Clones, or copycat games, can also be imagined as connecting to the Zelda assemblage, yet simultaneously existing outside of Nintendo elsewhere in the video game industry assemblage. For example, *Oceanhorn: Monster of Uncharted Seas* (2013) developed by Cornfox & Bros on nearly every console excluding Nintendo Wii U, is clearly inspired by the Zelda series. The game features a very similar interface, identical items, mechanics, aesthetics, and character designs to many of the Zelda games; however, these ideas and concepts have been reterritorialized under a completely different property and company, protecting it from copyright infringement. This is also an example of how corporate ideologies in the video game industry change as relationships form or separate.

Nintendo has a notorious reputation for being an isolationist corporation, unfriendly with many third party developers through their creative restrictions and development policies—particularly after Hiroshi Yamauchi's divisive split with Sony's president over the development of a disc drive for the SNES.[164] The new president of Nintendo, Tatsumi Kimishima, has made it clear that Nintendo is adapting to a new market with an aggressive mobile campaign that creates a new experience with their properties, as opposed to porting their old games directly onto mobile devices like other software developers have done. In addition, Nintendo has announced many third party developers developing titles for the Nintendo Switch console. Alongside a

[163] The supervised Nintendo games are referring to the aforementioned Capcom developed Zelda games.
[164] Sloan. *Playing to Wiin.* 84.

vague announcement during the console's reveal showing the logos of popular North American developers working with Nintendo, subsequent game announcements have shown that games found on other hardware, such as *Oceanhorn*, are being ported to the Switch to fill their release catalogue. This shift in Nintendo's practices can be perceived as its assemblage becoming more porous, allowing more ideas to pass in and out of its once confined corporate and creative philosophies.

Figure 24: *Oceanhorn: Monster of the Uncharted Sea* (on PS4) compared to *The Legend of Zelda: The Wind Waker HD* (on WiiU). Screenshots by author.

Conclusion

This analysis of Nintendo and its software is just one possible interpretation of how ideas within the video game industry and Nintendo can be visualized as an interconnected network of shared ideas, concepts, and designs. Because of the network's fluidity and chaotic groupings, it is possible to reimagine these connections and assemblages differently by incorporating or omitting different games or influential people. Figures such as previous company presidents like Hiroshi Yamauchi and Satoru Iwata, or creative contributors within the company who have dictated the company's trajectory like current Executive Officer Takashi Tezuka, all contributed from a corporate, technological or creative perspective that could shift this perception of Nintendo. In this way, this rhizomatic framework allows for a history of innovation and creation to be understood as a chaotic and relational experience, rather than a linear progression from the old and outdated to the new and unique. While this perspective could be applied to many developers who create long game series, Nintendo provides a fitting example because of the company's inherent dependency on these series together with their hardware.

Conclusion

The Literary Field of Nintendo

This thesis began as a theoretical and methodological examination of nostalgia within Nintendo's fan culture. Being a thoroughly integrated member of this nostalgic fan culture myself, the connection was quite obvious. Nintendo has been a defining entity in my life, which has influenced and contributed many treasured experiences and memories. From the school yard roleplaying sessions of Link and Zelda at age 5, to the 2 AM Pokémon hunt in the woods at 23, my love of the company is undoubtedly obsessive. It is this affection for this company that interested me in researching its history more; however, it is my critical perspective on constructed narratives that led me to a concerning truth about how success in the industry was formally being remembered. Nintendo's literature overwhelmingly focuses on two specific periods of profitable hardware, which neglects opportunities to critically analyze and discuss other devices and software that influenced creations within the company and industry at large.

Within game literature, there are not many significant works that afford a theoretical examination of the industry's history without a focus on a linear chronology or cause and effect. One of the primary texts that inspired this Deleuzoguattarian approach in perceiving the industry was Dyer-Witheford and de Peuter's *Games of Empire,* which briefly used deterritorialization and reterritorialization to describe the successful release of the Nintendo Wii. In addition, Colin Cremin's work *Exploring Video Games with Deleuze and Guattari* inspired a more relational and interconnected interpretation of creativity and game design; however, parts of his analysis were too rigid in comparison to my interpretation of the source material. Therefore, I determined a plausible course of action was to move away from an overarching analysis of Nintendo, and focus on using the company as an example in developing a framework for perceiving creation more fluidly.

The development of a framework that takes into consideration history and creativity was not without its difficulties. Deleuze and Guattari provide the opportunity for alternative understandings of time, space, and thought; but I found it difficult to describe an alternative perspective using my current frame of thinking. Interpreting their work required as much flexibility as their own theories would suggest. The source material *Anti-Oedipus, A Thousand Plateaus* and *Cinema 1: Time-Movement,* provided much of the foundational basis for this thesis; however, external sources such as *The Deleuze Dictionary* edited by Adrian Parr provided

multiple interpretations and analysis of the original texts. While the source materials were still necessary, these external sources provided significant gateways into possible interpretations that would suit the rhizomatic perspective I imagined to be functioning within the industry and Nintendo. Using my thesis as an opportunity to create a framework to oppose a traditional narrative is not a unique objective, and my theoretical interpretation is not without its limitations.

Benefits and Limitations

This framework is simultaneously vast and specific. It allows the opportunity to explore a vast multiplicity of ideas across space and time, without privileging certain creations or thoughts as more significant than another. Instead, it highlights sameness, difference, connections and expansions that are often conveniently ignored or forgotten. This opposition to hierarchical divisions and linear thinking are the primary difficulties in managing this framework. Because everything is connected, everything is equally significant and could potentially be considered. This is why qualifying my analysis of hardware and software connectivity and the rhizomatic history of The Legend of Zelda as simply one possible interpretation is necessary.

The simultaneous benefit and limitation of framing everything within a rhizomatic network is that every individual's approach to the chaos nets a different imagining of the creative space. The inclusion, omission or conscious mapping of a specific flow considerably shifts the dynamic of the creative space that is being explored; it is in this context of dependant interconnectivity that I understand this framework as vast and specific. The author's omission or inclusion of a specific flow alters the overarching perception of interconnected assemblages. Despite the complications of its applications, I do find a benefit to understanding creativity within media industries rhizomatically, as it questions our own understanding of what makes things socially or economically valuable if all thought can be imagined as equally significant and intertwined.

The decision to focus on Nintendo as opposed to the greater industry or other companies also provides its benefits and limitations. Nintendo is still one of the major console developers and has more console releases and first party software in its catalogue to consider—this is beneficial for establishing this framework as it gives more material to interpret. However, this is also a limitation, as it does not consider the possibility of unique flows that may or may not be

within Sony, Microsoft, or AAA and Indie software developer assemblages. Further studies using Deleuzeoguattarian theory may prove interesting within these areas of the industry.

Further Possibilities of Rhizomatic Analysis through Nintendo

Reimagining aspects of video games rhizomatically affords many possible analyses of the industry, its economies, its people and its games. As previously mentioned, some of this has already been explored to some extent by other scholars. For example, in Colin Cremin's book, he describes a concept called rhizome-play:

> [rhizome-play is] the deterritorialisation and reterritorialization of the video game space: the video game 'playground' that the nomad transforms by 'going smooth' between the striated grid of the program, cutting their own line through the arborescent code through experimentation. [165]

His analysis of rhizomatic play incorporates other aspects of Deleuzoguattarian theory including smooth and striated space, arborescence, being and becoming, bodies without organs, and the molar and the molecular. Put more simply in an earlier discussion, he explains how Deleuze and Guattari describe the game *Go* as a smooth space of experimentation, deterritorialization and lines of flight. How pieces move and how they are countered are part of this fluid and continuous deterritorialization and reterritorialization of the board or game space, and he therefore deems the act of playing *Go* as inherently rhizomatic. This is contrary to what he calls arborescent-play, which is predictable, hierarchical tracings and fundamentally within territory. To play chess is to engage in a striated space of these fundamental qualities, and thus is inherently arborescent. [166][167] He goes on to apply these concepts to various video games, taking into account how different game mechanics can be understood as different forms of play. Cremin describes how QTEs (Quick Time Events) where players quickly react to specific button prompts are arborescent as every action has the same predetermined outcome of failure or success. On the contrary, games such as *Geometry Wars* produce rhizomatic-play as the possibilities of engaging with the space are seemingly infinite.[168] The game allows players to move anywhere within a rectangular space while fighting off hordes of various colourful and aggressive shapes to both stay alive and collect

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[165] Cremin. *Exploring Video Games with Deleuze and Guattari.* 64.
[166] As described in chapter 2, smooth space refers to the heterogeneous expanse of creative possibility, while striated space can be described as homogeneous. While Cremin's initial introduction of these play forms refers to these spaces divisively, his later discussion does pose a more complex notion of these concepts.
[167] Ibid. 54.
[168] Ibid. 62-63.

points and power-ups. Despite the location of enemies being predetermined by the software's code, the player can make the avatar attack from anywhere within the space while incorporating an infinite number of possible movements and strategies. His application of rhizomatic theory, together with many of Deleuze and Guattari's other concepts, reimagines the player experience in relation to the game's mechanics and design. While the theoretical framework I have presented in this thesis approaches a different aspect of the video game industry, expanding on hardware and software design to incorporate player experience would be the next possible step in its application.

Specifically regarding Nintendo, the constant growth of thought from and through past that presents new experiences of the same, has given players a very nostalgic perception of the company and its IPs. In an attempt to explore this area of analysis, I conducted a series of interviews with a small group of 4 participants, ranging in age from 23 to 54. 2 participants identify as female and 2 as male, while 3 participants have 2 dependants ranging in age from 3 to 26, all of which play games. My primary intention was to consider how each participant felt about the company in relation to their self-declared familiarity with the company. While this part of my analysis never fully developed due to time constraints and realistic goals for this thesis' completion, it did provide an opportunity for future considerations of rhizomatic applications to studies on nostalgia. For example, when asked about Nintendo rereleasing old games on new hardware, the 33-year-old male gamer expressed his impressions of the company:

> Nintendo relies on what they know, and so gamers themselves feel comfortable with it. They rely and depend on Nintendo to give them something fresh of what they already love. And they'll do that continually without having to wait too long like other systems. Like only now is *Crash Bandicoot* (1996)[169] coming out? Only now a new *God of War* (2005)?[170] With Nintendo it's pretty much right away, you're going to get what you want.

These experiential emotions of freshness and comfort parallel Nintendo's design practices described in Chapters 2 and 3, which aim for repetitions of difference that emphasize a quality of sameness. Another participant, a 23-year-old female gamer who expressed a more dedicated affinity to Nintendo, expressed a similar notion with the Pokémon franchise:

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[169] *Crash Bandicoot* is an IP created by Naughty Dog, a subsidiary of the Sony Interactive Entertainment America LLC (subsidiary of Sony Interactive Entertainment Worldwide Studios, and thus Sony Interactive Entertainment).
[170] The God of War series is developed by several different groups including those owned by Sony Interactive Entertainment.

> Well, there's definitely the nostalgia factor—*The Legend of Zelda: Ocarina of Time* wasn't the first video game I ever played, but it was the first one I really got into, that I felt invested in while playing. *Pokémon Blue* was also the first handheld game I played, and I really enjoyed both of those and following those series as they released more.
>
> I think nostalgia plays a bigger part with Pokémon, for example, since I didn't enjoy some of the more recent iterations as much as I remember enjoying the old ones, but it's still interesting and fun to see the new things they do with each new installment. Like I ended up loving Sun, but am kind of passive about Y and Black for the most part.

In my reimagining of Nintendo's history of video game software and hardware production, how are these emotions of nostalgia and investment intentionally or unintentionally formed through the act of playing these creations? How could the rhizomatic network of created products be imagined from the perspective of a nostalgic consumer? While these questions could not be fully explored in the previous analysis, this is one potential future direction of this research.

Another possibility for future research is a rhizomatic perspective on Nintendo's current market adaptation toward mobile games. The new president Tatsumi Kimishima has expressed an aggressive yet creative method of repurposing the company's IPs, stating:

> But to further that goal, we want to increase the population who has access to Nintendo's IP first and foremost. Of course the smart device business is not a simple business, it is a highly competitive business, and so for us just to take our IP and drop it into the smart device business, in that existing red ocean, I believe would not be a very successful strategy to take.
>
> We want to increase the population of those people who have access to our IP, and we also need to make the way they access our IP as simple as we can or as easy as we can. And that's how we're going to make the smart device business successful.[171]

Nintendo is entering an era where they have to produce software for non-proprietary devices. Like most game developers, they are at the mercy of uncontrollable hardware and the lack of creative flexibility that relationship affords. Yet Kimishima maintains the same perspective as Miyamoto, in the sense that the software should maximize the capabilities of the hardware, and he has attempted to make that possible with their IPs. In the past year and half since he has become president, Nintendo has been involved in the launch of *Pokémon GO* (2016), *Miitomo* (2016), *Super Mario Run* (2016), and *Fire Emblem Heroes* (2017). *Pokémon GO* in particular

[171] Peckham, Matt. "14 Things Nintendo President Tatsumi Kimishima Told Us." *Time.* Accessed March 14, 2017. http://time.com/4131306/nintendo-kimishima-interview/

became a cultural phenomenon in the summer of 2016, currently surpassing 650 million downloads globally.[172] *Pokémon GO* is an augmented reality collection game that allows users to explore the real world to find digital Pokémon to catch. Much like the anime, or the original video game it is based on, the app allows players to simply catch, level, or battle their Pokémon at various special locations to claim that location or 'gym' for their team—the teams being colour coded Mystic/Blue, Valour/Yellow, and Instinct/Red. However, the game was actually developed by Niantic, who incorporated many game mechanics from their previous app *Ingress. Ingress* is also an augmented reality game based on real world map locations, which requires players to interact with digital portals to claim them for their designated faction. By performing actions in the game, players also accumulate action points and the opportunity to collect certain badges in game. These mechanics were obviously adapted to incorporate elements expected from a game about Pokémon; portals became Pokémon Gyms, action points became experience, and badges became Pokémon themed. Within a rhizomatic network of creation and ideas, their previous creation *Ingress* and the world of Pokémon were deterritorialized to create a new experience and reterritorialized under the Pokémon IP. Alternatively, in relation to the previous research possibility, understanding how *Pokémon GO* interacts within and outside the Nintendo and Pokémon assemblages could provide insight into the development of nostalgic experiences. In a local article from the Miami Herald called "For millennials, Pokémon Go is a childhood dream come true," Emily Cochrane interviewed Pokémon GO players outside the Florida International University. A 23-year-old college student explained to her how "It has an emotional attachment… It's just feeding off the original game, and the original game was the biggest game there was."[173] Or, as another 28-year-old stated, "You get to live the show," referring to the Pokémon anime released in the late 1990s.[174] The app is the culmination of various ideas or pasts which intentionally manipulate its consumers into experiencing specific emotions and desires.

This interest in how nostalgia can be imagined as a product formed out of a creative network is obviously a strong point of interest; however, for the sake of simplifying a complex perspective, these are merely potentialities to be considered in future research. My goal for this

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[172] Campbell, Evan. "Pokemon GO Passes 650 Million Downloads." IGN. Accessed March 14, 2017. http://ca.ign.com/articles/2017/02/28/pokemon-go-passes-650-million-downloads
[173] Cochrane, Emily. "For millennials, Pokemon GO is a childhood dream come true." Miami Herald. Accessed March 14, 2017. http://www.miamiherald.com/news/local/community/miami-dade/article88981162.html
[174] Ibid.

thesis was to challenge a firm understanding that Nintendo's history was one of its hardware, one that has only been imagined chronologically with the NES and the Wii being the most significant innovations by the company. It is my hope that this provides inspiration for other academics within game studies who may find a rhizomatic perspective more appropriate for an exploratory application within the industry.

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