8-2018

Modding the Apocalypse: (Re)Making Videogames as Post-Structuralist Free Play

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MODDING THE APOCALYPSE: (RE)MAKING VIDEOGAMES AS POST-STRUCTURALIST FREE PLAY

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements of the Degree
Doctor of Philosophy
Rhetorics, Communication, and Information Design

by
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August 2018

Accepted by:
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Abstract

This dissertation is about seeing videogames, and videogame design, through the lens of Gregory Ulmer's electracy apparatus theory. Videogame modding is emphasized an electrate approach to intervening in existing media. Mods have the potential to make potent rhetorical arguments, but they are little-understood in the field of rhet-comp, and there are numerous obstacles to carving a space for them in academic curricula; nevertheless, they are an increasingly common form of participatory engagement that make use of a broad digital skillset. Modders fit into Gregory Ulmer's electracy apparatus as egents—agents of change in the Internet age—and their playful appropriation of objects from various archives resembles the electrate genre of MyStory (personal alternative-history). By positioning modding as electrate composition praxis, a new gateway for academic game study and production is opened, one where "play" is integral to the process of knowledge formation. *Fallout 4* (2016) serves as an example of a moddable game whose rhetorical affordances can be adapted to craft MyStories and MEmorials.

Acknowledgements

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Notes to the Reader

- All **bold** emphasis added by me, including in direct quotations, to highlight key terms.
- Titles of videogame mods are in "quotes," while unmodded videogames are *italicized* (i.e., "Chrono Trigger: Crimson Echoes" is a mod of *Chrono Trigger*), except in direct quotations where other authors use alternative styles, which are preserved.
- The brand names of electronic devices are *italicized* (i.e., *Game Genie*, *Nintendo 64*).
- A glossary section is provided, starting on page 215, to define jargon and abbreviations that are frequently used or do not merit in-text definition.
- The Preface section uses inverted italics to designate text in the MyStorical style, which is written from a first-person perspective; this is opposed to the predominantly third-person, academic style of the rest of the document.

Preface: A Brief MyStory as Vita Minor

a. Growing up with videogames, and my first experiences modding

[A 1991 tv commercial opens on the entrance to a closed-down, dilapidated drive-in theater. A **ruin** from another era.]

[In strides a young man (played by a 22-year-old Paul Rudd), wearing a long, black coat. He takes out a grey cartridge and plugs it into a *Super Nintendo*, and begins **playing games** on the drive-in's big screen.]

Narrator: When you decide to step up to this kind of power, this kind of challenge, this kind of flying, crashing, **feeling**… when you decide to get serious, there's only one place to come. The games of *Super Nintendo*. **No one else creates** this kind of experience, because **no one else creates** these kinds of games. Now you're playing with power—SUPER POWER! (VHSDemos, 2017).

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My first videogame console was the SNES. *My dad, a lover of Marvel comic books, got it for me, perhaps having seen a commercial for it on TV. Some of my clearest early memories are of us playing* Super Mario World (1990) *on our big-old, cube-shaped TV. That was about 26 years ago. I still have the* SNES, *and it still works just fine.*

Picking up the controller, now, in 2018, I load up Kirby Super Star (1996), *a title which holds immense personal significance to me: my sister and I invested countless hours as Players 1 and 2, but we didn't just play the game: we created our own world based on the characters we could control and the interactions we could have on-screen. We narrated our adventures together, coming up with different personalities for all of Kirby's many allies and enemies; it was our own interactive theater of fan-fiction. I'd say that this was my first experience with* **modding**—*we added our stories to the game and, in so doing, made a unique version of it for ourselves.*

We'd later conduct similar storytelling sessions playing Super Mario RPG:

Legend of the Seven Stars (1996) *and* Mystical Ninja Starring Goemon (1997). *Then we*

grew up, and had different interests, and gave each other space to pursue them.

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Through our gameplay and narration, my sister and I were doing the work of

*"**scriptors**," a term offered by Roland Barthes in* Image, Music, Text *(1977) in a section*

titled "The Death of the Author:"

> The removal of the Author […] is not merely an historical fact or an act of
> writing; it utterly transforms the modern text […]. The temporality is
> different. The Author, when believed in, is always conceived of as the past
> of book and author stand automatically on a single line divided into before
> and after. The Author is thought to nourish the book, which is to say that
> he exists before it, thinks, suffers, lives for it, is in the same relation of
> antecedence to his work as a father to his child. In complete contrast, the
> modern scriptor is born simultaneously with the text, is in no way
> equipped with a being preceding or exceeding the writing, is not the
> subject with the book as predicate; there is no other time than that of the
> enunciation and every text is eternally written here and now. The fact is
> (or, it follows) that writing can no longer designate an operation of
> recording, notation, representation, 'depiction' (as the Classics would
> say); rather, it designates exactly what linguists, referring to Oxford
> philosophy, call a **performative**, a rare verbal form (exclusively given in
> the first person and in the present tense) in which the enunciation has no
> other content (contains no other proposition) than the act by which it is
> uttered something like the I declare of kings or the I sing of very ancient
> poets. (p. 145)

A scriptor here envisioned as a sort of performer of languages, akin to ancient

poets; they "mix" narrative elements rather than attempting to author something "wholly

original," with a goal of professing and synthesizing ideas rather than owning them.

*Through **play**, we were destabilizing the seemingly rigid structure of what constitutes*

"the game itself," *and enacting a merging of worlds/Mythologies—ours, and the ones*

stored as virtual archives on small, plastic cartridges.

<div align="center">*~*~*~*</div>

I lived a privileged childhood, and this afforded me more opportunities to play

videogames; I didn't always have the newest games or consoles, but I was better off than

some of my friends who were stuck a generation or two behind. Being a gamer always

involved a degree of economic competition which, particularly in the South, manifested

along visible lines of class and race—who was the "first" or who had the "best." At

some point, I realized that the race forward forces you to ignore the things left behind;

my poorer friends introduced me to their games, which were older, but contained such

classics as Grandia (1999) *and* Xenogears (1998). *I found it was more fun to play games*

you could discuss with others—that you could be a part of, together—than to constantly

chase the newest, most cutting-edge experience. When, still an adolescent, I moved to

discussing these games online, too, I began to truly comprehend the power of

participatory culture.

b. Living in the South, and the Names of Things

I grew up in a suburb off Pelham Road in Greenville, South Carolina. Pelham

Road was the name of my elementary school, too. About 5 miles from the house I grew up

in, there is a park—Pelham Mill Park—named for a company that operated in the area.

*There are some **ruins** of the mill near the park. The volunteer-based South Carolina*

Picture Project (2018) *comments on their web-page for this historic site, "The factory*

employed at least three children under the age of 12... most workers remained in a

perpetual state of debt... historians refer to the mill lifestyle as indentured servitude."

Pelham is now one of several major roads in Greenville.

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Interestingly, according to a document on Greenville's government website, the

city was a "Unionist stronghold" prior to the Civil War. By 1860, however, it had been

*heavily influenced by pro-secession **rhetoric**, much of which can be traced to the political*

philosophy of John C. Calhoun, a well-known defender of the institution of slavery

("History of Greenville," n.d.). A slave-owner himself, Calhoun had a plantation in

South Carolina known as Fort Hill; he would pass on ownership of this land to his

daughter, Anna, and her husband, Thomas Green Clemson.

Clemson would serve as a Confederate soldier until his capture and release after

the war. Upon returning to Fort Hill, Clemson began actively promoting agricultural

science; desiring to establish a school dedicated to that purpose, he collaborated with SC

politician Benjamin Tillman to make it happen. (Reel, 2011).

Tillman, a violent white supremacist who participated in the Hamburg Massacre,

would eventually be memorialized by having one of Clemson University's oldest, and

most iconic, buildings named after him—a clock-tower with a loud bell to tell time, its

*outer walls **composed** of red-clay bricks produced by predominantly African American*

convict laborers (Everyhope-Roser, 2014). Tillman Hall is still called after him today,

despite recent student-led protests demanding the name be changed (Dellinger, 2016). I

write this as one of those Clemson students.

c. Learning about Composition and Rhetoric

> A **composition** is an expression of relationships—between parts and parts, between parts and whole, between the visual and the verbal, between text and context, between reader and composer, between what is intended and what is unpacked, between hope and realization. And, ultimately, between human beings. (Yancey, 1989, qtd. in Shipka, 2011, p. 9)

<p align="center">*~*~*~*</p>

As an undergraduate English major, I gravitated towards the composition track rather than literary studies or creative writing. "Composition" was appealing to me because it had the potential to encompass anything, including the videogames I loved. It is this concept that led me to my first rhetoric class.

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The following are some collected definitions of rhetoric from a handout issued by a professor of mine, Steve Katz (2016):

> "Rhetoric is 'not an art, but a **knack**,' 'a branch of flattery,' 'the counterpart of cookery'; 'there is no need for rhetoric to know the facts in the eyes of the ignorant, to know more than those who really know." – Plato, *Gorgias*

> "Rhetoric is the art of discovering in [each] particular case the available means of **persuasion**…" –Aristotle, *Rhetoric*

> "[Rhetoric is] **superfluity** of talking […]." –Thomas Sprat, *History of the Royal Society*

> "Rhetoric, or the Art of Eloquence, [is] a science excellent…. For although in true value it is inferior to wisdom…yet with people it is the more mighty…. The duty and office of rhetoric is to apply reason to **imagination** for the better moving of the will." –Bacon, *Advancement of Learning*

> "All the art of rhetoric…all the artificial and figurative application of words eloquence hath invented, are for nothing else but to insinuate wrong

ideas, move the passions, and thereby mislead the judgment; and so are perfect **cheats**." –Locke, *Essay Concerning Human Understanding*

"Rhetoric is the advocacy of **realities**." –Barry Brummett, "Some Implications of 'Process' or 'Intersubjectivity': Postmodern Rhetoric"

My current favorite definition, however, is this one:

"… [R]hetoric, in essence, is a form of mental and emotional **energy** […]: the mental or emotional energy that impels the speaker to expression, the energy level **coded** in the message, and the energy received by the recipient who then uses mental energy in decoding and perhaps **acting** on the message." – George Kennedy, *Comparative Rhetoric* (1997, p. 3)

d. Thinking about Rhetorical Game Modding; an Anecdote

My favorite anecdote about videogame modding is the one about the dad who modded Donkey Kong *for his daughter. He loved sharing his favorite pastime with his three-year-old, and she showed a lot of enthusiasm for the simplistic, cartoonish style of classic arcade and early home-console titles.* Donkey Kong *(1987) on the NES was her favorite; despite it being an extremely challenging game, she kept wanting to return to it, with dad by her side as support. One day, after having experienced the ability to switch between playable* **avatars** *in a different game,* Super Mario Bros *2 (1988) for the* NES, *and having enjoyed that game's option to control a female character, Princess Toadstool, she requests to play* Donkey Kong *again, but this time asks, "How can I play as the girl?"*

Her question, so naive and yet so incisive, cuts to the very core of one of game design's greatest cultural dilemmas: what identities are excluded from games, and who has the power to make games more inclusive? The dad realized that, in a practical sense,

*he had the power to give his daughter the gameplay experience she desired. He merely needed to change the game a little bit—to "**mod**" it.*

He reaches out to a knowledgeable friend, who points him in the direction of a few third-party software tools; he messes around with these to get a feel for them, and is soon able to extract, explore, and access the files that make up a ROM copy of Donkey Kong. *After just a few days, having been motivated by support from his friends online and the thought of his daughter's happiness, he has a functional version of his mod ready to run: the sprite for Pauline, who usually stands at the top of each level near Donkey Kong, has been replaced with a sprite for Mario, and the player now controls a fully customized and animated version of Pauline. Before his daughter wakes up, he uploads a video demoing his mod to YouTube; little does he know, or anticipate, the large and multifarious response this action will bring. What matters to him is that, when his daughter comes downstairs and predictably asks to play* Donkey Kong, *he can give her this **gift**—a mod for her favorite game.*

When she finally plays as Pauline, the daughter is thrilled, and her enjoyment of the game is increased. At three years old, the fact that this new version she is playing is actually separate from the original version—that it is actually an illegal "hack" of an unauthorized ROM copy that violates the intellectual property rights of a megalithic, multinational corporation—is a bit beyond her understanding. As far as she knows, her dad has simply discovered some built-in method of switching characters, as she had initially intuited should be possible. The dad, aware that he should probably not circulate

copies of his mod online or risk Nintendo's wroth, is satisfied simply to see his daughter

smile when she plays as her preferred avatar.

Meanwhile, on the Internet, the video for "Donkey Kong: Pauline Edition" is

widely shared and commented upon. Although the dad admits that he never intended his

mod as a feminist critique, many interpret it as just that, and it draws simultaneous

praise and intense vitriol (Mika, 2013). The online response reveals that mods of popular

videogames can function as **social commentary** *and spark debates on important topics,*

like the perception and construction of gender roles, and reach audiences that are wholly

uninformed by academic discourse.

<p align="center">*~*~*~*</p>

e. Intervening in Contemporary Games—War and the Atomic Bomb

> On some undressed bodies, the burns had made patterns—of undershirt straps and suspenders and, on the skin of some women (since white repelled the heat from **the bomb** and dark clothes absorbed it and conducted it to the skin), the shapes of flowers they had had on their kimonos. (Hersey, 1946)

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In the Fall of 2016, during the fifth semester of my PhD program, I played Fallout

4 *as soon as it was released. It's a game about survival after a nuclear apocalypse. The*

game opens with an intro-cinematic and the following narration:

> **War.** War never changes.

> In the year 1945, my great-great grandfather, serving in the army, wondered when he'd get to go home to his wife and the son he'd never seen. He got his wish when the US ended World War II by dropping **atomic bombs** on Hiroshima and Nagasaki.

The World awaited **Armageddon**; instead, something miraculous happened. We began to use atomic energy not as a weapon, but as a nearly limitless source of power.

People enjoyed luxuries once thought the realm of science fiction. Domestic robots, fusion-powered cars, portable **computers**.

But then, in the 21st century, people awoke from the **American dream**.

Years of **consumption** led to shortages of every major resource. The entire world unraveled. Peace became a distant memory.

It is now the year 2077. We stand on the brink of total war, and I am afraid. For myself, for my wife, for my infant son - because if my time in the army taught me one thing: it's that war… war never **changes**. (Bethesda, 2016)

This entry in the post-apocalyptic RPG series takes place in a version of Boston, MA, 210 years after the entire world's atomic annihilation. Playing it made me think: is it true that war never changes? As the game's narrative history diverges after the dropping of A-bombs in 1945, what role did the supposedly "miraculous" atomic technology play in the Civil Rights movements during the 50s and 60s? What would it be like if the game were set not in Boston, but in Clemson, SC? How would I design such a game? How could I?

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*Cynthia Haynes, in "**Armageddon** Army: Playing God, God Mode Mods, and the Rhetorical Task of Ludology" (2006), writes:*

Scholars are witnessing a dramatic confluence of faith, politics, and gaming. On the stage of this **war theater**, the players are indistinguishable, the simulations just one mission removed from real war. One is immersed in war as game, the other in war as eternal battle. The military has invested millions in developing games as strategic communications tools, hiring real soldiers and officers as consultants to ensure optimal realism in game play. Now that the harmonic convergence of faith, politics, and computer games has been graphically (and brutally)

realized, specifically, made real in the dueling holy wars— ours and theirs (jihad)—what now? (p. 91)

This passage highlights the high stakes when it comes to videogames as ideological, rhetorical media—the game she references is America's Army *(2002), which was developed and released by the US Department of Defense as a "strategic communications tool," but is essentially military propaganda disguised as a videogame. Haynes proposes a **mod** to America's Army that would serve as "a critical response to the reality of war and the use of computer games as military recruitment tools." My research is in this same spirit.*

Introduction

a. Topic

Videogame modding is the topic of this dissertation; this refers to the practice of modifying, changing, altering, expanding, or updating an existing videogame to make it different in some way, and it is typically characterized as being the domain of amateur (as opposed to professional) game designers. Here, a **videogame**[1] is defined as being any interactive, entertainment-oriented[2] piece of software that facilitates acts of play using pre-programmed rules called **mechanics**[3]. Any long-time videogame player will likely

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[1] Ian Bogost advocates the use of the neologism "videogame" as opposed to "video game" because "Separating the words, in my opinion, suggests that videogames are merely games with some video screen or computer attached" (qtd. in Whalen & Taylor, 2008, p. viii). Indeed, Veli-Matti Karhulahti's article "Defining the Videogame" (2015) rejects the visual criterion implied by the prefix "video," noting that, "'videogame' is as good word as any for all those digital electronic computer game things we are interested in, with or without aural, visual, or haptic components. Just as talking about 'moving pictures,' or 'movies,' or 'films' is fitting even though aural components have been part of those experiences from the time of their birth." The assumption of all digital games necessarily requiring a visual output on a screen or monitor ignores alternative sensory experiences as relevant to gameplay; yet, separating videogames and audiogames, for example, seems unnecessarily exclusionary. "Computer games" may be the most accurate term for what is being defined in this dissertation, but that term has fallen out of colloquial usage and thus lacks relevance and impact, so "videogames" is preferable.

[2] Karhulahti (2015) objects to "entertainment" as a criterion for being a videogame on the grounds that "'Work,' 'leisure,' 'education,' and 'entertainment' are more and more difficult to separate in today's society (compare Huzinga, 1950; Ehrmann, 1968; Stevens, 1978; Taylor, 2006; Kirkpatrick, 2013) […]." **However**, this dissertation builds upon Ulmer's (2003) notion of entertainment as a fundamental practice for communicating, understanding, and producing knowledge that is not significantly distinct from "work" or "education"—indeed, the emergence of "work" as a domain of non-entertainment has more to do with shifting cultural perceptions of the value of labor occurring during the industrial revolution, as well as the division between the masculine public sphere and the feminine private sphere which drove assumptions of the "workplace" as a setting only for dedicated labor, as described by Katherine Durack (2006).

[3] Miguel Sicart's article "Defining Game Mechanics" (2008) notes that "Some formalist approaches makes a difference between the rules of the game and the actions afforded to players by those rules," but then counters that: "this formal distinction between rules and mechanics is not always applied in game mechanics research… mechanics is a term that encompasses those rules that are applied when the player interacts with the game, and there is no need for a definitional distinction between rules and mechanics." This dissertation will use the term "mechanics" broadly to describe a game's internal logical systems that produce "rules" in the sense that they influence, direct, and enable gameplay.

recognize the urge that drives modders to change their favorite games in some way—it may stem from an observation that a slight tweak to gameplay mechanics would improve some aspect of the experience, or the desire to see a concluded game's narrative continue with additional content, or an urge to express some aspect of one's self within the game world. Historically, players have only been able to influence professional videogame designers through public relation channels where their feedback may be taken into consideration, but have often been restricted or discouraged from directly modifying copies of game software (Reardon et al., 2017; Altizer, 2013).

My conjecture is that players of games can and should be designers of games, and modding, which originated as a practice of amateur hackers, represents an alternative paradigm to professional game design, empowering them to do just that—rather than creating a new game from scratch in a corporate setting over the course of many years, modders utilize existing software tools and assets that increase the speed at which they can create, and do so from a wide variety of settings and contexts. Modders leverage the organic social networks and online communities that grow around popular games, learning from them, being motivated by them, and leveraging them to reach interested audiences. Because playing games is important to modding them, modders can be said to invent through play.

Drawing on Greg Ulmer's (2003) electracy apparatus as a theoretical framework, as well as on interdisciplinary literature on the topic of videogame modding, this dissertation aims to situate modding praxis within rhet-comp studies, revealing the ways in which modders-as-communicators are relevant to the field's goals of advancing

knowledge about human communication in a global, digital, multimodal public sphere. Modding as digital production praxis extends Ulmer's electracy apparatus to include the creation of modular (accessible, sharable, editable, mobile) MyStories (Ulmer's term for alternative, personal histories) that subvert the restricted economies of mainstream videogame design and of academic composition.

b. Dissertation Overview

This dissertation employs an electrate, multimodal methodology with three key outcomes: **seeing** (revealing a new theoretical perspective built upon a corpus of existing academic work), **making** (merging theoretical knowledge with practical, creative skills), and **doing** (proposing a practical course of political action to apply aforementioned knowledge and skills). Together, these outcomes offer a more comprehensive understanding of modding than they could if kept entirely separate.

Chapter 1 of this dissertation introduces the concept of modding alongside the academic field of videogame studies, revealing points of entry into the discussion. From there, intersections between videogame studies and composition studies are illuminated, moving us toward an introduction to electracy. I argue that the practice of modding videogames inherently resembles Ulmer's proposed genres for developing **MyStories** and/or **MEmorials**. After establishing the meaning of these terms, I propose ways to adapt them to modding-as-composition.

Chapter 2 consists of a review of interdisciplinary academic literature concerning videogame modding with the aim of revealing the critical figure of the "hacker" in-

between the arts and computer science. The chapter includes a look at potential threats to what I call the "hacker ethos," which is a critical component of the electrate apparatus.

Chapter 3 presents of an overview of the history of modding, starting with *Spacewar!* (1962), commonly cited as the first true videogame, and covering numerous impactful mods that have helped shape peoples' understanding of modding over time. The chapter concludes by offering a picture of what modding looks like today.

Chapter 4 is a how-to guide to modding, emphasizing the practice's unique rhetorical affordances, and discussing specific techniques for creating mods. This chapter is framed around the building my own mod, titled "Walking in Ruins," as part of my research process for this dissertation. I chose the game *Fallout 4* to mod, on the one hand, because I'm a fan of the series, but more importantly, because this game's creator company, Bethesda, is at the forefront of promoting modding amongst their users.

Chapter 5 focuses on the pedagogical applications of modding, envisioning ways of teaching about mods as rhetorical devices. I position modding within the multimodal composition classroom, a space whose radical revision is being actively theorized, and provide an outline for a course within rhet-comp with modding at its core. Titled "Videogames as Electrate Expression," the course's goal is modding to engage with political issues, enact social change, and express one's personal perspective through interactive, digital media.

Chapter 6 offers a conclusive discussion, highlighting the major arguments within the dissertation, and suggesting areas within the topic of modding that will require future academic attention.

Chapter 1: Modding as MyStory

a. Towards a Definition of Modding

Videogame modding is similar to other types of consumer-end modification practices, such as computer case-modding, automobile performance modding, and audio-video remixing; these all reveal creative urges to customize, tinker, and express, even if doing so is against the wishes of the modded product's original producers, which it often is—conflicts[4] between producers and consumers over the rights to modify different types of things reveal differing, conflicting, and overlapping conceptions of property ownership, fair use, well as authorship, authority, and authenticity. The videogame medium, since its emergence alongside computer technology, has provoked unique arguments[5] regarding the rights of modders because of their potential to intervene directly in the code that drives a game's procedural and generative mechanics (aka the **software engine**), as well as its graphical assets and other content (including text and audio).

Modding a videogame leads to the production of **mods**, which are digital files that can be installed to produce effects ranging from minor tweaks that alter the original gameplay, to insightful innovations that radically transform player-experience, to

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[4] For example, the "right to repair" consumer movement has emerged in response to resistance on the part of electronics manufacturers to making available technical documentation and spare parts that would enable consumers to learn about and fix their technology when it breaks, rather than being forced to make a brand-new purchase (Johnson, 2017). For conflicts in the context of videogame modding, see Altizer (2013).

[5] As observed by legal scholar Ryan Wallace (2014), mods threaten to undermine established copyright and fair use doctrine.

sweeping overhauls called **total conversions** that render the original game completely unrecognizable. These alterations have the potential to communicate, persuade, and create meaningful interactions by leveraging videogames as **platforms** rife with rhetorical affordances on narrative (story-telling), aesthetic (stylistic), and procedural (algorithmic, mechanical) levels. The field of videogame studies is obviously suited to studying mods as rhetorical artifacts and exploring how they are different from mainstream, professionally designed products; such work helps pave the way for modding in other contexts, including composition classrooms.

b. Videogame Studies as an Academic Field

Videogame studies (VGS) is a richly interdisciplinary field, and by necessity: according to Ruggill and McAllister's scholarly text *Gaming Matters: Art, Science, Magic, and the Computer Game Medium* (2011),

> [The medium of videogames is] quintessentially transdisciplinary; it sits at the nexus of engineering, mathematics, hermeneutics, logic, kinesthesia, narratology, performativity, art, and many other ways of seeing, understanding, and interacting. (p. 5)

Thus, a general knowledge of many different subjects is beneficial for studying videogames.

VGS became formalized as an academic field around the turn of the millennium when scholars dealing with games in such academic contexts as psychology, communication, computer science, sociology, anthropology, art theory, media studies (including literary, film, and new), technological history, feminism, economics, and cultural studies began to share their ideas in forums explicitly dedicated to games as

central objects of discussion, such as the journal *Game Studies* (founded 2001) and the

Digital Games Research Association Conference (founded 2003) ("Game Studies," 2018)

("DiGRA," 2018). Meanwhile, millennials were in their formative years, living in a

world full of videogames, and being influenced by them. Many American millennials, or

their friends, had a gaming console in their household, making them ubiquitous parts of

childhood play-time (Entertainment Software Association, 2009). Even if a family

couldn't afford the most-current generation of commercial gaming technology, by 2000,

they had several earlier generations to fall back on; these digital toys were mass-

produced, made to be easy to buy, and aggressively marketed. The game studies field

formed just in time to begin observing and theorizing about how these digital-natives'

behavior would be affected by the games they played. As observed by videogame

journalist and historian J.C. Herz (1997), as early as 1997, videogames had "rewired our

minds" (title), and their rapidly increasing popularity/accessibility promised that they

would continue to do so.

    Before game studies could diagnose how millennials were relating to the games

they played, it needed to define what exactly a videogame was. To this end, a debate

between two distinct schools of thought emerged: narratology[6] versus ludology[7]. The

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[6] Not to be confused with the "classic narratologists," as noted by Kokonis (2014): "Michael Mateas (2002, 32) suggests the term narrativist for the new narratologists who study digital based narratives and thus computer games to distinguish them from the classic narratologists (Barthes, Todorov, Genette, Greimas, Metz, Prince) whose theories had appeared long before the advent of computer games" (p. 173). Though it may be initially confusing for some readers, "narratologists" is the most common usage in VGS literature, so I will maintain it in this document.

[7] "Ludology" is derived from the Latin verb "ludere," meaning "to play" (OED, 2018). Juul (2013) traces the term to a usage in 1951 which defines it as, in essence, "the science of games."

narratological view sees videogames primarily as devices for storytelling, not unlike

traditional novels or films, and seeks to critique them as such by emphasizing the intent

of the original author/developer (Frasca, 2003a). The ludological view sees them as

inherently different from traditional media due to their interactive and mechanical

properties, and prioritizes studying specific technological features in terms of how they

are designed to relate to players, and the various ways that players respond to them. It has

been observed that this debate was not so much a back-and-forth discussion as two camps

seeming to attack perceived straw-men on the other side: the narratologists,

representative of the elite literati, and the ludologists, representative of ardent

technologists and stereotypical "gamers" (Frasca, 2003b; Juul, 2004; Kokonis, 2014).

The challenge of reconciliation stemmed from longstanding issues and differing

vocabularies of scholars in the humanities versus the sciences, and resistance to

interdisciplinary methods in research. The tangled web of this quasi-discourse on

narratology/ludology, full of contradictions and oversights, nevertheless contained lots of

fresh, critical thoughts about videogames, and yielded a spectrum of foundational

literature from across academic disciplines to be built upon. Ultimately, as observed by

Michalis Kokonis (2014): "… due to the hybrid, technology based medium of computer

games, a wider theoretical framework is necessary, flexible enough to encompass

divergent theoretical perspectives in the critical analysis of videogame texts" (p. 179).

      The hybrid discipline of VGS benefits from both "sides" of the spectrum

established by the narratology vs. ludology debates. From the narratological camp, VGS

gains the sophisticated analytic modes of the humanities. Feminist critiques of sexist

tropes in games (see Sarkeesian, 2017), cultural critiques of racist appropriation and colonialist themes (see Narcisse, 2017), historiographical critiques of realistic simulations of the past (see Kapell & Elliott, 2014), and countless other relevant ideas about form, style, structure, materialism, agency, politics, identity, aesthetics, philosophy, etc., have helped inform the field on what is at stake when games tell stories (see Goldberg & Larsson, 2015). It doubtful that ludologists (such as they were) ever truly denied that games were storytelling devices; rather, they resisted the all-too-simple dismissal of games as inferior, infantile, shallow objects as compared to books, films, or the "high" arts, and insisted on the innovative affordances of dynamic, interactive games as compared to static, traditional media. There may also have been some cognitive dissonance in acknowledging that, indeed, many of the critiques from so-called narratologists, who were perceived as suddenly infiltrating gaming culture, were quite valid (if incomplete in some respects). Trent Hergenrader (2016), in defending digital humanities' role in VGS, earnestly summarizes the narratological argument while conceding the relevance of ludology:

> Even though an examination of rules and processes should be part of any rhetorical analysis of games, this does not mean we must discount other types of critical examinations; quite the contrary, games can and should be critiqued both at the level of language as well as for their representations of people, places and things.

Hergenrader points to the 2014 "Gamergate" controversy, which involved cultural critics of games being targeted with threats and harassment, as evidence of the necessity of stronger digital humanities curricula with videogames as critical components.

From the ludological end of the spectrum, VGS gains deep insight into computer technology, programming, human-machine interaction, systems engineering, artificial intelligence, algorithmic generativity, mathematical logic, mass communication studies, economics, physics, geometry, and the psychology of play. Espen Aarseth's seminal work *Cybertext* (1997) articulates the crux of the ludological argument by introducing the term **ergodic** to describe the interactive quality of videogames that demands effort and decision-making from players. The Greek words *ergon* and *hodos*, translated as "work" and "path," combine to conjure images of spatial exploration and path-finding; in physics, the term is deployed to describe quantum phenomena in which atomic particles may travel many probable paths in a given region of space. Aarseth's implication is that videogames are the "regions" that players (the analogic "particles") traverse, and they contain a certain set of possibilities such that "[e]ach decision will make some parts of the [game] more, and others less, accessible" (p. 3). Players can experience a sense of influence and control over the flow of events in a game that they can't as passive consumers of traditional, linear narratives, beholden unto the author's intent; they can feel like a participant in shaping the media, performing, through play, a unique rendition of uncovering and covering—accessibility and inaccessibility—within the realm of the game's nonlinear possibilities. Aarseth notes that interactive, performative texts are not inventions of the digital age, referencing such works as the ancient Chinese *I Ching*, which has readers participate in generating possibilities for the future through a series of rituals; he directly compares such mathematically-based, nonlinear, generative texts to computer programs, leading to the conclusion that digital technology is powerfully suited

to facilitating interactions involving many different possibilities. **Platform studies** has emerged as an area of VGS that resonates with the ludological perspective; Ian Bogost and Nick Montfort's book series by the same name strives to "investigate the relationships between the hardware and software design of computing systems and the creative works produced on those systems," and emphasizes "technically rigorous" scholarship founded on a deep understanding of computer systems, aka platforms (Bogost, 2018). Ludological scholarship affords useful categories for accurately describing games (see Apperley, 2006) and their technological features, including the concepts of mechanics, procedurality[8], generativity[9], simulation[10], and immersion[11].

VGS, having taken the first unsteady steps towards being a fully-fledged discipline, has only recently begun to address the issue of videogame modding as a holistic topic; it has tended to focus on how mods alter specific aspects of players'

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[8] Ian Bogost (2007) defines procedurality as relating to "processes," which are tied to the "core affordances of the computer: computers run processes, they execute calculations and rule-based symbolic manipulations" (p. ix).

[9] Karen Collins (2009) discusses the concept of generativity in the context of videogame music, but it can be applied to any type of game system that combines player input with algorithmic programming to allow for a range of potential effects. In essence, gameplay "generates" effects that depend on player inputs, which, depending on the nature of the governing algorithms, can allow for a small, wide, or near-infinite range of unique outcomes.

[10] Simulation, as observed by Veli-Matti Karhulahti (2010) in "Do Videogames Simulate? Virtuality and Imitation in the Philosophy of Simulation," has been oft-deployed by ludologists, including Aarseth (2003) and Frasca (2003-a), to describe what videogames do; however, Karhulahti critiques its usage in videogame studies as compared to other sciences, suggesting instead the term "virtualization." Nevertheless, simulation is widely understood by players as occurring when games model seemingly complex systems.

[11] As described in a study published in the *International Journal for Human-Computer Studies* by Charlene Jennett et al., "Measuring and defining the experience of immersion in games" (2008), immersion describes a quality that seemingly all successful videogames have in common: "they have an ability to draw people in. Providing an appealing distraction from everyday worries and concerns, [videogames] allow people to 'lose' themselves in the world of the game" (p. 641). Their article frames immersion as a psychological phenomenon that can be measured to different degrees.

gameplay experience (see Wharton & Collins, 2011; Targett et al., 2012), or how mods have been deployed in classrooms as teaching aides (see Moshirnia, 2007; Carbonaro, 2008), or how modders serve as sources of economic value/labor (see Kücklich, 2005; Renyi & Chen, 2014). Scholars writing on the topic of **persuasive/serious games**[12] have occasionally referenced specific mods as examples of rhetorical arguments in game-form (Bogost, 2010; Bogost et al., 2010; Sihvonen, 2011), but there is currently little, if any, writing which bridges modding praxis with rhetoric using contemporary, post-structuralist theories of composition. For that, it is necessary to investigate points of critical intersection.

c. Intersections of VGS, Composition, and Modding

The impact of post-structuralist theory in composition has been transformative in many areas, yet it is still a relatively new school of thought facing resistance simultaneously from incumbent doctrines and new critics. Jon Harned, in "Post-Structuralism and the Teaching of Composition" (1986), references the works of Jacques Derrida (particularly *Of Grammatology,* 1967) as important to composition studies in that they seek to "discredit the prejudices of logocentrism" (p. 12). Logocentrism refers to the tradition of treating language (especially written language) as an imperfect, potentially chaotic means of conveying truth, and thus seeking to discipline language usage into

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[12] Persuasive and serious games are two categories used to designate games whose primary purpose is to serve as rhetorical arguments that affect players' attitudes and behaviors (Ruggiero, 2013). They usually address political, historical, social, cultural, or philosophical topics, and are distinct from commercial games whose primary purpose is to be marketable and entertaining (usually suppressing any controversial thought or overt agenda-setting). A related term, "newsgames" has also been used to describe games that resemble journalism (Bogost et al., 2010).

supposedly "universal" patterns of discourse that reflect the "order of nature" (p. 10). It

has resulted in a hegemonic conception that there exists a thing called "good writing,"

and that students can achieve it if they: "avoid grammatical errors, find the exact word,

state a thesis in the introduction, follow standard patterns of development, begin

paragraphs with a topic sentence, use transitional expressions, and so on." Even by the

mid-1960s, when teachers of composition revolted against such stifling, authoritarian

modes as the "five-paragraph essay" and began to promote the search for a unique tone

and style in one's writing, they still remained trapped in the logocentrist mindset of

seeking to "convey a reality that existed outside of language itself" when, according to

Derridian post-structuralists, there is no such thing (p. 11).

Derrida has shown logocentrism "to have structured Western philosophy and

culture for three millennia," at least since Aristotle's *De interpretione*, which established

a distinction between "signified (language)" and "signifier (the concepts of the mind),"

from which "flows the whole of Western metaphysics with its binary, hierarchical

oppositions: being vs. becoming, the intelligible vs. the sensible, essence vs. appearance,

truth vs. falsehood, reason vs. insanity, nature vs. culture, and so on" (Harned, 1986, p.

10). Derrida's proposed counter-method of language deconstruction seeks to

"destabilize" the hierarchical binaries of logocentrism; he offers the term *différance* to

describe the linguistic phenomenon wherein "no element can function as a sign without

reference to another element which itself is not simply present" (Derrida, 1981, qtd. in

Harned, 1986, p. 11). In other words, "through the activity of differing—disagreeing

with, adding to, refining, qualifying, and the like—new texts are born from old texts. […]

Texts write texts, not authors or 'reality'" (p. 11). For readers, *différance* indicates that "there is no commanding view of the text: traces only lead to other traces in an infinite referral. […] Any interpretation comes at the expense of other interpretations, which are equally plausible" (Derrida, 1981; qtd. in Harned, 1986, p. 11). The implications of *différance* extend to new media compositions, too, including videogames and their players/modders, though VGS had not yet formed at the time of Derrida's writing, and computer technology was in its infancy.

As observed by the ludologist Aarseth (1997), videogames, as digital narrative platforms, are fundamentally different from traditional compositions in this important way: the audience is also an author, able to directly inject contributions through input-based gameplay, including the potential meta-gameplay of modding. Such a view reflects Derrida's notion of *différance*: every player adds something unique to the game through the ways in which they differ in their choices, judgments, interpretations, strategies, theories, goals, and so forth. Aarseth (1977) also echoes famed post-structuralist theorist Roland Barthes in his conceptualization of the related concepts of nonlinear, interactive, generative, and **participatory** media; for example, in *Image/Music/Text* (1977) Barthes also turns to the *I Ching* to reveal how interactive texts destabilize the hegemonic concept of individual authorship. In *S/Z* (1970), Barthes offers a term to describe such texts: they are **writerly expressions**, rather than mere readerly expressions. "Writerly" refers to something that encourages writing, participation, collaboration, continuation, riffing, playing, expanding, revising, **modifying**; in other words, a process of continuous invention (echoing *différance*). A "readerly" object encourages audiences to be passive

readers, granting absolute authority to the entity known as "author;" it is static, unchanging, finished, and whole (like a classic novel). This forms the basis of what might be considered the greatest paradox elucidated by poststructuralism, which Barthes (1977) terms "the death of the Author"—the destabilization of the very idea of "authority" as being the exclusive domain of the writer/creator of any text/composition, leaving audiences as mere outside observers whose presence is granted minimal, if any, bearing on the text's interpretation (p. 146).

Readerly texts reflect logocentrism which, as established by Derrida, has been the hegemonic structure of Western thought/epistemology since at least Aristotle's time. This is where Gregory Ulmer's (2003) **apparatus theory** comes into play in helping to trace and unpack this structure in relation to other structures, which he terms "apparatuses" (p. 4). Ulmer, whose strong influences from Derrida are revealed in his first published book, *Applied Grammatology: Post(e)-Pedagogy from Jacques Derrida to Beuys* (1985), establishes in that text the foundations of his future theories on digital technology as well as an academic exigency for more emphasis on interdisciplinary studies (which VGS would take up in a decade or so):

> … the initial phase of the importation of Derrida into American higher education is now over. This initial phase, as several critics have noted, took place in language and literature departments [which house composition studies] (rather than in philosophy or human sciences departments) and was concerned almost exclusively with the practice of literary criticism. […] … there is now a general feeling of dissatisfaction, a sense of discrepancy between the first application of Derrida's texts and the fuller program outlined in his theories. […] I propose, in the present book, to approach the question of the application of Derrida's theories, not in terms of deconstruction (although that topic remains an important aspect of Derrida's work), but in terms of **grammatology**. […] I will argue that grammatology, a name designating a new organization of

cultural studies, is first of all **a new mode of writing** whose practice could bring the language and literature disciplines into a more responsive relationship with the era of **communications technology** in which we are living. […] A review of Derrida's program at the level of grammatology will reveal a mode of writing, and ultimately of pedagogical practice, that is **designed to overcome the logocentric limitations** of discourse. (p. 3-5)

For Ulmer, applied grammatology (AG) offers a new composition pedagogy based on composing in audio-visual media forms; specifically, he points to television and film:

> … the principal value of AG—that it shows us how to adapt the dominant medium of mass communication (television) to the critical, theoretical, and creative interests of academic discourse. The necessity justifying AG is the existence of **a new technology of writing**. Every teacher today, at every grade level from kindergarten to graduate school, is in a position similar to the one Socrates confronted when he caught Phaedrus with the written speech concealed in his robe. The television set, the poste, is **the concealed (unacknowledged) device** that, with or without Derrida, is transforming our situation. (p. 301)

Ulmer takes up Derrida's task of calling upon educators—specifically writing/composition teachers—to "... include the study and use of [new] media in their educational work," adding, "this project must be carried out *within* the media themselves" (p. 302). Videogame modding, as previously defined, affords precisely these opportunities for educators, though neither Derrida nor Ulmer had yet encountered many videogames to mod—certainly not to the extent that they would proliferate a mere decade after *Applied Grammatology* (1985), and then afterwards, exponentially more so. Yet, Ulmer's subsequent scholarship anticipates modding in many ways; in *Teletheory: Grammatology in the Age of Video* (1989), he further develops AG for new media by renaming it "teletheory"—gesturing towards "television" as well as "telecommunications"—and uses this distinction to "imagine a new apparatus, beginning

with a different technology" (p. 4). By deploying the term **apparatus**, Ulmer evokes

previous scholarship in film studies (see Rosen, 1986) which emphasized "the

relationship among technology, ideology, and institutional practices" (p. 4). In order to

begin defining a new apparatus based on television and film, he establishes the current,

dominant apparatus that is commonly seen as producing the most authentic knowledge:

the "academic apparatus:"

> In terms of the academic apparatus, we would relate the technology of
> print and alphabetic **literacy** with the ideology of the individual,
> autonomous subject of knowledge, self-conscious, capable of rational
> decisions free from the influences of prejudice and emotion; and to the
> practice of criticism, manifested in the treatise, and even the essay,
> assuming the articulation of subject/object, objective distance, seriousness
> and rigor, and a clear and simple style. The "originality" that we require
> from the students engaged in making such works as well as the copyright
> with which we protect intellectual property are features of the apparatus.
> (p. 4)

Thus, the technology of literacy—alphabetic writing, print media, and genres of written

criticism (treatises, essays, books)—fosters a network of thought and epistemology that,

far from being "neutral," projects and reinforces a logocentric ideology. Ulmer's goal,

however, is not to render obsolete any previous apparatus, just as the technology of

literacy did not render obsolete the spoken word; rather, it is "to suggest that the aims of

critical thinking may be achieved in a variety of media and styles" (p. 5). Though he

focuses *Teletheory* primarily on the media of TV and film, Ulmer acknowledges early on

that "the future of video is not determined in advance, is not identical with television (its

most visible institutionalization to date)" (p. 6). Here, though he does not specifically

mention videogames, it is clear that they are part of the future of video, beyond

television, that he envisions. Indeed, very soon, the most "visible institutionalization" of

video would shift from the technology of broadcast television and film to that of computers and the Internet.

Ulmer's pedagogical focus on the composition classroom leads to explicit appeals to radically re-envision teaching in light of new technology and popular media; he notes that teachers attempting to force students through the literate apparatus's mold are unprepared for the resultant friction produced by "the multitude of alternative reading [and writing] practices cultivated in everyday life and popular culture" (p. 5). At the end of *Teletheory* (1989), he offers instructions for an assignment that reflects his new vision, based on the style of documentary film, which he dubs **MyStory**. This assignment will be revisited at the end of this chapter; however, in order to make clear the relationship between it and videogame modding, it is worthwhile to first follow the trajectory of Ulmer's new apparatus into the digital age.

d. Introducing the Electrate Apparatus

In *Internet Invention: From Literacy to Electracy* (2003)—as the title implies—Ulmer coins the term "**electracy**" to describe the emergent apparatus that *Teletheory* (1989) alludes to, shifting its focus from broadcast and film technology to computers and the Internet. At the outset, Ulmer offers this conceptual analogy: "[electracy] is to digital media what literacy is to print" (p. xii). He resists the concept of "digital literacy" because it assumes that practices like using computers, surfing the Internet, writing code, creating hypertext, editing videos, and playing videogames are fundamentally similar to literary modes (and, therefore, should be taught/learned as such); as stated by Holmevik (2012): "[digital literacy] is a dangerous grammatological misappropriation that […]

attempts to name and relegate new digital media forms as subjugated practices to the old

print media discourses and its established institutions" (p. 29). The electrate apparatus is

highly relevant to contemporary composition studies because it encompasses all the skills

and knowledge one needs to engage in digital communication; it can be understood as a

familiarity with computer technology, though this does not always mean knowing exactly

how such technology works—rather, it is the ability to learn about, adapt to, and make

practical use of, the digital tools at one's disposal.

Etymologically, "electracy" transforms "literacy" by infusing that term with the

concept of electronic technology (i.e. "e-mail"), while also producing the sound for

"trace," riffing on Derrida's concept of *différance* as an infinite series of deferrals that

leave marks, or "traces," [13] of themselves. "Electracy" is also a pun, of sorts; Ulmer plays

with the fact that it sounds like and resembles "electricity" when he introduces a style of

invention which typifies the "logic native to electracy," which he calls "conduction" (like

the conduction of electricity) (p. 9). He adds conduction to the three classical invention

methods of literacy—abduction, deduction, and induction.[14] **Conduction**, as

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[13] Gayatri Spivak, in her English translation of Derrida's *Of Grammatology* (1967), affirms in her preface that "trace" in French has similar connotations to the English usage, including the concepts of "mark," "track," and "path." Thus, language bears "traces" or "marks" of its transformation through *différance,* and these can indeed be seen as markers of a "track" or "path" one follows. Where do all the "traces" lead? Presumably, to the origin of language, though it is doubtful the traces could be followed that far; indeed, Derrida suggests that, in language, there is always already a hidden meaning, and that the unknowability of this hidden meaning is a feature, not a drawback, of language deconstruction.

[14] On these three classical models of inference: "All three words are based on Latin ducere, meaning "to lead." The prefix de- means "from," and deduction derives from generally accepted statements or facts. The prefix in- means "to" or "toward," and induction leads you to a generalization. The prefix ab- means "away," and you take away the best explanation in abduction." (Meriam-Webster, 2018). The prefix con-, of course, means "with;" furthermore, conduction comes from the Latin "conductio, conductionem," "a bringing together," which points to the circuitry network model of Ulmer's conduction-as-inference.

demonstrated (but not proscribed) by Ulmer's own writing style, involves finding

connections between seemingly disconnected aspects of one's life and the contexts one

inhabits as a means of invention; it also evokes the image of the "conductor," as observed

by Hawk (2007):

> … the conductor, the leader of the group, someone who 'guides the flow of significance from one semantic field to another' (65). The paradox of the conductor is that he or she is both initiator of action and invention as well as the empty space of the ***chora*** that allows discourses to pass through and reconnect to other circuits. Rather than be concerned with replicating Ulmer's [style], the goal should be to learn about one's place in the circuitry and to **invent** a method particular to those circuits. This is especially important in the case of our emerging electronic contexts. (p. 248)

Here, **chora**, another Derridean concept, describes the metaphysical space one navigates

and in which new ideas are generated (a sort-of hybrid of mental, physical, and mediated

spaces). Derrida (1993) builds upon the classical Greek concept of *khôra*, meaning a

decentered space of free-floating structures and signs where personal (as opposed to

collective) knowledge forms. Ulmer (2003) references the philosopher Plato's use of

chora to "name a space of mediation," and its general use in Greek philosophy to "[name]

the sacred nature of specific places" (p. 100). Chora is perhaps best understood as a

unique context that a person inhabits that shapes their worldview, including the tension

between their present worldview and others that they confront in various forms. Thus, the

challenge of composers in electrate environments is assuming the position of conductor

and inventing a method that reflects one's unique "circuit" network of knowledge,

experiences, and media, and navigating this network as chora, or **choral space**. Indeed,

Internet Invention (2003) is structured as a textbook aimed at introducing Ulmer's

apparatus theory to students, and having them compose/conduct in an electrate style as they learn and think about it. For Ulmer, the application of theory as part of the process of its theorization is a critical element of the electrate mindset, and he both demonstrates and facilitates this for his student-readers.

To be clear, electracy does not replace literacy—often, literate practices will inform and enhance electrate ones, just as literacy has been informed and enhanced by oral practices which came before the technology of that apparatus. For Ulmer (2014), available technology plays an essential role in his apparatus theory, but he is careful to avoid falling into the trap of technological determinism, stating: "There is no technological determinism, other than the fundamental law of change: that everything is mutating together into something other, different, with major losses and gains."

In order to help visualize and compare the relationships between apparatuses, Ulmer offers the following table in his online chapter, "The Learning Screen," from the webtext *Networked: a (networked_book) about (networked_art)* (2014); (my reproduction here reflects the same formatting and content):

Apparatus	Orality	Literacy	Electracy
Practice	Religion	Science	Entertainment
Procedure	Ritual	Method	Style
Institution	Church	School	Internet
State of Mind	Faith	Knowledge	Fantasy
Behavior	Worship	Experiment	Play
Philosophy	Mythology	Epistemology	Aesthetics
Ground	God	Reason	Body

Ontology	Totem	Category	Chora
Mode	Narrative	Argument	Figure
Axis	Right/Wrong	True/False	Joy/Sadness

Table 1: Adaptation of Ulmer's "Apparatus Table" (n.d.)

In order to understand this table, it is useful to recall that Ulmer, inspired by Derrida's deconstructionism, is not seeking to create rigid categories, but rather to destabilize existing categories by revealing points of overlap, divergence, and transformation (*différance*). For example: when, or how, did religion yield to science as hegemonic practice, and how has science yielded to entertainment? When do these converge and diverge, compete, or exist simultaneously? Ulmer (2014) elaborates, offering some examples:

> The worldview of orality is religion, with church as the institutional adaptation to literacy (religions of the book). The worldview of literacy is science, institutionalized in school. Thales is the first philosopher because he offered a materialist explanation of the cosmos (everything is water). Plato wrote the first discourse on method (Phaedrus), and Aristotle invented logic. The practice of analytical thinking (logos replacing muthos) was established in the Academy and Lyceum, but it took almost two thousand years for science to separate fully from religion. This historical relay helps us understand the dynamics, or economy, of the institutional forces at work in our own time. The institutional practices of electracy, so far, have been developed within the institution of **Entertainment**. The historical analogy help [sic] us appreciate the potential of Entertainment, not to judge it exclusively by its present accomplishments, but to **imagine** what it might be two millennia into the future. […] The three worldviews with their practices and institutions coexist of course, and individuals enter the three discourses (entry into language) as part of everyday life in the modern world: family is the setting for orality, learning a native language from infancy. Entertainment is encountered soon after, through the electrate trojan horse of the TV set, **videogame console** and the like. Literacy often begins in the home as well, but is fully implemented when the child starts school. The institutional tensions around the borders and folds of these three institutions and their worldviews are familiar to us.

Here we find an actual mention of videogames by Ulmer: they are one of a range of popular entertainment media in the digital age. With **entertainment** being firmly positioned as electrate praxis, **fantasy** as state of mind, and **play** as behavior, it is easy to imagine how videogames might fit into the apparatus table:

Apparatus	Orality	Literacy	Electracy
Medium	Performance	Text(book)	Video(game)

Given that the oral apparatus can be traced back to pre-literate hunter-gatherers whose performances of events and myths constituted religious practice (Ulmer offers the example of the Oglala Lakota's horse dance [15], which has survived into modern times), and that the literate apparatus can be traced back to the Greeks' (Thales, Plato, Aristotle, among others) alphabetic writings on epistemology that would be institutionalized (over two millennia) into the school/academy and their texts—particularly text*books*, which are commonly recognized today as providing the organizational structure for academic learning (moreso than the teacher)—then the electrate apparatus, which Ulmer traces back to "early nineteenth-century Paris, where new forms of entertainment emerged as public discourses in the wake of the Industrial Revolution and the new sociopolitical and cultural institutions it created," and then furthermore to, "[the] new recording

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[15] He cites Neihardt (1961), who apparently interviewed an Oglala Holy Man named Black Elk; Black Elk says, "… a man who has a vision is not able to use the power of it until after he has performed the vision on earth for people to see. […] … my great vision came to me when I was only nine years old… I was not much good for anything until after I had performed the horse dance near the mouth of the Tongue river during my eighteenth summer" (qtd. in Ulmer, 2003, p. 201). Black Elk's performance is about merging the physical with the spiritual, and in so doing, bringing something into the world, or altering one's state of being/of mind.

technologies invented in the modern city," is perhaps best recognized in the technological

practices of creating electronic, video-based media (Holmevik, 2012, p. 29). In

Teletheory (1989), Ulmer emphasizes the video camera as an inscription device, but by

Internet Invention (2003), he is emphasizing multimodal websites for their interactivity

and adaptability.

If we see videogames as like interactive digital videos—a combination of

cinematic, camera-based, graphical representations that require/encourage input from an

audience/spectator [16]—it is possible for the label "videogame" to cover an extremely

wide range of electronic media, and perhaps, as suggested above, to serve as a stand-in

for electracy's most distinctive media form in the Apparatus Table. Videogames are, of

course, more than interactive cinema, and some (particularly ludologists) have argued

that games should not be defined in terms of how they resemble cinema, but rather in

terms of how they diverge from it through elements like interactivity, challenge,

procedurality, etc.; however, for Ulmer, both videogames and cinema are beholden unto

the techno-logic of the **image**—or, as Ulmer terms it in the apparatus table, "**figure**." He

states: "'Figure' here is the equivalent of 'logic' [,(or 'argument' [17] in the table),] and

stands in for any and all formal aesthetic devices, especially (ultimately) those invented

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[16] Videogames have been trending in the direction of "interactive cinema" for a while now; for extreme examples, see *Indigo Prophecy* (2005) and *Heavy Rain* (2010), two highly cinematic games composed primarily of scripted scenes prompting users to input specific commands. These games are, in some ways, more like movies than games; they certainly blur the boundaries between media forms.

[17] The literate tradition of argumentation is so fundamental in Western thought that there is a prevailing notion that "everything is an argument" (this is also the title of a composition textbook I've used).

by the historical avant-garde[18] as part of the separation of electracy from literate culture"
(Ulmer, 2014). In electracy, the procedure for inventing figures is **style** (corollary to
method for inventing arguments in literacy), which Ulmer defines as "the **aesthetic
quality of thinking**" (qtd. in Weishaus, 1998). By "aesthetic devices," Ulmer can be taken
to mean works of art, and by "any and all" he includes non-visual aesthetics, though he
clearly relates the electrate logic of figures to a shift towards a visual image-dominated
culture rooted in the ubiquity of technology for mechanical production; in particular,
photography. However, it should be noted that the invention of figures is not simply a
matter of imitating an existing category of aesthetic style (although "pastiche" is a valid
technique) (Ulmer, 2012, p. 8). For Ulmer (2012), electrate style is not categorical, but
"tautegorical," a term borrowed from Jean-François Lyotard which conveys the idea of
"individual styles," or "singularities" that are "anchored in feeling (this is the key), and
are useful for inquiry in conditions that exceed understanding and knowledge, for the
sublime formlessness of experience in the (post)industrial city (dromosphere)" (p. 31).

     Ulmer arrives at his concept of image/figure vis-à-vis Barthes' *Camera Lucida*
(1981), which revolves around a concept dubbed **punctum**. The word literally implies "to
puncture" or "to pierce," and it is used to refer to the "obtuse meaning" of a photograph,
or in other words, "that which stings or pricks one emotionally" (Ulmer, 2003, p. 44).
Barthes, in this book that would be his last, presents an array of photographs drawn from
his own personal photo collection, along with several dozen essay fragments, and invites

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[18] For more on the intersections of electracy, videogames, and avant-garde artistic movements, see
Chapter 3, Section e: "Videogames as Artistic Expression."

readers to consider what it is that causes some photos to affect an emotional sensation akin to the pain of nostalgia—though sometimes it is harder to describe than that. This hard-to-define ("obtuse") feeling one gets when viewing certain photos, as if they contain some critical detail that can never be truly understood by anyone else, is the punctum. Barthes distinguishes punctum from **studium**, which describes "meanings that are nameable," or as Ulmer suggests, things "constituted by the public encyclopedia of concepts"—things most everybody can understand about a photo by reading common cultural signifiers (p. 44). According to Ulmer (2003):

> The **punctum juxtaposes** to ideological (mis)recognition an alternative, a personal memory based not on the **public archive** but a **private repertoire**. The subversiveness of this move is not in the content but just in the effect of having two **databases** to call upon, to slow the [literate style of] fixation of meaning, to interrupt the exchange […]. (p. 44)

Thus, the electrate logic of the figure in Ulmer's apparatus table has to do with the recognition of obtuse meanings that would be excluded or marginalized in the literate logic of the argument. The idea of the archives/repertoires/databases outlined here speaks to a merging of disparate areas (public, private), via electrate conduction, to facilitate a new style of composition aimed at uncovering and exploring obtuse meanings experienced as punctum.

Ulmer extends *punctum* beyond photography to other media forms; it can potentially be found in anything. Taking up this line of thought, Sarah Arroyo, in *Participatory Composition: Video Culture, Writing, and Electracy* (2013), discusses the electrate affordances of accessible, open, online video production using editing software and video publishing websites like *YouTube*. For Arroyo, digital video represents "the

prototypical experience of the Internet," and the **participatory** nature of the medium has significant implications for both understanding electracy, and applying electrate theories in composition classrooms (p. 2). Arroyo quotes noted composition theorist Diane Davis as observing that "the alliance between computers and composition [f]orces the posthumanist paradox into the writing classroom" (p. 2). Arroyo defines participatory media in terms of their creation within "media environments," particularly non-academic online communities and social networks, and in so doing decentralizes the concept of authorship to make it more inclusive and expansive (p. 13). She references theorists in the vein of Henry Jenkins who've adopted an "ecological approach" to conceiving of participatory media environments, emphasizing "thinking about the interrelationships among different communication technologies, the cultural communities that grow up around them, and the activities they support" (p. 9).

Other scholars of participatory media cultures, such as Mirko Tobias Schäfer (2014), have helped to firmly establish that digital technology and digital media facilitate a dynamic between producers and users that is far more complex than static, literate (logocentric, readerly) categories of author, audience, and text allow for. Jenkins (2009) offers a description of **participatory media culture** as "a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing creations, and some type of informal mentorship whereby experienced participants pass along knowledge to novices" (p. 3). He emphasizes the social connection between participants in these cultures who engage with each other's contributions; the participatory subcultures and online communities dedicated to modding

are exemplary in this regard because they build upon the architecture of existing technology and the Internet to discuss, plan, troubleshoot, and distribute their mods. Accordingly, the behaviors and practices of modders in such participatory, online spaces is of considerable interest to scholars. Eric Ellis (2014) addresses the participatory culture phenomenon of user generated content, specifically mods, and attempts to explain why individuals are motivated to invest significant time and energy into such projects without being paid—he offers the term "Community of Passion" to describe the "playful and passionate approach to productive activity" exhibited by members of a modding subculture dedicated to *World of Warcraft*, and goes on to compare such activity the emergent rhetorics of the "Maker" movement, "where creativity and democratized production are valued" (p. x). T.L. Taylor's (2006) case study, titled "Does WoW Change Everything?: How a PvP Server, Multinational Player Base, and Surveillance Mod Scene Caused me Pause," describes the social dynamic that emerges from modding communities as coming "from the bottom up," with modders and other players developing their own social stratifications outside of the industry and game's embedded structures (p. 334). Similarly, Ming Kow (2011) studied *World of Warcraft* modders and found their subcultures resembling "grassroots cultures," with members making decisions based on democratic consensus "rather than being influenced by specific, often economic, agendas as employees of software companies would" (p. xv). Richard Webb (2009), discussing contemporary online ecologies, notes that social networking technology is "generative of a variety of self-organizing communities, some of which qualify as dynamic learning communities;" modding communities are singled out "as one

particularly productive example of this generative phenomenon" (p. ii). Shree Durga Subramanian's (2012) dissertation argues that, as modding becomes increasingly mainstream and supported by the videogame industry, the medium has the potential to foster innovative, accessible, interest-driven engagement from learners from diverse educational and professional backgrounds within what she calls "online affinity spaces;" she includes ethnographic research centered on a modding community dedicated to the game series *Civilization* (called "Civfanatics") which she uses to outline three dimensions of participatory learning through modding: motivation, technological constraints (of the software engine), and the online affinity space, each of which play a role in fostering an effective learning environment (p. 84).

Figure, the new "mode" of logic that is sweeping the globe, accounts for epistemology-as-aesthetics becoming electrate philosophy, and so clearly the creation of aesthetic videogames constitutes a codification of knowledge in playable, digital form. Modding videogames fits into Arroyo's notion of electrate participatory composition, and the importance of participatory culture—in its various forms—will be further explored in Chapter 2, Section c, where the "Hacker Ethos" and Open Source Software Movement are considered in the context of electracy. First, however: having established the concept of chora, it is worthwhile to unpack this term and its particular relationship to other key elements of the electrate apparatus: **Fantasy, Play, Body**, and **Joy/Sadness**, which combine to describe electrate-ludological knowledge formation, or play as electrate learning.

e. Play as Electrate Learning

The apparatus theory of electracy provides a framework for discussing playful participation as learning, which occurs in the meta-physical space known as chora, or **choral space**. Videogames, the online spaces where they are discussed, the tools required for modding and sharing mods, and of course modders themselves, combine to constitute hybrid choral spaces that leverage a range of digital skills and knowledge within the electrate apparatus. Modding should be of interest to educators because it exemplifies a constructionist[19], or "hands-on," approach to digital learning with applications across the disciplines. Put simply, constructionism entails learning through designing, and videogame design in particular represents an emerging area of interest that combines students' familiarity with interactive media with their passion for designing their own games. Alan Gershenfeld (2011) states that videogame design has "the potential to foster highly engaged learning by tapping into the natural passion of students for making [videogames]," and goes on to cite the Pew Research Center's "Internet and American Life" project which reveals that "an increasing number of the 97 percent of teens that regularly play [videogames] now want to make [videogames]." He gives the example of Harel's (1991) study of children working "for prolonged periods" on creating their own games using a specialized coding language called Logo[20], and several other cases of

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[19] El-Nasr and Smith (2006) quote Seymour Papert (1980), one of the founding theorists of constructionism, as describing the term as involving two main components: "First… the mental construction of knowledge that occurs with world experiences… second… constructing products that are personally meaningful."

[20] Created by Seymour Papert himself (Gershenfeld, 2011).

primary school teachers reporting increased engagement from their students on videogame design projects.

Ahmet Baytak and Susan Land (2010) report on the value of videogames designed "by kids, for kids," describing how children tasked with creating a game to teach younger students about nutrition used the software engine *Game Maker* to engage in collaborative, strategic design, helping each-other through the process and ultimately "taking ownership of their own learning." Mike Carbonaro (2008) argues for the incorporation of modding as a form of "interactive story authoring" in tenth grade writing classrooms, giving his own experience with modding using BioWare Corp's *Aurora* software engine in conjunction with an original scripting tool called "ScriptEase," which facilitates students using the software to create interactive stories—he finds that making software engines increasingly accessible to younger students opens up the possibilities of using modding for teaching subjects outside the realm of computer science. Hang-Zheng Sun Lin and Guey-Fa Chiou (2010), at the IEEE International Conference on Digital Game and Intelligent Toy Enhanced Learning, delivered a presentation on teaching physics to junior high school students by modding *Warcraft III* (2002), demonstrating that commercial games not designed for educational purposes can be appropriated within the classroom using modding practices. Andrew Moshirnia (2007) also comments on educators "co-opting" commercial videogames, providing the example of high school history teachers modding *Civilization IV* (2005) to improve their students' retention of historical facts; these students expressed enthusiasm about using videogames for future learning activities, suggesting a space for modding across the curriculum. Universities,

too, have increasingly incorporated videogame design into curricula in fields such as computer science, leading to an increase in students' grades compared to more traditional curricula (Moskal et al., 2004, referenced in El-Nasr & Smith, 2006). Timothy Stowell and Brett E. Shelton (2008) describe a mod of *Quake III* titled "Voices of Spoon River" which re-envisions the teaching of classical poetry within an interactive, multi-modal, virtual space. The above examples show videogame modding encroaching on traditional education at every level.

Clearly **play** as pedagogy is a hot topic in scholarly discourse, particularly in looking at videogames as potential learning devices (with some modding required). Simona Livescu (2003), outlining a history of ludic (related to play) criticism, determines that "[play] is as ultimate in its importance as traditional concepts like truth, knowledge, meaning, and value are"; she posits that "play exists as an essence of consciousness and that it is, actually, a way of being, not only a way of knowing" (p. 20). Indeed, Ulmer adopts "play" as the defining behavior electracy apparatus, a key trait for learners and theorists navigating and shaping the burgeoning landscape of interactive, networked, digital media, which increasingly includes the virtual worlds that videogames are set in. He goes further than pedagogy, however, and suggests that play is akin to "experimentation" in the literate apparatus (Ulmer, 2014). As an adherent of Derrida, Ulmer conceptualizes deconstructionism—or his applied grammatology—as a form of **freeplay** that occurs in choral space; Derrida's essay "Structure, Sign, and Play" (1969) observes that, beyond logocentrism (which positions human knowledge/ideas/images as

the central reference point for all meaning), there is only "freeplay**,**" which he defines as follows:

> Freeplay is the **disruption** of presence. The presence of an element is always a signifying and substitutive reference inscribed in a system of differences and the movement of a chain. Freeplay is always an **interplay of absence and presence**, but if it is to be radically conceived, freeplay must be conceived of before the alternative of presence and absence; being must be conceived of as presence or absence beginning with the possibility of freeplay and not the other way around. (p. 12)

This challenging concept, as observed by Hans (1976) in his commentary on the essay, is made so by the instability of Derrida's definition, which is intentional in order to "disrupt" and resist logocentric categorization (p. 810). What is clear is that freeplay involves **disruption**; that its ontology (state of "being") is an interplay between **presence**—who we are, or think we are, at any given time—and **absence**—what we are not, lack, have lost, or desire to become; and that it has no origin/center. Derrida (1969) also distinguishes between "free" and "engineered" play, the latter being structured play produced by "the engineer" (a theoretical figure which Derrida says is actually a "myth") which is oft-presumed to be opposed to unstructured free play, when in fact the two always already exist together (p. 6). Cynthia Haynes (2016) takes up this distinction in the context of videogames to point out that engineered play is increasingly the privileged, default form of play, reflecting "structuralist, scientific, calculative" rhetorics deployed in support of the military-industrial complex, and proposes in response what she calls "theorycraft," a term associated with end-game (occurring when the game has been learned and nearly mastered by a player) gameplay which involves researching and studying the game's mechanics to better understand it how it functions, but also, how it

could be theoretically different (p. 5). For videogames, normal gameplay (as the developers intend) is usually associated with engineered play, and modding/theorycraft (meta-gameplay) with free play; the crux of this dissertation's conjecture is that these should always be able to go hand-in-hand.

Ulmer (2003) establishes the term "**choragraphy**" to describe a version of rhetorical composition that embraces freeplay rather than rigid, literary writing on topics constrained by conventions of academic discourse (p. 101). Choragraphy is itself a form of deconstruction/applied grammatology where the personal experience of a choral space—which can involve one's home town and their memories of growing up there, or a virtual world and one's interpretation of its relevance to their life—is taken into account and used as a point of entry into some exigency. Here, one's experience of a place constitutes an archive grounded in their **body** and measured along the axis of **joy/sadness**, as in the electracy apparatus table. Representations of choral spaces will contain elements of punctum which may pierce or sting—thus, "sadness" becomes a critical tool for identifying exigencies in the world, and "joy" reflects the blissful experience of engagement with ideas of personal significance, especially as it leads to a process of conductive invention (p. 240). I use the term "bliss" in reference to Barthes' *The Pleasure of the Text* (1973), wherein he associates the feeling (in French, "*jouissance*") with the experience of vivid, intimate engagement with writerly texts; readerly texts, on the other hand, may produce a sense of pleasure through the enjoyment/recognition of narrative or content, but not a sense of bliss.

Videogames are digital structures of play, and so they beg to be deconstructed, especially insofar as they constitute ways of being/knowing vis-à-vis choragraphy in the electrate apparatus. To play with a game's mechanics, aesthetics, and/or narrative through modding is its own sort of play which resembles Barthes' notion of engaging with writerly texts, and thus it has the potential to be a blissful activity—this may account for why modders can be motivated to expend significant time and effort on their projects with little to no prospect for profit.

Videogames are also structures involving elements of **fantasy**. Ulmer includes fantasy in the apparatus table as the "state of mind" in electracy, alongside "knowledge" in literacy and "faith" in orality. But what does he mean by this term? In *Applied Grammatology* (1985), he ties it to Derrida's "fantasy etymology:" a style of theory where new terminologies are invented playfully, using such mechanisms homophonic relations and "punning" (a style which Ulmer takes up himself) (p. 50). He relates this to the works of Renaissance printmaker Albrecht Durer, who ornamented texts with fanciful decorations like vines and birds, as well as monstrous manifestations like gargoyles, with the result being similar to Derrida's use of puns: "a **distorting** effect in philosophical discourse" (p. 50). He goes on to tie the concept of fantasy to metaphor, suggesting that these form a bridge between the real and some "unnamable thing" (p. 62). Furthermore, he draws heavily upon the field of psychoanalysis, particularly Lacan and Freud, to reveal connections between language, the mind, and **dreams**. Ulmer (2012) states: "Psycho analysis contributes to electracy by focusing on encultured embodiment. The capacity of the body for *jouissance* is ontologized in electracy (as a dimension of reality

open to augmentation as civilization)" (p. 163). From Freud's *Origins*, Ulmer (1985)

quotes, "Phantasies [sic] are constructed by a process of fusion and distortion analogous

to the decomposition of a chemical body which is combined with another one" (p. 60).

Here, the psychoanalyst, too, connotes a bridging or merging of ideas that occurs as a

process of bodily internalization, or **incorporation**. Ulmer outlines the concept thusly:

> Psychoanalysis defines the element of phantasy life that is involved in
> personality formation in terms of the functioning of the erotogenic zones
> (including especially those sensory organs included from the
> philosomemes). **Incorporation**—the nourishment process of taking things
> into the mouth, but also the spitting out of the breast—provides a model
> for relationships with the external world in general. Thus, the child will
> assimilate the image of the mother as an ideal self, as part of ego-
> development, in a process an important aspect of which is termed
> "mourning." Mourning—the idealization and interiorization of the
> mother's image—enables to child to accept the separation from (loss,
> "death" of) the physical mother. (p. 61)

Here, the fantasy of the mother is presented as exemplary of incorporation as a

fundamental process of relating to the world. For Derrida, incorporation is represented in

the form of **collage**, which he adopts as a form of "unconscious writing" to resist the

logocentric "intentionality" of writing that constrains and ideologically directs thought (p.

60). Unconscious writing uses the logic of dreams, which is similar to, if not the same as,

the logic of conduction—electrical neural signals firing, overlapping, and revealing

hidden connections. Ulmer, of Derrida's collage form, notes that it is an art of

"recomposition" and "modification" that relies on a collection of "readymade," or

found/discovered, objects, and compares it to the artistic styles of Marcel Duchamp and

Fluxus (these figures will be revisited in Chapter 2, Section b) (p. 91).

Internet Invention (2003) demonstrates dream-like, conductive logic and offers further hints towards understanding Ulmer's concept of fantasy: the entire text weaves together elements of autobiography, literature, cinema, pop culture, and other sources that are connected by conductive logic, constituting a personal mythos for Ulmer which he uses to arrive at various figures, or **emblems**, that collectively form a sort of constellation, or "**cosmogram**" of significance—it is an electrate map that tests the boundaries between fantasy and reality (p. 96). One aspect of Ulmer's cosmogram is the fantasy site of Xanadu, as described in Samuel Taylor Coleridge's famous Romantic poem; he traces Xanadu's locales and finds that one of them, the "site of the mighty fountain and underground river," is Alachua County, Gainesville, Florida, his own place of residence since 1972, which Coleridge described based on William Bartram's popular text *Travels*, a late-eighteenth century account of Florida's topography (p. 98). He relates that the discovery of his connection to a place that reflected "the most exotic sites of otherness, of 'elsewhere,' of anyplace-out-of-this-world, available to a Romantic imagination," was an "uncanny" experience (p. 97). The reality of many in the Gainesville area today, of course, is far from the ideal, "stately pleasure-dome" in the poem, but rather is a site of numerous modern exigencies brought on by colonization, industrialization, and urbanization. Ulmer urges composition students to use this sort of conductive logic to identify real world exigencies bound up in fantasies, including those in the popular media they find most entertaining.

Ulmer's most recent book, *Avatar Emergency* (2012), helps tie together the concepts of conduction, fantasy, body, bliss (*jouissance*), play, chora, and even

videogames as electrate media (particularly in terms of image/figure and entertainment);

he accomplishes all this through defining what he calls **flash reason:** "a practice of

epiphany for authoring on the fly in database environments functioning at light speed" (p.

75). He bases this concept in-part on cultural theorist Paul Virilio's[21] notion of

dromology—based on the Greek root *dromos* meaning "race" (as in between runners on

a racetrack)—which aims to study the effects of the increasing rapidity of communication

and transportation on the "global village" (Redhead, 2004, p. 23). In particular, Virilio

hones in on the dromological effect dubbed the **accident,** which he highlights in his

2002-2003 Paris exhibition titled *Unknown Quantity*, featuring "hundreds of

photographic, movie, webcam and video installations" all aimed at conveying his sense

of this effect: "A society which rashly privileges the present—real time—to the detriment

of both the past and future, also privileges the accident" (p. 256). One example he offers

is of automobile accidents, which occur constantly but which media and society seem to

generally accept as a necessary trade-off for convenience and speed; however, beyond

naming specific types of accidents, Virilio theorizes an **integral accident** or **general

catastrophe "**which occurs on a planetary scale," for which he offers the long-term

radioactivity in Chernobyl as an emblem/image/figure (p. 257). Ulmer takes up the idea

of the **dromosphere** towards theorizing an antidote to the accidents, and potential

catastrophes, in our high-speed world:

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[21] Virilio's writing style, commenters have noted, involves "wide sweeps of historical and political referencing, not always obviously and immediately connected." (Redhead, 2004). This suggests the use of a conductive logic similar to what Ulmer proscribes.

The dromosphere refers to the pollution of dimensions that follows from electronic augmentation of human thought and language. **Instant communication** [(including, for example, between videogame players with their input devices and the videogame's pre-programmed mechanical systems, not to mention networked, online play involving many players is constricting time)] is **constricting time**, eliminating the past and the future, reducing human temporality to **Now-time**. If the oral apparatus ran on cyclical time, and literacy on linear time, electracy operates within the moment of Now. All trajectory disappears, eliminating the journey with its departure and passages, leaving us only with pure arrival. The mood of this condition is claustrophobic, a sense of being trapped. The human condition in the dromosphere is that of being caught and held within Now-time. The paradox of this confinement is that, augmented by the technologies of telepresence, the experience of Now is separated from place, even from being-there (*Dasein*). (Ulmer, 2012, p. 73)

Flash reason is "a logic adequate to the dromosphere," and its application necessitates an evolution in being/thought that goes beyond literacy's concept of the "self," which has its origins in "[the] experience of one's own voice returning in writing," as established by the scholarship of Eric Havelock (Ulmer, 2012, p. 74). Ulmer offers the concept[22] "**avatar**" to describe this evolution in electracy, which he sets up thusly in the preface of *Avatar Emergency* (2012):

Something is happening to us and through us that goes by the name of "avatar." Some of us are present in Second Life through an "avatar," or have had our identities stolen digitally, added a photograph to our Facebook account or personalized our blog with an icon, even designed

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[22] On the use of the word "concept," Ulmer writes: "Concepts are an invention of literacy, created by the classical Greeks in the Academy and Lyceum in Athens, as a device for developing alphabetic writing as a support for thought. Concepts used the formal technique of definition to identify the properties of an entity constituting its essence, its nature, based on its function or purpose. In addition to these general concepts classifying things of the world, the Greeks produced a number of specialized concepts designed to do the work of philosophy itself, and philosophy ever since has created a host of these devices. The question today concerns whether or in what way philosophical concepts may survive in, or be adapted to, the apparatus of electracy that emerged at the beginning of the industrial revolution […]. Avatar as concept is needed to understand how theory may still be performed in the image metaphysics of electracy." Clearly, the naming and defining of "concepts" is a challenge facing electrate scholars, but electracy does not negate the task of philosophical conceptualization.

and sold t-shirts, skateboards, coffee mugs and the like branded with our
personal logos. But branding is not avatar. We have not yet begun to
avatar, although there are futuristic scenarios and scholarly histories,
looking forward and backward in time, archiving the possibilities and
precedents. You can meet avatar, that part of you inhabiting cyberspace
(for lack of a better term). You and I need to meet the avatar that we
already have, that we already are, now that it may be augmented within
the digital apparatus (electracy) beyond branding to become **prosthesis** of
counsel and decision. Electrate avatar knows more than you or I do, it
knows better than you or I do about what will have happened in our
various respective situations. This claim must not only be understood, but
undergone. It is not only an idea, a theory, but an experience. (p. ix)

Ulmer merges the usage of avatar in the context of videogames (as popularized by the

MMO *Second Life*[23]) with the concept from ancient Hindu religious texts, where avatars

are human incarnations of gods[24]. He compares the Internet-as-prosthesis to a sort-of

"Divine Mind"—a collective archive vast beyond comprehension, and growing each

day—with avatar being the means to connect to it, and flash reason as a necessity for

negotiating now-time (p. 17). Increasingly, videogames constitute spaces in the Divine

Mind of the Internet that only avatars can inhabit, making videogame playing skills—and

beyond them, modding skills—potent abilities to possess in the current rhetorical

ecosystem. Ulmer (2012) says that this concept of avatar is critical to the "invention" of

flash reason, which is the goal of his book and his pedagogy (p. xiv). Avatar augments

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[23] Citing Aaron Britt, Ulmer (2012) quotes the following on the popularization of the term
"avatar" as it relates to videogames: "The proliferation of avatar's second meaning can be traced to Second
Life, a multiplayer online virtual world, where players fashion their own online personae called avatars.
The popularity of the game has shot the term into the mainstream. Philip Rosedale, the creator of Second
Life, defines avatar in the gaming sense as 'the representation of your chosen embodied experience to other
people in a virtual world.' Considering that Second Life avatars may assume literally any guise—wings, a
dragon's head, gills and flippers—the key to avatarness, in Rosedale's view, is user control" (p. 76).
[24] As noted by Ulmer (2012): "The term 'avatar' in Sanskrit literally means 'descent,'" and is used
in the Sanskrit poem "*Bhagavad Gita*" to describe the human incarnations of the god Krishna; they are said
to appear "in times of emergency" (p. 75).

the self with digital prosthetics that allow for "a deliberative rhetoric for public policy formation, making democratically informed decisions in a moment, at light speed, against the threat of the General Accident that happens everywhere simultaneously" (p. ix). Indeed, he asserts that avatar can be seen as the personification of flash reason, which he alternatively terms "simultanism," implying a simultaneous mediation of "two catastrophes (one outside, one inside)" (p xxii).

Ulmer uses, as a guiding analogy, the simultaneous being of the player and the avatar, as in a videogame: "'Play' is justified in this context not only because of the game analogy invoking a familiar online skill, but more properly in the ludic terms developed by Johan Huizinga, who argues that culture and even civilization emerge out of play" (p. 75). Huizinga, who established that argument in his 1938 book *Homo Ludens*, positions human beings as creatures not distinguished by their being "wise" or "knowing" (as in *homo sapiens*, a clear construct of the literate apparatus), nor by the more modern notion of their being "makers" (*homo faber*), but by their being "players" (thus his book's title, *homo ludens*) (ref. Holmevik, 2012, p. 9-10). In Huizinga's analysis of play, he also draws upon an interest in fantasy—particularly fairy tales—as a state of mind for theory (Otterspeer, 2010). Huizinga defines play as:

> [A] **free activity** standing quite consciously **outside "ordinary" life** as being "not serious," but at the same time **absorbing** the player intensely and utterly. It is an activity connected with no material interest, and **no profit** can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed **rules** and in an orderly manner. (Huizinga, 1938, qtd. in Lastowka, 2009, p. 383).

This perspective reflects Derrida and Ulmer's take on free play, where the so-called "ordinary life" is a structure imposed by hegemonic logocentrism. The notion of play as

an activity yielding no profit, nor connected with any material interests, also merits consideration—if this is the case, then videogame modding, as meta-gameplay, is something that must necessarily exist outside of the commercial videogame industry. Videogames, in particular, are known for their "absorbing," or immersive, quality, evoking a sense of detachment from the real world and of inhabiting the game world (Jennett et al., 2008). In this state of immersion, skilled/experienced players feel an attunement to their avatar; having mastered the controls, they can react with reflex-speed to challenges the game presents them with. As barriers to modding are reduced, mods, too, can be produced more rapidly and in response to more rhetorical exigencies in games themselves, the volatile real-world politics beyond them, as well as the people and events in our personal lives (as in the anecdote from the Preface where a father mods a game over three days as a gift for his young daughter).

Jan Holmevik, in his book *Inter/Vention: Free Play in the Age of Electracy* (2012), expands Ulmer's apparatus theory to include all forms of playful activity, and takes up Ulmer's concept of **heuretics** as an alternative to hermeneutics; put simply: "to play is to invent by heuretic means" (p. 6). Hermeneutics, broadly speaking, refers to any method of literary criticism, with the key word being "method," and describes traditional approaches to interpreting texts; heuretics, in contrast, strives to be, in Ulmer's (1994) own words, "antimethod" by incorporating free play (p. 25). Holmevik (2012), in advocating for free play, critiques what many have called the "hermeneutic circle" as

constraining academic criticism, particularly[25] insofar as it has been used to restrict play

as a valid method/antimethod for participation (p. 139). In the book *Heuretics: The Logic*

of Invention (1994), Ulmer establishes that the term "heuretic"[26] combines the concepts

"heuristic" (meaning learning by doing, or a "hands-on" approach employing a loose set

of guiding principles borrowed from elsewhere), "eureka" (a sudden moment of powerful

insight that occurs in the interplay "between quotidian[27] and disciplinary experience"),

and suggests, through numerous examples[28], that human progress has largely been the

result not of following any hermeneutic process or method, but of playful heuretics (p.

154). Following in the footsteps of Derrida, Barthes, and others, contemporary scholars

see hermeneutics as a means to heuretics; this has not, however, been manifest in most

composition classrooms (or English departments in general), where a hermeneutic

understanding is still usually the end-goal (Jarrett, n.d.). Holmevik's (2012) title

"inter/vention" alludes to a deliberate intervention in the ongoing invention of Internet-

based and digital teaching, one which encourages playful heuretics as essential to

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[25] Also insofar as it has been deployed to critique videogames themselves with regards to ethics and rhetorical violence (for example, by Sicart, 2009) (Holmevik, 2012).

[26] Sarah Arroyo (2012) and Michael Jarrett (n.d.) both note that "heuretics" also contains references to "hermeneutics," "ethics," "heretics," and "diuretics"—regarding the latter, it would, in this context, suggest something related to the body which causes it to expel or purge something, thus emphasizing the embodied nature of heuretics (Arroyo, 2012, p. 112).

[27] Daphne Tolentino-Canlas (2017) describes the "quotidian" vis-à-vis Martin Heidegger, positioning it as a rhetoric of "everyday life" involving commonplace objects; she extends the quotidian into the realm of aesthetics vis-à-vis Yuriko Saito, who "discusses the aesthetic as the sensual reaction of the body to certain forms, designs, phenomena and activities which encompass not just the pleasant, but the unpleasant in the everyday" (p. 15). It should be noted that videogames are quotidian objects.

[28] From Ulmer (1994): "The canonical examples of scientific insight have been enumerated often enough: Newton observing the falling apple, Archimedes taking a bath, James Watt watching the kettle boil, Poincare getting on a bus (Bastick, 352)" (p. 154).

scholarship in the humanities. He highlights Ulmer's notion of **choragraphy** (sacred, personal space), and demonstrates it in his own writing by conductively connecting aspects of his childhood (where play, and meta-gameplay, were fundamental activities), disciplinary discourses (in rhetoric and composition studies, as well as the history of technology), entertainment media (in his case, online MOOs[29], early computer/arcade games, and *World of Warcraft*), and real-world exigencies (acts of mass violence, and how they are discussed in news media). Furthermore, he emphasizes the role of teachers/scholars who understand digital media in bringing about change in the current system by going beyond "writing" in the traditional, academic sense; referencing Stuart Moulthrop (who is speaking about videogames), he asserts:

> It is not enough to deconstruct the dichotomy of play [and work] and reflect about play in writing. "We must also play on a higher level, which means we must **build**" (Moulthrop, 2005, 209). Thus, Moulthrop proposes a "new category of cybertextual scholarship called the *intervention* … [by which he means] a practical **contribution to a media system** (e.g., some product, tool, or method) intended to **challenge** underlying assumptions or **reveal** new ways of proceeding" (Moulthrop 2005, 212). (p. 92)

Heuretics, for Ulmer and Holmevik, should strive to be this higher-level play.

Recognizing that Internet-based virtual communities can be a context for education,

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[29] MOOs (based on MUDs, Multi User Domains, with added Object Oriented programming features) are multiplayer, text-input-based videogames that are open to "building" by players; Haynes & Holmevik, in *High Wired: On the Design, Use, and Theory of Educational MOOs* (1998), define "building" as "something of a hybrid between computer programming and writing fiction," and describe how players of MOOs create new objects (and identities) and modify the virtual spaces of game worlds (p. ix). This is clearly also a type of modding, one made more accessible by being object-oriented in design (for more on object-oriented programming, see Chapter 2, Section a).

teachers should be prepared to "[foster] the blurring of boundaries that separate academic from work life, play from work, and play from learning" (Holmevik, 2012, p. 94).

Steve Holmes's chapter, "Aleatory Invention and Glorious Trainwrecks' Accursed Share," in the anthology *Play/Write* (2016), approaches the playful invention of videogames vis-à-vis George Bataille's notion of a general economy based on "excess" (as opposed to the neoliberal restricted economy's basis on "scarcity") (p. 22). For Bataille, human societies can be analyzed in terms of their use of what he calls the "accursed share," or the excess/surplus time and energy that people possess; his philosophy encourages people to expend their accursed share on non-utilitarian, subversive artworks, "including surrealist spectacle, art (or, the making of life into art), and sexuality" (Bataille, 2008, qtd. in Holmes, 2016, p. 23). Holmes proscribes the application of **aleatory invention** to "offer an alternative general economy for videogame design in the composition classroom" (p. 23). He defines aleatory invention as involving factors such as the unconscious mind (dreams), random chance (a throw of the dice, or of the sticks[30]), bodily impulses, or complete accidents; when it comes to game design, aleatory procedures occur in the interplay between player and computer, causing the phenomenon known as **generativity,** or the potential for the generation of many

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[30] The Chinese classic *I Ching* involves an aleatory procedure wherein the reader/participant throws sticks—traditionally, fifty equal-sized yarrow stalks—and interprets their pattern on the ground as a form of divination. Coins, marbles, beads, and grains of rice are also sometimes used to generate divinations ("I Ching," 2018).

(near-infinite) possibilities within an interactive space[31]. Holmes frames his discussion of

aleatory invention around Jeremy Penner's *Glorious Trainwrecks* videogame design

community, which Penner (2008) states "[is] about throwing a bunch of random crap into

your game and keeping whatever sticks" (qtd. in Holmes, 2016) (p. 32). The community

features a "Klik of the Month Klub" that encourages members to "make [a] game in two

hours," with no other rules (p. 33). Videogame critic/designer Anna Anthropy (2012),

having participated in some of these "marathons" of game design, observes, "The

experience forces participants to get past their egos and their meticulous plans for future

epic games, to stop focusing on details and CREATE" (qtd. in Holmes, 2016, p. 33).

Importantly, Holmes emphasizes that "[there] are no incentives for production and

exchange in [the *Glorious Trainwrecks* community] other than the glorious expenditure

of surplus to produce trainwrecks" (p. 33). Trainwrecks, of course, are spectacular

accidents, referencing the "era when trainwrecks of empty trains were staged (sacrificed)

by entertainment companies for the amusement of interested spectators" (p. 24). That

they exist and are circulated within a general economy where people play each other's

games, learn to make their own games (through online discussions, video tutorials, etc.),

and are unbound by the rules governing the restricted economy of the videogame industry

(such as a narrow focus on design for profit, the exclusion of sexual or politically radical

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[31] For example, *Minecraft* (2009) is a game involving a generative algorithm that creates semi-randomized environments composed of blocks—players can influence the generativity by establishing parameters for the initial generation, and then furthermore within the game world itself through *Minecraft*'s signature block-based interactions. Beyond videogames, many digital artists today experiment with generative art by using applications that create unpredictable, yet user-influenced, visual and musical arrangements (Boden & Edmonds, 2010).

content, etc.) is what characterizes the work/play of members in Penner's community as aleatory. One major challenge facing aleatory invention, as in the *Glorious Trainwrecks* community, is exploitation by restricted economies of the labor of independent/amateur game designers; Holmes observes that, even as players subvert restricted economies through playful game design (such as modding), companies are actively seeking ways to harness that accursed share (such as by increasing their control over modders and directing their activity to improve the value of their intellectual property).

Taking aleatory along with heuretic invention, a vision for electrate videogame modding as composition praxis begins to take shape. In order to flesh it out, it is useful to turn to existing categories, or genres, of electrate composition, and imagine how they might manifest in videogame form.

f. MyStories and MEmorials

Ulmer poses a question at the beginning of *Internet Invention* (2003)*:* "How might information stored in databases be turned into knowledge on screens hyperlinked globally and designed with graphics?" (p. xii). Moreover, he wonders: how can students apply electrate composition along with "the perspectives of humanities and the liberal arts" to "improve the world?" (p. 1). To this end, he introduces the concept of the **EmerAgency**, which he applies to his own classroom and his students; he encourages them to see themselves as empowered "agents" of rhetorical persuasion who respond to "emergencies" (exigencies in the real world, especially local problems) using "emerging" technologies (computers, the Internet, video, etc.). The EmerAgency is an academic "consultancy" operation "whose purpose is to witness and testify, to give voice to a part

of the public left out of community decision making, especially from policy formation;"
this serves as an organizing framework for Ulmer's curriculum at the University of
Florida, but is envisioned as "an umbrella organization gathering through the power of
digital linking all the inquiries of students around the world" (p. 1). Thus it is clear that
the practical application of electrate theory is an essential component of Ulmer's
teaching. He emphasizes that, for EmerAgents—alternatively known as "**egents**," as
Ulmer (2005) suggests, "to signal that we are concerned with the changes affecting
human agency in electracy"—consultancy occurs in the intersection between online and
local, public spaces, and that compositions can manifest in potentially any form, though
he personally teaches his students to create multimodal websites (p. xiii). To this end, he
presents his premiere electrate genre, originally introduced in *Teletheory* (1989), dubbed
the **MyStory**, which combines digital consultancy with chorography and
heuretic/aleatory invention.

"MyStory" is a play on words. It sounds a bit like "mystery," which is
appropriate, because it can (and should) involve solving deep, complex questions, such
as, "who am I," and "why am I here"? Yet, as an electrate genre, it is intentionally, and
necessarily, **playful**. Ulmer riffs MyStory off "history," particularly "*his* story," gesturing
towards "her story,"[32] and, in so doing, encouraging a diversity of perspectives on the

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[32] Of "herstory," Ulmer (1989) writes, "Feminism […] makes mystory possible, and shows how to
include race, class, region, nation in the formula along with gender and sex" (p. 83). Furthermore, he states:
"Feminism so far has offered the best argument for following [Hayden White], in [regards to the
possibilities for creating writerly, experimental fiction, ala Roland Barthes], exploring the possibilities of
herstory: a new notion of history, as E. Ann Kaplan explains, that fuses 'subjective' history (history as

past and the world (Ulmer, 1989, p. 83). It can also be thought of as "MyThology," in the

sense that it is the construction of a cosmogram of personal significance, and a means of

subverting the literate apparatus' hermeneutic "demythologization"[33] of thought (Jarrent,

n.d.). MyStoriography is different from historiography in that it is primarily an inward-

journey of self-discovery, rather than the construction of arguments about the past. Ulmer

(2003) states that, originally,

> [MyStory] was a response to a suggestion by Hayden White that if history
> had been invented in the twentieth century rather than the nineteenth, it
> would be quite different, reflecting a different science and a different
> aesthetic: not positivism but quantum relativity; not realism but
> surrealism. (p. 5)

The goal of MyStory is to uncover a sense of the reason for our own "*dasein"*—

Heidegger's term for "being in the world" (Holmevik, 2012, p. 18). In other words,

MyStory is a genre specializing in reflecting the author's *dasein*.

Physically, a MyStory is an amalgamation, a *bricolage*, a compilation, or

something similar. The word MyStory itself being a conceptual neologism, it is intended

to describe "a collection or set of elements gathered together temporarily in order to

represent my comprehension of the scene of academic discourse" (Ulmer, 1989, p. 83). It

is something made of other things—things of personal significance. Those things may, or

may not, be the property of the author(s), but through a process of choosing and

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personal memory) with the history of the larger society; one that asks questions rather than offering
answers" (Ulmer, 2015, p. 69).

[33] Jarrett (n.d.) offers the example of students assigned to read *Madame Bovary* as a literary text
being led to the hermeneutic conclusion that it is "psychology or social criticism by other means,"
essentially boiling it down to a commonly accepted interpretation grounded in the literate apparatus.

combining different things from available **archives**, new, rhetorical meanings emerge, giving the MyStory its unique character. An archive is a collection of things; this includes scrapbooks or photo albums, but also government records and corporate databases, museums and private collections, basements and attics, file cabinets and hard drives, public domain and copyrighted materials, the Internet itself, and the human memory. Libraries are archives of books, and books are archives of sentences. Pantries are archives of food. Ulmer points to collections of film and newsreel as archives that enabled the emergence of compilation films/documentaries as a distinct genre, which are akin to MyStories; as a demonstration, in *Teletheory* (1989) he presents a MyStory titled "Derrida at the Little Big Horn," which is composed of fragments from various texts along with Ulmer's own autobiographical reflections on his time working at his father's quarry, framed around the mythology of Custer's Last Stand, all arranged in a conductive fashion that blends dream-logic with the quick-cutting, multimodal style of documentary film. His MyStory demonstrates two heuretic arrangement procedures which he recommends, but does not require: **vita minor**, an alternative form of the CV or resume which "lists those aspects of your experience that tend to be excluded from the conventional resume presented to prospective employers or granting agencies," and **puncepts**, a portmanteau of "puns" and "concepts," calling for arrangement of fragments on "the basis of a single shared feature" (Ulmer, 1989, p. 209). Themes running through "Derrida at Little Bighorn" include the French language, "string" or "thread," string toys/games, "the Western tradition," shells, bullets, kernels, colonels, the mythical heroic Custer vs. the savage, Sputnik and the start of the Space Age, transmission (both

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mechanical and of knowledge), masculinity, football, nuclear structure, the letter H, spirit hands, pointing, wood as material, the H-Bomb, wars of extermination, the Myth of the Frontier, melancholy, alchemy, guns, dogs, the sun, sieves/grids, and ashes. The piece *flows*, in the electrate sense of an electrical current moving through conductive material. Ulmer states that this example of his is "valuable only to the extent that it encourages others to turn to their own archives—as a relay and not as a model" (p. 211). Ulmer (2003) acknowledges that, before the Internet had become so ubiquitous, he taught MyStory to his students using paper-and-text composition as a primary delivery medium, but then takes up websites for their hypertextual capabilities; Arroyo (2013) explores personal collage/montage digital video-editing as MyStoriography, and Holmevik (2012) adapts the MyStorical style to ergodic, ludic compositions. The essential take-away is that archives provide the source material for building MyStories, which are then composed conductively into a multifaceted amalgamation of material with a primarily emphasis on personal discovery and expression, while also addressing a real-world problem/catastrophe in the style of Ulmer's EmerAgency (i.e. not writing in a bubble, as with traditional writing done by college students that does not escape the bounds of the classroom).

Digital technology is significant to MyStoriography[34]; indeed, the digital turn has uncovered MyStoriography as a possibility for a very large number of people. MyStories are composed of what is "at hand," *ala* Levi-Strauss (1966), meaning that to which a

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[34] MyStoriography is the practice of writing/composing MyStories, reflecting the usage of "historiography" (Ulmer, 1989, p. 82).

person has unrestricted access. Ulmer (2003) puns the "digital" in "digital technology" with "digit-al," as in the digits of the hands and feet, the things with which humans manipulate objects, computer keyboards/mice included (p. xii). Digital technology, with the Internet serving as a critical intermediary, puts "at hand" vast archives of media to be re-appropriated, re-mixed, and re-purposed—this practice is commonly observed in the natural tendency of digital natives (those who have grown-up with access to computers and the Internet) to create memes, video mash-ups, and other forms of creative content[35]. Ulmer describes this access as a form of prosthesis, implying a hybridization of human agents with technology. MyStoriography can serve to trace the ley-lines of one's hybridization, revealing hidden relationships between the "self" and the "world."

MyStory is a heuretic genre of invention, meaning it offers a loose methodology intended to guide authors towards their objectives, but is also an antimethod whose purpose is to destabilize the principles that guide it, revealing new/hidden points of entry (eureka). In the textbook *Internet Invention* (2003), Ulmer suggests beginning with the establishment of a set of highly "**influential discourse areas"** that play a role in shaping the MyStoriographer's *dasein*—Ulmer offers the following four areas: career (or school), family, community, and entertainment (p. 34). These are only suggestions; however, these categories are ones which most modern individuals can identify with. These will be used to help sort items drawn from their archives. The purpose of designating these areas

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[35] As an example, Ulmer (2015) points to Derrida's notion of superimposing, or imprinting one thing on another, especially as in photographic manipulation, as an emergent form of electrate collage/montage.

is not to say that these are the only four sources of *dasein*; indeed, Ulmer hopes that a deep reflection upon these categories will help the MyStoriographer to destabilize them, conductively revealing the gaps and overlaps between them.

Next, the MyStoriographer chooses things from their archives by seeking, and feeling, the sting of **_punctum_**. Since *punctum* is uniquely experienced by every individual, it is a dowsing-rod for MyStoriographers attempting to sort through vast archives, and serves the genre's core purpose of self-discovery (/reflecting *dasein*). As things are drawn from various archives to be used in a MyStory, "**chance associations**" will begin to occur—these are apparent relationships/connections between things that the MyStoriographer observes (p. 97). Grouping items from archives into the aforementioned discourse areas helps to make these associations even more clear, and eventually, several "**images of wide-scope**" should come into focus: these are based on ideas or associations which are repeated, emerging to characterize each discourse area (p. 6). By following the lead provided by the images of wide-scope, a singular image may become the nexus of all these chance associations—this is the MyStory's **emblem**, a potent symbol of the MyStoriographer's *dasein*, which contains an element of *punctum* (Arroyo, 2013). Awareness of this emblem is a significant outcome of the MyStoriographical process.

Finally, MyStoriography is also a method of critique. A MyStory will usually, somehow (whether the author initially intends to or not), address a particular, real-world **catastrophe,** or major problem. According to Ulmer (2003), this "[...] may or may not be *the* catastrophes of Auschwitz or Hiroshima" (p. 209). The MyStoriographer incorporates information on the catastrophe within the various discourses they've chosen, with the

goal of "revealing new points of entry into the problem" (p. 209). MyStoriography resembles traditional academic writing in that research must be conducted, sources identified, and assumptions challenged, but it differs in its incorporation of choragraphy as conductive logic for composing, and its openness to alternative, digital media such as experimental websites/texts, videos, and videogames, that themselves become collages built out of students' unique, individual conductive networks of archives.

It should be observed that the files that comprise a piece of videogame software constitute an **archive** of digital objects. This archive is accessible in two distinct ways: on the surface, playing a game, one is able to see/experience the pieces that make up the game, including its characters, environments, and mechanics; then, if one has access to the right hardware, software, and know-how, they can go deeper by opening a game's archive too find all its various components laid out, and from there, modify them. Gameplay can be MyStorical when there are opportunities to incorporate or express aspects of themselves in relation to real world catastrophes; however, since few mass-market videogames are designed with MyStorical outcomes in mind, modding provides a means of subverting the developers and injecting one's own rhetorical energy into the game-as-composition. (A detailed outline of modding in practice that exemplifies the MyStorical style is the focus of Chapter 4).

With MyStory as the ur-genre of electracy, other genres have been created that borrow from its method/antimethod. Ulmer's notion of the public "**MEmorial**" is one such derivation, and is the subject of his 2005 book *Electronic Monuments.* MEmorials (alternatively known as electronic monuments) are personal like MyStories, and also

leverage participatory, digital technology to spark public sphere political discourse and remembrance. The difference between MyStories and MEmorials are that the latter's purpose is not necessarily to express *dasein*, but rather, to commemorate small, local events that are often outside of the national media spotlight, ones which MEmorial designers have some personal connection to. Though these events may be smaller than those commemorated by national memorials (which are problematic in their selectivity regarding who and what to remember), they still speak to broader catastrophes (that may be part of Virilio's general accident of speed) that may have broader implications than people first realize. Ulmer's theoretical example of a MEmorial involves a printer hooked-up to the Internet which delivers daily lists of traffic fatalities to visitors of the Vietnam Veterans Memorial in an effort "to make highway fatalities perceptible, thinkable, recognizable as sacrifice" (p. 43).

Ulmer (2005) states that "[the] MEmorial is a hybrid: as a composite of text and image, it combines features of the topical essay and the vernacular shrines[36] that in recent years have become a common folk response to the disasters that befall a community" (p. xiv). Many websites and virtual spaces have been dedicated to the memory of victims of mass shootings, terminal illnesses, and various forms of social injustice. Such online memorials resemble the MEmorial genre because they are personal (hence the "ME"), yet

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[36] He gives the example of "street shrines" dedicated the tragedy of 9/11 in New York City, which are generally makeshift monuments cobbled together from various artifacts donated and maintained by various small communities, each with its own unique character (Ulmer, 2005, p. xiv). He also references "objects left at the Vietnam Wall" and "crosses and bouquets displayed after each of the school shootings" (p. xv).

engage in public sphere political discourse; they use software and hardware to not only remember tragedies, but to reveal the ongoing, irreparable damage inflicted by systemic social injustices that connect individual with collective identities. Joyce Walker (2007) has been cited as dubbing online/digital monuments a "modern phenomenon," something she relates to Chris Hables Gray's notion of the "cyborg citizen." Kevin Brooks and Aaron Anfinson (2009) concur; they describe their creation of two MEmorials as post-critical compositions, and conclude that "as students and scholars are given encouragement to explore the possibilities of writing in the 21st century, Ulmer's MEmorial in particular and his work in general can serve as a potential guidepost," noting that Ulmer's electracy differs in key ways from so-called "new media," "digital storytelling," and "technological literacy." Ulmer's work is sometimes "at odds with design concepts like usability, readability, and accessibility," implying a disconnect between electracy theory and the practices of new media professionals. This disconnect concerns conflicting design philosophies, work ethics, and motivating factors; while creators of MEmorials can adopt and re-appropriate many of the skills, knowledge, and even resources of media professionals, they are motivated by a general, rather than restricted, economy (ala Bataille, 2008), and by the "spontaneous mourning behavior" people exhibit when disasters/catastrophes occur (Ulmer, 2005, p. xv). Ulmer hopes that electrate egents will be able to design MEmorials as a means of negotiating their own mourning processes, and furthermore, to bring personal mourning/remembrance "into relationship with school research, and through the new transinstitutional reach of the Internet contribute to a new dimension of the civic sphere" (p. xv).

Ulmer offers a heuretic known as **CATTt** as a device for starting to generate MEmorials. Originally formulated in *Heuretics* (1994), the acronym consists of "Contrast (opposition, inversion, differentiation)," "Analogy (figuration, displacement)," "Theory (repetition, literalization)," "Target (application, purpose)," and "Tale (secondary elaboration, representability)" (p. 8). These items are potential components of an electrate public argument, and may be approached in composition as a progression or asynchronously. Cathryn Copper (2016) usefully summarizes each term for use by teachers:

> **Contrast** is at the core of a good research argument. The intention is to investigate alternate [/contrasting] viewpoints... [and] to evaluate various perspectives to draw attention to potential bias and accurately represent the research topic. […] **Analogy** requires the researcher to borrow thoughts from other disciplines… [and to] look outside their disciplines to nurture progressive thinking. […] **Theory** is the obligation to fundamental research… Ulmer's formula recognizes that it takes theory to make theory… [so] one must reference back to clearly established notions. […] **Target** is the audience for the research. […] Finally, is **tale** or cat's tail/tale. This is the representation of the research.

While MEmorials may take any form (representation), it is interesting to consider the potential for building them in videogames through modding. One example of a videogame mod which strongly resembles a MEmorial is Anne-Marie Schleiner's "Velvet-Strike" (2002), a "counter military graffiti" project for the popular multiplayer FPS, *Counter-Strike* (2000), a realistic, military-themed game based on combat between terrorists and counter-terrorists. "Velvet-Strike," when installed, adds a range of anti-war/military graffiti to the game, allowing players to "spray" walls with political statements that are intended to promote reflection on the relationship between violent, gun-based war games like *Counter-Strike* and the war culture in real life. Schleiner

explains on her website that she intended this mod to serve as a response to the numerous mods created for various shooter games which, following the 9/11 attacks, altered the appearance of in-game targets to resemble stereotypical Muslim terrorists and/or Osama Bin Laden[37]. She poses the question: "[Is this a] [h]armless release of tension or co-conspirator in the industrial war complex? Playful competition or dangerous ethnic and gender politics of the other?" (Schleiner, 2002). Thusly does her mod participate in the digital public sphere of discourse on the catastrophe of 9/11 and of the general accident of constant modern warfare. "Velvet-Strike" does not alter the mechanics of *Counter-Strike*, but it does incorporate graffiti designs from various artists—by encouraging participation in the mod as a way of mourning the tragic outcomes of the wars in the Middle East, Schleiner's project makes an effective MEmorial.

This chapter has provided a theoretical foundation for understanding videogame modding as electrate composition. In order to build upon it, Chapter 2 turns to a critical concept, the **Hacker Ethos**. To understand modders as hackers, it is worthwhile to first establish the area of two intersecting spheres that they inhabit: **computer science** and **interactive art**, and how these two fields view modding.

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[37] Schleiner (2002) notes, "The most disturbing Osama mod I saw was on display in October 2001 at a commercial game industry exhibit in Barcelona called Arte Futura. To give the exhibition organizers the benefit of the doubt, they were probably unfamiliar with urban American ethnic cartography. In this mod, Osama is represented as an Arab corner grocery story [sic] owner, as is common in many tough inner city neighborhoods in North America. The goal of the mod is to enter the corner liquor grocery store and kill the Arab owner. (At the time I saw this I had just gotten an email from my sister in Seattle describing how she and other college students were taking turns guarding mosques from vandalists.)"

Chapter 2: Interdisciplinary Perspectives on Modding

a. Modding in Computer Science

Professional programmer Alex Varanese's (2003) compendious *Game Scripting Mastery* contains one of the earliest formal articulations of the concept of **software modding** and situates it within an instructional textbook that covers the entire breadth of the videogame design process, from very basic coding to highly advanced techniques, with modding appearing in the middle. Varanese acknowledges the innovative potential of modders who utilize **scripting languages** (such as Ruby or Python) to mod games, and notes that the opportunity to mod a game increases the lifespan of the product.

Guy Lecky-Thompson, in *Video Game Design Revealed* (2008), touches on the history of what he calls "game creation kits", which are sometimes alternatively referred to as "**software engines**" or "**software development kits**" (SDKs), and can be most easily understood as a type of editing program that allows a user to modify a videogame without directly changing the source code (p. 163). These have become especially popular in the last decade, though their origin can be traced back to John Carmack's level editor for *Doom*, which complimented the modular, WAD-based design he himself innovated. Lecky-Thompson notes that, in the very early days of home computers, modding was limited to the direct alteration of source code (which was not necessarily made to be user friendly) and usually manifested in the form of certain "cheats" that could be applied to a videogame to circumvent its original rules; such mods were typically unsophisticated, although he brings up the example of *Elite Plus*, which was created by a modder who entirely reverse-engineered the original *Elite* (1984) game code,

re-assembled it with new features, and released it online as freeware (illegally) (p. 163-164).

Lecky-Thompson points to the rise of the hard drive storage as opposed to virtual memory storage as a key factor in the emergence of SDKs. This technological innovation happens to coincide with a philosophical division that occurred within the videogame industry, leading to game studios being split into two separate groups: "software engineers" who create the core technology of a game/software engine, and "game-play programmers" (or sometimes simply "game designer") who manipulate the software engine to create the game itself (White et al., 2009). Access to SDKs allows amateur modders to resemble professional game-play programmers by directly intervening in an existing videogame's design. These days, corporate developers will often continuously intervene in a game's design by producing updates called **patches**. Mods are essentially unofficial patches, since modders are, by definition, outsiders, not owners or even authentic authors of the game itself. Modders using SDKs are often dealing with two file types: "Master" files (the main executable programs that runs a videogame) and "Plugin" files (files produced through the SDK which, when run, serve as extensions of the Master file and modify its execution). SDKs usually support one or multiple "**scripting**" languages such as JavaScript, Python, or Ruby. Scripting languages are variants of programming languages that are generally intended to be relatively user-friendly and comprehensive for the numerous non-programmers who typically participate in game development.

The skills and knowledge required to program a videogame from scratch have traditionally been taught in the specialized, academic field of **computer science**. Collegiate programs specializing in game design often emphasize a firm foundation in computer science, featuring courses covering such topics as program design, graphics engineering, calculus, algorithms, artificial intelligence, system development, and network management ("Northeastern," 2018) ("DigiPen," 2018) ("Santa Cruz," 2018) ("Clemson," 2018) ("North Carolina," 2018). Historically[38], advancements in computer science have been closely tied to technological innovations in videogame design, with modding originally emerging as an experimental and social practice in collegiate environments where computers were a shared resource (Isaacson, 2014). The widespread adoption and eventual ubiquitization of personal computers put the necessary tools for modding at the disposal of people outside the Academy, and fueled the emergence of the concept of an "average computer user" being someone who is able to interface with computers using pre-made, user-friendly operating systems and software, but who often lacks any functional knowledge of computer science and/or the ability to program their own software. Today, modders may or may not have any sort of formal education in computer science, but nevertheless possess varying degrees of what some call "digital literacy," or as Ulmer (2003) suggests, "electracy," enabling them to identify familiar design concepts that serve as points of entry into modding games (p. 29). Thus, modding-

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[38] The history of modding is the subject of Chapter 3, and includes numerous examples of videogames being tied to computer-science innovations.

as-game-design is distinctly different from traditional game design in terms of what knowledge/training practitioners bring to bear on the process.

One reason that traditional game designers have valued computer scientists as employees is for the ability to internally-develop—and tightly control—knowledge and software that can be considered proprietary. Developing an entire videogame internally within an organization means complete legal authority over its content. It is not uncommon, however, for companies to license software from other companies for use in game development, including game engines, usually in the form of an SDK. SDKs and other creative tools developed by trained computer scientists/professional programmers, when made available to the public, encourage and facilitate modding; while modders may or may not have any formal education in computer science nor programming, the Internet offers an alternative forum for learning relevant concepts. As observed by YouTuber Hellcat5 (2012), author of numerous modding-related tutorial videos, "doing modding crosses into the realm of doing object-oriented programming," which confuses most laypersons at first, but is actually highly accessible by design.

The concept of **object-oriented programming** (OOP) is fundamental in computer science. OOP describes a software program written using a programming language that is syntactically structured to include and make use of categories that correspond to real-world things; these categories are termed "**classes**," which could include a pair such as "tree" and "cat," each possessing a different set of attributes. A class, like a blueprint, provides a static, unchanging structure that can be referenced to produce "**objects,"** which are actual instances of the thing described by the class

generated while the software is running, which can be easily created and deleted

(Tylman, 2016). As Tylman contends in "Computer Science and Philosophy: Did Plato

Foresee Object-Oriented Programming?" (2016), OOP reflects deeply-rooted, Western

ontological tendencies towards classification, particularly the Platonic tradition of

conceiving of ideal forms (substitutable for "classes") as opposed to things themselves

(substitutable for "objects"). An alternative to OOP would be functional programming,

which does not define things called objects, but rather, defines logical mathematical

equations; functional programming is generally considered much less user-friendly.

Prominent videogame theorist and technologist Ian Bogost (2009) defines and observes

the following about the object-oriented ontology that forms the basis for OOP:

> Ontology is the philosophical study of existence. Object-oriented ontology
> ("OOO" for short) puts *things* at the center of this study. Its proponents
> contend that nothing has special status, but that everything exists equally–
> plumbers, cotton, bonobos, DVD players, and sandstone, for example. In
> contemporary thought, things are usually taken either as the aggregation of
> ever smaller bits (scientific naturalism) or as constructions of human
> behavior and society (social relativism). OOO steers a path between the
> two, drawing attention to things at all scales (from atoms to alpacas, bits to
> blinis), and pondering their nature and relations with one another as much
> with ourselves. [Emphasis author's]

Thus, there are critical intersections between computer science's use of OOP and

philosophies of human relationships/connections between things/objects.

That OOP utilizes commonly recognized linguistic categories contributes to its

being a popular and user-friendly paradigm for software development. As observed by

Malloy et. al. (2006) in the *IEEE Software* journal, "Object technology's development and

wide adoption has improved software applications' modularity, extensibility, and

reusability" (p. 12). In this sense, OOP is beneficial for software that is intended to be

"open," but potentially detrimental if software is intended to be "closed;" as revealed by the case of *Minecraft* (Chapter 3, Section g), techniques such as obfuscation are sometimes employed to make OOP-based software less accessible to unauthorized modders.

b. Modding as Artistic Expression

Celia Pearce's *Visible Language* article "Games AS Art: The Aesthetics of Play" (2006) traces artistic interest in games through several modernist movements. She references famous conceptual artist Marcel Duchamp's penchant for chess; he's known to have played with a hand-carved set of his own crafting, and produced a series of artistic studies focusing on "the inner processes of the opponents in a chess game," revealing his fascination with the embodiment of gameplay (p. 68). Duchamp himself offers this definition of art: it is "that little game that men have always played with one another" (qtd. in Pearce, 2006, p. 67). Pearce observes that the Fluxus movement, known for its radical and experimental art during the 60s and 70s, embraced game-like interaction through **intermediation**, or the blurring/crossing of boundaries between media forms; indeed, whatever "rules" to artistic production existed prior to Fluxus, participants in the movement deliberately sought to disrupt and modify those rules to revitalize the art "game" (p. 67). This included "FluxGames," such as George Brecht's interactive series of mixed-media board games, *Fluxus Games and Puzzles* (1964-2002); these usually incorporated "readymade"/found objects and creative rules intended to encourage audience interaction with the games' themes (Fluxus Digital Collection, n.d.) (Pearce, 2006, p. 72). Game-like art's appeal has to do with **play**; traditional high-art does not

encourage play as-such because it, and its authorship, is presumed to be static and unchanging, similar to a literary text. Games, on the other hand, are inherently dynamic systems, demanding player interaction, and generating unique experiences by incorporating elements of chance or randomness.

Pearce references computer innovator Alan Kay's term for what is produced through gameplay: "hard fun," implying the sense of challenge and player-directed possibilities that characterize games as a medium (p. 69). This is similar to what Aarseth (1997) calls the "nontrivial effort" required to play a game, as opposed to the relative passivity of viewing a painting or reading a book (p. 1). Pearce again returns to chess as an example: "Just as a chess board is a beautiful object, its true value is in its potential energy, which is actuated when the game is played" (p. 70).

Pearce summarizes the artistic affordances of gameplay for artists thusly:

> In creating game art, the artist is making a choice to invite the viewer in as a co-creator of the work. Although it can be said that all art does this, game art does it in a very explicit way. It questions the relationship of art and artist to the viewer/spectator. It asks for the viewer's engagement not only intellectually but literally. (p. 70)

The connections between viewers as co-creators/engaged participants and participatory media theory (Chapter 3, Section e) are clear. Pearce notes that traditional artists may be "frightened" by the prospect of ceding even a part of their artistic control to the audience, fearing that their own "voice" may be compromised (p. 70). This in-itself reveals the revolutionary nature of games-as-art.

Anticipating the common conception of games—particularly videogames—as "low culture," commodified artifacts unworthy of serious artistic consideration, Pearce counters:

> […] the Fluxus artists embraced games for their very lowliness. Games provided a sort of 'ludus populi,' a play of the people […] the perfect form for bringing art to a mass audience. (p. 72)

Nevertheless, the content of mainstream videogames should be treated with a critical eye. In such games, designed for mass-commercial consumption, artists may find many arguments being portrayed that they could potentially subvert by creating, as Pearce calls them, "patches," which is another word for mods in that they are "plug-in[s] that sit on top of another game" (p. 74). She offers examples of artistic mods, which she also terms "hacker art," that have been "used to make strong statements about game culture, media culture and culture in general," such as one by Robert Nideffer for the game *Tomb Raider* (1996); riffing on Duchamp's "infamous" work *L.H.O.O.Q.* (1919), which is a copy of Da Vinci's *Mona Lisa* (1503) with facial hair added to the female subject's iconic face, Nideffer's mod places a moustache and goatee on the character model for the game's protagonist/marketing sex-symbol, Lara Croft (p. 76). This mod, Pearce argues, "serves a triple-threat post-modern statement, paying homage to the uber-gamer, while confronting popular art culture and corporate practices, as well as gender representation in games" (p. 76).

Another well-known artistic mod is Cory Archangel's work "Super Mario Clouds" (2002), which was created by directly modifying a cartridge of the original *Super Mario Bros.* (1985) for the *NES*. His mod renders the game essentially

unplayable—everything is removed, including all mechanics and graphics, except for the

game's blue background and the cloud sprites that scroll slowly by, as usual. This mod

has been exhibited as an installation in various museums (such as New York's Whitney

Museum of American Art in 2002), and usually consists of the modded cartridge being

plugged into an NES which is displayed on a TV screen and projected onto one or more

blank walls. The Whitney Museum website gives this description of the artwork:

> By tweaking the game's code, the artist erased all of the sound and visual
> elements except the iconic scrolling clouds. On a formal level, the project
> is reminiscent of paintings that push representation toward abstraction:
> how many elements can be removed before the ability to discern the
> source is lost? Arcangel, who was trained in classical music, considers
> computers and video game consoles his instruments, and insists on
> mastering them prior to creative exploration; he will often learn a new
> programming language in order to develop a work. What might be viewed
> as nostalgia for the popular entertainments of an earlier era depends, in
> fact, on a rigorous conceptual approach to computer hard- and software as
> well as a refusal to participate in contemporary culture's lightning-fast
> cycle of technological turnover.

Andy Clarke and Grethe Mitchell, in their text *Videogames and Art* (2007), comment

that, "[by] concentrating the viewer's attention on this one aspect of the game, which has

no bearing on the gameplay, it forces them to think differently about what is present and

what is missing" (p. 9). It may be seen as a MEmorial, in the Ulmerian sense, which

prompts reflection on the paradox of living in Now-time in the dromosphere. On his

website, Archangel (2002) offers a detailed technical description (including photos) of his

modding process, making transparent his tampering with the classic Nintendo title, and

perhaps encouraging other DIY cartridge hackers to experiment with the possibilities for

using modding as a form of expression.

Despite the many creative, artistic applications of videogames and mods of them,
the medium is most often associated with simulating violence. This can be traced as far
back as the first non-tech-demo videogame, *Spacewar* (1962), which reflected the
fantasies of some of MIT's sci-fi-obsessed male students in that it involved a violent
conflict between pilots of weaponized spacecraft, a shoot-out between duelists ending in
either victory or defeat. *Doom* (1993), a major platform in the history of modding and
game design in general, innovated the technology for virtual first-person gameplay while
simultaneously choosing to pair it with shooting mechanics in a hyper-violent, hyper-
masculine tour-de-force, and its economic success would serve as a precedent for
developing very similar FPS games. "Shooter" remains the most popular genre based on
sales ("Genre breakdown," 2016). As observed by meritt kopas (2015), "the vast majority
of video games involve competition, conquest, struggle, and accomplishment," involving
"substantial logical or reflex-based challenges" (p. 215). She references game designer
and theorist Paolo Pedercini, who describes videogames as "the aesthetic form of
rationalization" (p. 215). Videogames that eschew the values commonly associated with
the medium in-general have been criticized as being not games at all. kopas brings up the
concept of **technological path dependence,** which "describes the way that small
differences in initial conditions can leave to huge differences in uptake and success down
the line," and offers this as a reason why videogame design has so often replicated the
same formulas: "the values of early game developers have been encoded into the
technologies they set in motion" (p. 221). In other words, she says, there is a sort-of
developmental "feedback loop" wherein the "earliest games modeled violence, so

systems evolved encouraging the development of games where violence was the central mechanic" (p. 223).

The mainstream videogame industry has proven itself to be unwilling to address the game design concerns and desires of demographic markets they do not consider to be profitable, but independent ("indie") game studios—ones operating with far fewer resources, including solo and small-team studios—are more free to develop experimental, artistic, and controversial games. The 2015 documentary *Indie Game: The Movie* relates the experiences of several indie developers, including Jonathan Blow, who led the small team behind the puzzle/platformer *Braid* (2008). Blow, whose experimental development process on the game was inspired by a desire to express his "deepest flaws and vulnerabilities" while critiquing contemporary, mainstream game development, reveals the deep, personal connection indie developers have with their games as artistic statements—a quality that is eroded, or eradicated, in mass-market commercial games. Mechanically, *Braid* resembles classic, 2D platformers such as the *Super Mario* series, but it adds an original time-manipulation mechanic that involves rewinding the last few seconds of gameplay (while dealing with certain objects and characters who are unaffected by the rewind). In this way, it is an intriguing twist on a familiar and highly influential gameplay style, and Blow's leveraging of that style may be said to resemble modding in some ways (though *Braid* runs on an original software engine built from scratch by Blow himself). *Braid* succeeded in reaching a mainstream audience via the *Xbox Live Marketplace* and other digital distribution networks, but Blow notes that many self-identified gamers who enjoyed the game nevertheless completely missed, or

misinterpreted, the artistic message he'd intended to convey. This suggests that, while games can serve as artistic expression, many people still tend not to play them with a critical eye because they are not used to seeing them as such.

Gone Home (2013) is another indie title that has been heavily critiqued for defying the mainstream notion of what a videogame "should" be. Created by the four-person development team Fullbright, this game tells a story that unfolds as the player explores an empty house, though there are no instructions provided, nor any pre-defined goals. There are no NPCs to interact with, nor enemies to fight; most of gameplay involves moving through the house and examining objects, including notes and pieces of audio, that shed light on a mystery involving the PC's sister, who is struggling with her sexual identity while enduring challenges from her parents. Set in America in 1995, the game's use of technology such as cassette tapes and other period-specific set pieces manages to evoke a time—not so long ago—when acceptance of homosexuality was far less commonplace, and confronts players with a conflicting sense of nostalgia. Kevin Veale (2016) observes that *Gone Home* is a politically/socially engaged videogame, and argues that it employs "techniques and philosophies from creating installations and exhibits in museums and applies them in a digital context that is available on home computer or gaming consoles." Veale sees the game as exemplary of a digital skillset that should be acquired by artists to create similar virtual experiences that engage audiences,

through what he terms "affective materiality,"[39] in political/social discourse; modding

offers them a potential avenue for achieving this without learning to design a game from

scratch. It's worth noting, too, that *Gone Home* is built in the *Unity* engine, which is a

software engine that could be used for modding the game itself, if the developers allowed

it.

Evan Lauteria's (2012) article "Ga(Y)Mer Theory: Queer Modding as

Resistance" explores the struggles of subaltern communities of sexual orientation as they

confront videogames embedded with social injustices, using modding for "the

construction of spaces that permit play against normalizing sexual and gender structures."

Alex Layne and Samantha Blackmon (2013) write about modding for feminist purposes,

"in order to help expose or improve the gaming environment for other women;" they use

the term "post-play" to describe the ongoing interaction between players and software

that occurs after a videogame's initial release, suggesting that this is an ideal space for

narrative modding, or changing a game's story to say things differently. Albert Curlew

(2011) offers the term "counterplay" to describe "the oppositional or disruptive practices

of some creative users," focusing on modding in particular as an exemplary means of

confronting attempts to "contain, regulate, or commercially exploit user behavior"—

modding, he says, is inherently about playing with boundaries (p. iv).

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[39] Veale (2016) expounds: "In the context of Gone Home, the labour of engaging with the text and its affective materiality includes the player's involvement (or lack thereof) in cultural and communal routines of making meaning and being moved in particular ways, as well as the player's individual situation, personal backstory and the modes of engagement found within affective materiality." In Ulmerian terms, the game's aesthetic style leverages numerous forms of symbolic representation intended to tap-into the player's ability to craft a personal experience of the game/text/

Anna Anthropy's manifesto *Rise of the Videogame Zinesters: How Freaks, Normals, Amateurs, Artists, Dreamers, Drop-outs, Queers, Housewives, and People Like You Are Taking Back an Art Form* (2012) is a tour de force on the subject of opening videogame design to the masses. She relates her own experiences attempting to break-in to the videogame industry; at the Universities, she found the cultures to be highly insularly, the financial costs enormous, and the learning environment to be an attempted simulation of the "real" industry (including projects with built-in pre-deadline "crunch time," in which one works for 16 hours a day to ensure delivery of the product) in order to "make you into exactly the type of worker the games industry wants" (loc. 1636). She emphasizes that there needs to be much more diversity in the area of videogame design, and that one of the first steps to this is realizing that it does not have to be the domain of professionals—indeed, she suggests that the process of adapting oneself to the practices of the mainstream industry is actually killing the potential for innovation, and that people shouldn't worry about doing things the "right" way—they should simply create what they can using the tools that are available. In this regard, modding has a critical place: it exists at the nexus of Industrial logic and amateur creativity, giving users of software engines the capabilities of professional designers, but outside of the system of constraints which the Industry imposes on its professionals. Anthropy provides numerous examples of accessible modding software for creating stand-alone videogames, and she encourages creators to embrace simplicity in expressing themselves, rather than be bogged-down by the ambition of conforming to advanced professional standards. She insists that everyone, regardless of their background, can and should create videogames.

Mods created by those in subaltern cultures can be read as inherently persuasive in that they express the subaltern's desire to alter the product of Industrial hegemonic logic. Adrienne Shaw's (2015) book *Gaming at the Edge: Sexuality and Gender at the Margins of Gamer Culture* explores the issue of representation in videogames, responding to the fact that the default model for characters in mainstream videogames is often white, normative—and in the case of protagonists, distinctly male—bodies, and in the cases where this standard is deviated from, representations frequently rely upon common stereotypes, racial and sexual signifiers, and especially so-called "market logic" (the notion that representations of minority groups occur as a result of economic demand by consumers) (p. 59).

c. Modders and the Hacker *Ethos*

The motivations of videogame modders vary greatly. Olli Sotamaa (2010) says that "there is no such thing as an average computer game modder," and draws distinctions between modding for play, for self-expression, for research, and for subversion (p. 252). Taken together, these can be said to characterize the modder-as-hacker. Steven Levy, in his book *Hackers: Heroes of the Computer Revolution* (1984), delineates the concept of a "hack:" "[…] to qualify as a hack, the feat must be imbued with innovation, style, and technical virtuosity" (p. 8). These notions of "innovation," "style," and "technical virtuosity" (which can be understood as a philosophy or politics of technology) seem to combine elements from both art and computer science, both of which play a significant role in Ulmer's electrate apparatus. Referencing Levy, Holmevik (2012) comments that hackers were revolutionary innovators precisely because they

> …were not the scientists or engineers working within well-defined scientific research projects that were firmly situated in the literate apparatus, but rather [hackers] were *bricoleurs*, players, and upstarts who worked with what was at hand because it was fun to create and re-create technologies that suited their needs and represented their visions for how things should be. (p. 28)

Holmevik goes on to position the hacker as an empowered electrate agent (or egent) possessing a fluency with computers that, while incomplete from a formal perspective, allows them to play with code to produce a variety of effects. He also relates hacking to *bricolage,* a French term[40] that describes a playful sort of tinkering motivated by curiosity, creativity, and accessible tools (the notion of "access" to technology is a critical issue for hackers that will be further elaborated upon shortly).

Yet, despite Levy's labeling hackers as "heroes" in his book, most people understand them differently. In "Harnessing the Hackers: The Emergence and Exploitation of Outlaw Innovation," Stephen Flowers (2008) introduces his notion of the hacker as an "**outlaw user**," which is a type of technology user that attempts to:

> … amend a product's functionality or in some other way extend or distort the intention of the original designers; exploit design flaws in order to attack or invade security systems; or create systems or services of dubious legality in order to compete with mainstream commercial firms.

Flowers uses the term "**outlaw innovation**" to describe the results of such practices which "emerge from non-cooperative, non-consensual relationships in which the user may be unknown to the supplier and in which there is likely to be no free flow of information between the two parties." The status of outlaw innovation is controversial,

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[40] *Bricolage* was coined by Levi-Strauss in *The Savage Mind* (1966), then adopted by Derrida in "Structure, Sign, and Play" (1969), and then taken up by Ulmer in *Teletheory* (1989) and beyond.

with some companies fighting against users attempting to change or improve their products, and others finding ways to harness their creativity and labor as a valuable resource. Because modders are sometimes also outlaw users, and because what they do involves tinkering with technology for the sake of style and technical virtuosity, they are frequently lumped into the category "hacker."

The connection and overlap between "hackers" and "modders" is significant because, since the 1980s and 90s, hackers have been given a negative reputation; during that time period, the term began to connote a sort of cyber-criminal or digital trespasser who operates outside of accepted practice (Levy 1984; Yagoda 2014). Journalism about hackers operating under online pseudonyms like "Dark Avenger," "Captain Crunch," "Jaeger," "Electron," and "Zero-G" and in groups called "Chaos Computer Club," "Cult of the Dead Cow," "Legion of Doom," "Masters of Deception," and of course "Anonymous," reflect and amplify the public perception of Outlaw Users as dangerous threats to law-abiding computer users (Flowers, 2008). Modding, viewed as a form of hacking, concerns software developers because it could threaten the stability of their products as well as the security of their users.

The earliest popular mods for PC videogames were basic "cheats" (also sometimes called "hacks") that could allow players to circumvent the designers' design choices, which some perceived as posing a threat to their artistic license. As home videogame consoles from companies like Nintendo and Sega rose in popularity, products known as "cheat cartridges" began to be marketed by third-parties (*Game Genie* and *GameShark* were two successful lines of cheat cartridges that became popular in the

1990s); these devices could be connected to a proprietary videogame cartridge and allowed users to detect and modify certain variables within the game code, along with other features like speeding up/slowing down gameplay, creating save states[41], and unlocking hidden content that the developers had chosen to keep buried in the code. Some videogame publishers, like Nintendo, were openly hostile towards producers of cheat cartridges; others, like Sega, actually supported their development ("Cheat Cartridge"). As compact discs replaced cartridges in home videogame consoles, cheating technology adapted as well, and "boot discs" were produced that enabled users to hack-in to the increasingly sophisticated and complex software of the early 2000s and make modifications. Modding myths about the omnipresence of companies like Microsoft, who could supposedly remotely detect mods installed on any of their Xbox consoles, spread across the Internet, revealing a paranoia regarding the policing of outlaw users ("Myths of Modding," 2004).

While the most common and popular "cheat" mods were subtle tweaks to gameplay that would be of little concern to the IP owners, the case of the infamous "Hot Coffee"[42] mod for British developer Rockstar's *Grand Theft Auto: San Andreas* (2004) was the subject of significant media attention and controversy; the mod unlocked a

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[41] A "save state" is essentially a computer file that allows a player to load a game to a specific point; due to the lack of memory in early consoles, saving games was rare, and the ability for players to create their own checkpoints through creating save states opened numerous possibilities for players. I, for one, could never have beaten *Battletoads* (1991) without using an emulator with a save state feature!

[42] So-called "Hot Coffee" because, in the lead-up to the sex mini-game, CJ's girlfriend invites him into her apartment for coffee.

hidden mini-game (a game-within-a-game) that was inaccessible in the vanilla version in which the game's protagonist, CJ, has sex with his girlfriend while the player presses specific buttons in response to on-screen prompts. While Rockstar initially denied that the sex mini-game was "hidden" in the game they released, calling it both a violation of the End User License Agreement and work of "hackers… making significant technical modifications… and reverse engineering," the content was later revealed to be accessible across various versions of the game for different consoles through use of products like the *GameShark* ("'Grand Theft,'" 2005). In this way, hackers and modders sparked a firestorm debate that included protests of Rockstar's studio, a class action lawsuit, a Federal Trade Commission investigation, and politicians like U.S. Senator Hillary Clinton calling for new regulations on videogame sales (Feldman, 2005a; Feldman, 2005b). The key to understanding the significance of this type of deviant/outlaw/cheating behavior of videogame players is that it represents them seizing control of and participating in a conversation about what the medium means to them and their relationship to those who own the means of production.

Deviant behavior, which characterizes the Outlaw User, is something videogame modders and players often confront in online communities; these virtual spaces are highly amenable to digital file sharing, a practice which can be seen as legally ambiguous at best, and an outright breech of copyright law at worst. The label "pirate" has been widely applied to those who engage in illegal digital file sharing, and research has shown that online communities devoted to videogames (such as the ones where modders often congregate and share ideas) are virtual spaces where a "piracy ethic" can be socially

constructed as members negotiate "a normative position on deviant behavior" (Downing, 2011, p. 750). Harvard legal scholar Lawrence Lessig (2007) has commented that legal frameworks that label the common practices of sharing, copying, and remixing digital content have the effect of "criminalizing what it means to be young," resulting in a population of youth that seeks refuge in "underground" distribution channels where their identity construction is heavily influenced by the "corrupting" notion that the ways they desire to communicate are hampered by laws that choke creativity, which they will subsequently ignore or protest.

The ethos of so-called digital "pirates" can be understood as aligning with the ideological principles of the Open Source movement, which "is a communal methodology for software creation which does not have any proprietary ownership, but which a community of programmers can advance collectively in various ways" (Pearce, 2006, p. 74). Open Source is an argument against proprietary "closed" software, which restricts access to source code; modders, as users who love to tinker "under the hood," tend to align with this ideology. Sarah Coleman and Nick Dyer-Witheford (2007) argue that the Pirate/Outlaw ethos and behaviors associated with "do-it-yourself" practices of production and reproduction, including modding, are variously symbiotic and antagonistic to commercial gaming, a multi-billion-dollar business; it is no surprise, then, that major players in the videogame industry are attempting to manage their modding communities more closely, funding initiatives that simultaneously facilitate, educate, and regulate modders of their products (p. 948). The videogame industry's relationship with its outlaw users is the source of a multi-tiered conflict regarding labor and the

authorship/ownership status of modders; rather than fight their users, the industry is increasingly finding ways to harness and regulate their potential for Outlaw Innovation. Holmevik (2012) also points to the open source software movement as critical to developing the sort of platforms that allow users to intervene in existing media. Thus, the hacker ethos is positioned as integral to electrate practice; the final section of this chapter concerns a major threat to modders/hackers and the Open Source ideology.

d. Value Chain Configuration and Modding as Labor

The "Value Chain" is a business model describing how different economic forces contribute value to a company. When videogame modders are treated as Outlaw Users, their potential for innovation is further-removed from a company's Value Chain—in such cases, the modder's work may have significant potential for increasing the value of the company's vanilla product, but this potential is constrained by factors including limited distribution channels that may be difficult to locate as well as the absence of dedicated technical support for the mod. Alternatively, companies can facilitate modding by providing accessible software engines for users to download, digital distribution platforms to streamline the process of locating and installing mods, and rich technical support including extensive documentation and tutorials—doing so incorporates modders into the Value Chain, gives the company more control over their product (they can elect to censor/ban certain mods), and can empower modders to unleash their creative energy in the process of working/playing with a game's design.

Modders, when not labeled as Outlaw Users or hackers, may be seen as "prosumers," a portmanteau of the figures of "producer" and "consumer." Conceptually,

prosumerism is a reconfiguration of the Value Chain in software industries which encourages the creation of "user generated content" (UGC), which, of course, includes mods (Jockel et al., 2008). Iain Simons (2007) references a keynote speech from Phil Harrison, an executive of videogame giant Sony Computer Entertainment, in which he positions UGC as emblematic of a "new age of gaming… in a time when a core feature of a game is to enable the player to build new work within it." Through the lens of prosumerism, users are transformed into productive, creative laborers who serve the vested interests of a corporate entity. Sara Grimes and Andrew Feenberg (2009), drawing upon previous research, note that "practices such as modding and hacking come to operate as key sources of immaterial labor, often contributing directly to the digital game development cycle [/value chain]." The case of Bethesda Softworks' videogame *Skyrim* (2011) and its associated software engine, *The Creation Kit* (2012), exemplifies this Value Chain reconfiguration; although Bethesda has a history of supporting its modding community, with *Skyrim* they took things a step further and created an extensive Wiki for technical support, released detailed tutorial videos narrated by members of *Skyrim*'s actual professional development team, and partnered with Valve to pioneer their "Steam Workshop" for digitally distributing user generated content/mods.

Critiques of prosumerism tend to emphasize that it reinforces the neoliberal agenda of disenfranchising digital labor; Renyi Hong (2013) argues that the videogame industry desires "to discursively situate the activity of game modification, producing norms that energize the productivity of modders and render their labor more amenable to the circuits of accumulation." Kyle Moody (2014) associates the "rise in the immaterial

labor of digital media creators" with a growing tension between so-called "users" and "producers" over control of media forms (p. iii).

Modders, who invest their own creativity, time, and effort into their work, may be seen as representing an ideal source of profit-value for the digital-capitalist because their labor is unpaid—modders desiring to profit from their mods will encounter many legal hurdles. An anonymously published essay in the *Harvard Law Review* journal posits that current Copyright Law allows the videogame industry to maintain a labor monopsony on user generated content; it argues that certain mods, especially total conversion mods, should be considered non-derivative works or fair use for commercial purposes, and that such a position is supported by intellectual property theory and case law ("Spare the Mod", 2012). Considering that total conversion mods are often developed by teams which resemble professional game development departments, and that their practices "can be said to conform to the high-risk, technologically advanced, capital-intensive, proprietary practice of the developer company," it is problematic to view modders' labor merely as an extension of the capital owned by the company whose software they are modding (Nieborg & van der Graaf, 2008, p. 177).

Scholars increasingly advocate for reform to both cultural policy and copyright law; Nobuko Kawashima (2010) points to what he calls "the rise of the mini-creators, people who get inspiration from existing copyrighted works and add to them to create new expressions," as a creative movement encouraging digital expression, and accuses national governments of utter failure to adapt copyright law in response to this "enrichment of culture." Others have noted that the open development model of

moddable videogames, which are "inherently incomplete, always evolving, modular, networked, and never finished," invite us to re-evaluate the medium as a collaborative form of production that operates outside of the corporate logics of intellectual property ownership (Bruns qtd. in Johnson, 2009; Johnson, 2009).

The failure of many ambitious modding projects can be attributed, according to Derek Johnson (2009), to an ongoing negotiation between actors in a changing techno-economic landscape, where many remain "caught in the process of a commodity culture struggling to transform into something else;" mods are thus exemplary of a "**transitionary**" class of object (not unlike Wikipedia, he suggests) that continue to develop over time with the contributions of various authors. Such objects are difficult to reconcile within the dominant framework of proprietary ownership, but align closely with the values of the Open Source movement and theories of collaborative, participatory ownership.

Roger Alan Altizer's (2013) dissertation, *A Grounded Legal Study of the Breakdown of Modders' Relationship with Game Companies: Or Legal Threats Shake Moral Beds*, offers a case study of a cease and desist letter sent to the developer of a mod titled "Crimson Echoes" for Square Enix's *Chrono Trigger*, which illustrates "how the threat of law stops modders, disrupts the community, and chills future mods" (p. 5). He asserts that modding is a form of participatory media culture which promotes valuable skills in the arts and sciences and critiques various proposed legal solutions, ultimately suggesting that an agreement must be made between videogame developers and modders in which the goals of all parties are satisfied; yet such an agreement would likely favor

the developers' value chain and reinforce the neoliberal agenda which, today, seems to dominate videogame modding: the company provides the software, facilitating the modders' creations, but owning the results.

It has been noted that "[the] cardinal rule for getting a job in the game industry is to first get experience making a game" (Wallis, 2007). Beyond attending a school offering videogame design as a program, which is an expensive and time-consuming option, modding existing games is seen as one viable avenue for those aspiring to work in the industry. Henry Jenkins comments that "the modding community may be unique in having amateur-produced works taken up directly by commercial companies for distribution" (qtd. in DeKosnik, 2009, p. 121). There are numerous famous examples of amateur modders with successful projects being "discovered:" *Counterstrike* creators Minh Le and Jess Cliffe were both hired by Valve after the company purchased their mod's unique IP; *Defense of the Ancients* (2003) was created by modding Blizzard Entertainment's *Warcraft III*, and became so popular amongst its online community of modders that it took on a life of its own and spawned the "MOBA" (Multiplayer Online Battle Arena) genre, with some contributors going on to work on Valve's *Defense of the Ancients 2* (2013), Epic Games' *League of Legends* (2009), and Blizzard's *Heroes of the Storm* (2015) ("The History of MOBA", 2012); *DayZ* (2013), a multiplayer zombie-survival game, began its life as a mod of *ARMA 2* (2009) before its creator, Dean Hall, became part of the studio at Bohemia Interactive, which subsequently released it as a stand-alone game ("DayZ (mod)"). These examples, however, are few and far between; while it is extremely unlikely that a typical modder will be adopted into the industry, the

slight possibility provides motivation for many—this can be seen in the fact that an industrial logic underlies many mod projects, and indeed, modding teams are often organized to resemble the structure and best-practices of the developer company whose software they are modifying (Sotamaa, 2010; Nieborg & van der Graaf, 2008).

It is worth noting that industries attempt to manage their modders not unlike employees, including advocating best practices in modding. Bethesda Softworks, in marketing their *Creation Kit* software engine for modding *Skyrim*, produced a 10-part series of tutorial videos narrated by professional game designers in which they explain how to use the software (Fuller, 2013). Importantly, Bethesda's tutorials represent a direct intervention from the videogame industry into the practices of amateur modders. If facilitating modding increases the value of a company's proprietary software, then it makes sense for them to want modders to adopt and conform to their own design philosophy. For example, Bethesda's tutorials demonstrate the creation of a simple "quest", which is what *Skyrim* calls the objectives which players satisfy as part of their engagement with the game world; the example quest strongly resembles typical quests within Bethesda's *Elder Scrolls* series in that it defines an objective (return a stolen amulet to its owner) and is designed to include various paths to completion (pickpocketing the amulet from its owner, or killing them and taking the amulet from their corpse, are both explained). The speakers in the videos take pains to explain the importance of "good design" in modding, especially to avoid the creation of glitches that may be game-breaking. While Bethesda's tutorials may seem benign, they are actually reinforcing the hegemonic logic of the videogame industry; never do they suggest

modding as a subversive practice, but instead treat it exclusively as something which enhances and expands the *Skyrim* IP.

Daniel Ashton (2010) comments on the "transition from hobby to career" experienced by some videogame design students and the challenge of reconciling their childhood nostalgia for games with their academic interest in the craft (p. 256). He highlights the changing relationships between students and games in a higher education context as the site of ongoing negotiations over the applicability of the medium, which they may see as more broad than their teachers do.

Having traced the significance of the modder-as-hacker being in-between the arts and sciences as electrate egent, and identified a major challenge these individuals face, the next chapter takes a wide view of the history of modding in order to highlight events that will offer a fuller understanding of that emblematic figure.

Chapter 3: History of Modding

a. From *Spacewar!* to "Castle Smurfenstein"

The history of videogame modding begins with the original *Spacewar!* (1962) because the computer it ran on, the PDP-1, was the first machine designed for direct interaction with users: featuring a keyboard and monitor, a simple on/off switch, and requiring only a single operator, it bears a resemblance to contemporary PCs (Isaacson, 2014). As stated by J. Martin Graetz, one of the collaborators on *Spacewar!* who was a student at MIT at the time of its development, the PDP-1 promised to be the first "toy computer," something computer enthusiasts could truly play around with, and which "did

not require one to have an Electronics Engineering degree and the patience of Buddha to start it up in the morning" (qtd. in Darby, 2008, p. 12). Modding, in the sense that I mean it, is an inherently playful activity, and this could be seen in the enthusiasm of the small group of students at MIT who took to the PDP-1 like children in a sandbox. One of them, Steve Russell, desired to create something that reflected the sci-fi novels he was reading at the time, but didn't know quite how to begin. Seeing a program one of his professors had created that produced three dots on the monitor that could move, interact with each-other, and weave geometric patterns, he envisioned them as spaceships, and realized he could use that software as a foundation to build a game (Isaacson, 2014). In that way *Spacewar!*, which in its earliest version was a feature-rich space combat simulator in which two spaceships (controlled by players) duel to the death in the gravity well of a star, was itself a mod.

After its initial debut, fans of *Spacewar!* at MIT continued to modify it, with additions including an astronomically accurate star-map for the background, the ability to disappear into "hyperspace" for short times, and—on the hardware side—remote controllers with buttons for each of the game's functions. The spirit of open-source was strong amongst these proto-videogame designers and computing enthusiasts, and before long, copies of the *Spacewar!* source code began to spread beyond MIT, due in large part to the fact that the PDP computer's manufacturer began including it preloaded on their machines. The game travelled across the USA and beyond, and wherever it went (mostly to universities where students had access to a PDP computer), players were compelled to further modify it, causing the game to take on distinct regional characteristics. Alan Kay,

the world-renowned computer scientist, has commented that "… *Spacewar* blossoms spontaneously wherever there is a graphics display connected to a computer," but he should have added that modders are the cross-pollinating bees that affect the blossoming (Isaacson, 2014, p. 207).

Spacewar! influenced a business-minded gamer named Nolan Bushnell, who decided to re-make the game using cheaper hardware, and thus fewer features, to be sold to bars and student hangout spots; this was the birth of the first videogame arcade machine, and also the premiere venture of the company Atari, which later produced *Pong* (1972), and would become a titan of the early videogame industry and an enduring pop culture icon. It's worth noting that the videogame industry at this time was a scene increasingly fraught with controversial business moves in which questions of ownership, copyright, and intellectual property were becoming points of contention. In one famous case, Atari was sued by its competitor Magnavox, which had earlier published a ping-pong game very similar to *Pong* (indeed, Bushnell is widely acknowledged to have been directly inspired by seeing the Magnavox version, which he brazenly copied). Although neither company could truly claim to have "invented" the fundamental mechanics behind *Pong*—that credit best belongs to William Higenbotham for his military oscilloscope tech demo dubbed *Tennis for Two* (1958)—one of the developers of the Magnavox version, Ralph Baer, had successfully patented elements of the game, which put Atari in a potentially difficult legal position. The situation was resolved out of court with a deal that cut Baer a (rather low) $700k payout, along with the plan that he would continue to

enforce his patents against other (non-Atari) companies that might try to create a *Pong* clone (Isaacson, 2014).

With Atari at the forefront, gradually, videogames became a more common and accessible pastime; as more people played, more people had ideas about how they might make games better, and in this way were intuitively engaging in playful game design. A quick semi-aside: I recall the episode of *That 70s Show* (1999) in which the unlikely pair of Kelso, the buffoon, and Red, the stern patriarch, team up to modify a *Pong* console so that the game's signature "paddles" will be smaller, thereby increasing the challenge and their enjoyment of the game. Their dedication to the challenging task of understanding the inner-workings of a videogame enough to alter it to their liking exemplifies what makes modders significant agents of participatory media.

The advance of computing technology is closely tied to innovations related to videogames, with game designers always looking to take advantage of new affordances made available to them. The ability to display text on a monitor, while seemingly rudimentary, allowed for the creation of sprawling worlds in the form of text-based games, which are like interactive storybooks. Will Crowther's *Colossal Cave Adventure* (1976), a text-based game in which players input simple commands like "go north" to explore a mysterious and magical underground cave, was originally designed in the wake of his divorce as a means to connect with his estranged daughters by sharing with them his favorite hobby, spelunking (Adams, n.d.). Crowther's game was uploaded to the ARPANET (the predecessor to today's Internet), allowing others to access and play it, including Don Woods, a student at Stanford. Woods contacted Crowther, requesting

permission to modify *Colossal Cave Adventure*, which he was granted; he expanded the game significantly, adding a large amount of content, and dubbed his mod simply "Adventure" (1977), which would ultimately subsume Crowther's original to become the de-facto official version of the game, and a cult classic (Champion et al., 2012).

By 1977, computer graphics technology had advanced to include a range of colors on displays and higher resolution, enhancing the representation of visual objects on-screen. By this time, consumers were demanding a fully integrated (all necessary components in a single package) and user friendly computer that could be placed in the home—this, the Apple II delivered, making it a popular choice for those interested in videogames. (Isaacson, 2014). One popular and influential Apple II game, created by Muse Software, was *Castle Wolfenstein* (1981), a top-down POV tactical shooter game set in a fictional Nazi-held castle-fortress during World War II. This is the game that prompted the creation of the first mod of a commercial tile by consumers using their own PCs, and thus perhaps the first "true" mod in the sense that modding is done by consumers of industrially-produced products. That mod is "Castle Smurfenstein" (1983), which swaps the game's usual Nazi enemies with blue-colored characters representative of those from *The Smurfs* (1981) cartoon, along with some custom sound-effects and a re-designed title screen (Champion et al., 2012) (Johnson & Nevins, 2013). Commenters have argued that this juxtaposition of pop culture imagery in consumer-made mods served to highlight the "shifting balance of power between authors and users" and had an impact across the software industry, with some companies fearful over the consequences of allowing players to modify their products (Dovey & Kennedy, 2006, p. 131). Some

undoubtedly viewed the Smurfs of Smurfenstein as heralds of a dangerous new era in which consumers, empowered by computers, could and would creatively meld concepts from across entertainment media through the modification of videogames, eschewing the numerous economic and bureaucratic hurdles associated with licensing intellectual properties from their holding companies. However, the creators of "Castle Smurfenstein," a team dubbing itself "Dead Smurfs Software," reflect that they were merely "suburban high-school kids" who found amusement in the perverse juxtaposition of pixelated Nazis and cartoon Smurfs; still, on their website, they offer a six-part, 25-year-retroactive legal disclaimer in defense of their actions, arguing along the lines of Fair Use Doctrine (Johnson & Nevins, 2013).

b. id Software and *Doom*

In 1990, a group of young gamers collaborated to create *Dangerous Dave in Copyright Infringement*; more of a tech demo than a fully-fledged videogame, the title is a tongue-in-cheek reference to the fact that much of the gameplay and artwork is directly modeled after that of *Super Mario Brothers 3* (1988, 1990), a popular game for the Nintendo Entertainment System (NES) that was generating $1 billion annually at the time. These gamers, most of them self-taught programmers who had reverse-engineered or "hacked" into many of the games they'd played growing up, flaunted a legally-dubious persona, deliberately positioning themselves as sort-of outlaws. They named their collective Ideas from the Deep (IFD). Desiring to start their own game development company, but unable to afford their own computers, they "borrowed" hardware from their day-jobs by sneaking into their offices under cover of night on Friday and returning the

equipment before Monday morning. Having successfully modeled *Mario 3* so well in *Dangerous Dave*, IFD decided to produce a complete, near-identical port of the NES game for the PC, which they sent to Nintendo in hopes that they would be allowed to license the Mario IP—Nintendo rejected their proposal, claiming it had no interest in the PC market. Disappointed, but undeterred, they adapted their Mario-like software engine and produced their first commercial success in the form of the sci-fi-themed *Commander Keen* (1990), at which point they had adopted another name, id Software (Kushner, 2003).

id Software is legendary (and infamous) in gaming history for innovating the 3D first-person shooter genre, starting with *Wolfenstein 3D*, which they were able to produce because the copyright for the *Castle Wolfenstein* IP had not been renewed by its original creator. The id team have also been noted as critical proponents of videogame modding in the 90s. John Carmack, lead programmer at id, was a vocal advocate of the open-source software movement—one of the core principals of which is allowing the modification of software—and was pleasantly surprised and impressed to find gamers circulating mods based on his technology for *Wolfenstein 3D*. He became adamant that all his future games should help facilitate modding, which he initially achieved by establishing a system based on what he called WADs (an acronym for "Where's All the Data?"); WADs were packages of media data designed to be separate from the main game code, allowing modders to more easily swap-in different assets like sound effects and graphics without damaging or deleting core functionality, and reducing issues with compatibility when mod files are shared. So it was that *Doom* (1993), the violent sci-fi

first-person shooter that propelled id to rockstars of the game industry, attracted a dedicated following of modders. One day, a co-worker showed Carmack a version of *Doom* opening with the iconic *Star Wars* intro-fanfare music, leading-in to a level based on the first scene of the film *A New Hope* (1977), but clearly featuring *Doom*'s engine. Despite some trepidation within id's ranks about negative consequences stemming from copyright-infringing mods like this being circulated and associated with their company's software, Carmack felt he had done the morally right thing in designing *Doom* to be open. He went even further by releasing the source code for a *Doom* level-editing and utilities suite, providing powerful and accessible tools for modders. Modders, encouraged by Carmack's gestures but desiring even greater control over every aspect of *Doom*, eventually adopted unofficial software created and freely distributed by hacker-collectives, such as the "Doom Editor Utility" and "DeHackEd," which boast functionality beyond what the officially released software offers (Kushner, 2003).

Before long, id collectively recognized the potential value of leveraging the creativity and motivation of modders while simultaneously "building brand loyalty and player community" (Dovey & Kennedy, 2006, p. 131). *Doom II: Hell on Earth* (1994) was designed to be even easier to mod; as a result, thousands of active modders began creating content for the game and making it available for free online. Infringement upon intellectual property did not seem to concern many modders. One popular mod was an extensive re-design of *Doom II* to make it resemble the movie *Aliens*; another was Batman-themed (Champion et al., 2012). Other mods involved people re-creating real spaces from their lives, such as their schools, offices, and neighborhoods. Some teams of

Doom modders, communicating entirely over the internet, began resembling professional videogame companies, with members acquiring job titles, descriptions, and responsibilities (Kushner, 2003). One small, enterprising game publisher called Wizard-Works even released an anthology of approximately 900 fan-made mods dubbed *D!Zone*, which actually surpassed *Doom II* to top the CD-ROM games sales charts—this despite blatant violations id's EULA, not to mention ignoring the explicit written statements of modders, many of whom did not desire or agree to have their mods distributed in this way ("D!Zone," 2015). Notably, id opted not to sue Wizard-Works (Wallace, 2014). However, in order to "give the [*D!Zone* publishers] a run for their money," id did subsequently initiate contracts with a number of modders to assemble the officially endorsed mod anthology *The Master Levels* (1995) for retail (Kushner, 2003) ("Master Levels," 2018). Additionally, two prominent teams of modders, Team TNT and the Casali brothers, produced such high-quality mods that id, having been following their projects, strategically arranged to subvert the modders' planned free online release of the mods by directly purchasing and re-packaging the mods as *Final Doom* (1996), a stand-alone spin-off of the series ("Final Doom," 2016).

c. Valve, "Counter-Strike," "Day of Defeat," "Team Fortress," and *Steam*

As the stories of id and *Doom* reveal, during the early decades of videogame modding the practice was highly contentious, legally dubious, and subject to exploitation. Id would subsequently develop *Quake* (1996), which was also popular with modders—but also, with other developers, who desired to license and use *Quake*'s innovative 3D graphics and gameplay engines for themselves. Valve was one such developer; their

premiere game *Half-Life* (1998) used an officially licensed version of the *Quake* engine and was widely praised upon release (Kushner, 2003). They modified the *Quake* engine extensively to suit their design vision, overcoming major technical obstacles in the process, and dubbing the resultant software *GoldSrc,* aka *Goldsource*, and later simply *Source* (Keighley, 1999) ("Goldsource," 2016). As a result, the *Source* engine—a modified version of the *Quake* engine—was adopted by modders for its own unique affordances, particularly better character animations, and was used to produce a range of impressive fan modding projects. One of these was a total conversion called "Counter-Strike" (1999), which transformed the single-player, sci-fi *Half-Life* into a more gritty and realistic team-based-multiplayer-deathmatch FPS. Requiring a version of *Half-Life* to run, as well as third-party external programs to manage features like online matchmaking, the original "Counter-Strike" mod garnered an active community of players. Valve subsequently acquired the IP rights for "Counter-Strike" from its creators—hiring them as employees in the process—and then re-released it as *Half-Life: Counter-Strike*, or simply *Counter-Strike* (2000) (Te, 2014) (Donnelley, 2015). In a similar situation, a WWII-themed multiplayer-deathmatch FPS titled "Day of Defeat" (2000) began its life as a mod for *Half-Life*, and was subsequently acquired by Valve and re-released as *Day of Defeat: Source* (2004).

Perhaps Valve's most lucrative acquisition produced by modders was a *Quake*-based total conversion called "Team Fortress" (1996), which tweaked the classic competitive FPS model by letting players choose from among a number of different "classes" with distinct situational abilities, placing an emphasis on teamwork-oriented

gameplay. The popular mod was the brainchild of three Australian friends, John Cook, Robin Walker, and Ian Caughley, though they admit on reflection that some of its most iconic features were more-or-less incorporated work from other modders—Walker notes that the "Pyro" class, for example, "largely grew out of a mod done by another guy, whose name I can't remember. That feels terribly unfair to him. The early Quake-mod days were like that. There was a lot of sharing of mods and techniques, things like that" (Craddock, 2018). The trio, which officially incorporated as "Team Fortress Software," were approached by a number of big-name game companies expressing interest in their work, but it was the Seattle-based Valve that showed the most initiative by sending the three plane tickets for a visit, during which they were quickly offered a three-month stint as part-time programmers/modding consultants. Cook recalls, "The Valve guys liked the idea of us coming in and co-working with them to educate them on what makes a good modding platform. What do mod makers need and look for in a game engine that makes it able to be modded extensively?" (Craddock, 2018). A canny move indeed, given that Valve was, at that time, still developing *Half-Life*, from whose modding community the aforementioned successful IPs (*Counter-Strike* and *Day of Defeat*) would emerge. The trio helped Valve work on *Half-Life* for a brief time before the larger company proposed to absorb the smaller one, purchasing the "Team Fortress" IP at the price of back-pay from the moment of Team Fortress Software's incorporation, and offering them jobs as full-time programmers. All three agreed to selling their company, but only two decided to stay on and work for Valve—Caughley returned home. Cook and Walker were urged to port their "Team Fortress" mod to the *Source* engine; this they did in the form of *Team*

Fortress Classic (1999). They would go on to help develop *Team Fortress 2* (2007),

which has experienced widespread critical acclaim, commercial success, and is still

regularly updated to this day in the form of a free-to-download version with micro-

transactions.

In a sense, Valve poached "Team Fortress" from the fan community of one of its

industry competitors: they simultaneously acquired a ready-made, stand-alone IP with an

established playerbase, and an innovative FPS that would show-off the capabilities their

Source engine. According to Cook,

> Valve basically was taking advantage of Quake's modding ecosystem to
> hire people. […] They were one of the earliest companies to look on the
> Internet for people doing interesting things, and try to hire them. […]
> Gabe [Newell, Valve's Founder and CEO], specifically, had a lot of
> admiration for [how] Carmack had made it so other people could add
> value to his games. That was something he wanted to capture himself.
> (Craddock, 2018)

This statement hints at the idea of modding communities as a source of ideas,

energy, and labor, all of which can be "captured" and transformed into "value," under the

right conditions. Valve's growth as a company can perhaps be best attributed to an ability

to capture such resources; today, the company is best known for its *Steam* network

software, which was originally devised in 2002 to help distribute mods for Valve games,

though now it is best known as a digital marketplace CEO Gabe Newell commented at

the time that such a platform would facilitate "a smoother transition between the amateur

world and the professional world" (qtd. in Au, 2002). He would certainly understand the

economic value of facilitating such a transition. Today, the *Steam Workshop* is one of the

most popular social networks for amateur modders wanting to host and get exposure for

their mods, with support provided for many of the titles in *Steam*'s extensive library

(Makuch, 2015).

Newell's argument regarding professionalization through modding would perhaps

be more justified if all modders could indeed profit from their labor; while the former-

Team Fortress Software team reaped unexpected rewards from modding, including a

pathway into the games industry, such cases are exceptionally rare. Yet "modding

communities," as entities which help foster these rare cases through the open sharing of

ideas (as occurred with "Team Fortress"), consist largely of uncredited, unpaid,

anonymous amateurs contributing on numerous levels; the

intersecting/overlapping/conflicting relationships between such communities, individual

modders, the games industry, gamers-in-general, and lawmakers, will become

increasingly complex as awareness of modding's value spreads.

d. Sid Meier's Civilization II

Outside the FPS genre, another game that garnered an active modding community

in the late 90s was *Sid Meier's Civilization II* (1996), commonly referred to as *Civ2*. A

top-down PoV, turn-based strategy game, *Civ2* involves players taking control of a small

civilization beginning around 4000 BCE, and then guiding its development over time by

choosing to pursue some combination of technological development, exploration,

politics, diplomacy, trade, warfare, and/or the arts. The goal is to be the first civilization

among a number of AI-controlled opponents (and with later updates, other players) to

either conquer the entire world or be able to launch a spaceship to Alpha Centauri. While

the first *Sid Meier's Civilization* (1991) had some dedicated modders who managed to

make a few small changes, such as swapping tile-sets, the game's infrastructure was too

challenging to comprehend and work with for most players. Brian Reynolds, lead

designer on *Civ2*, wanted to change this in the sequel; he had grown up enjoying

modding *Adventure* as well as *Empire* (1977), the latter being a semi-open-source

strategy game with similarities to the *Civ* series. In a move that defied the wishes of his

bosses, Reynolds dedicated a significant amount of development time to ensuring that

Civ2's infrastructure actively encouraged modding, which he achieved by separating a

number of plain text files from the main game code. Written in easily readable language,

these text files controlled most aspects of the game, including assets like sound effects

and sprite-sheets, which could be changed to reference new files, requiring no real

computer programming skills. Even with the release deadline rapidly approaching,

Reynolds prioritized the completion of a pair of utility programs for modders to easily

create custom maps and scenarios, which he intended to include with each copy of *Civ2*;

this he did, apparently at the expense of fixing some known glitches in the release version

(Kaltman, 2014). As a result, *Civ2*'s modding scene flourished and was highly prolific.

It seems that Reynolds wanted to create a game that would appeal to his inner-

childhood modder, even if doing so risked the displeasure of his bosses; yet, on

reflection, he defends his decision primarily in economic terms:

> Much of the "viral marketing" we got for Civ2 in the first year came from
> the power of the scenario & mod community. The mods & scenarios also
> made the Civ2 expansion packs possible, and these in turn kept the
> franchise going strong for the full five years until the release of Civ3—you
> could still find Civ2 selling for a strong price in any game store right up
> until Civ3 shipped. Indeed, scenarios and moddability are now
> cornerstones of the whole franchise—every Civ generation gets multiple
> X-packs and the moddability just becomes more and more detailed. So

truly I think the scenarios and [moddability] have proven key not just to Civ2 specifically but to the whole Civ franchise (and I'll happily take credit for defiantly taking the first step against orders, one of my last great feats of "commando programming"!) (Goodfellow, 2006)

Here, Reynolds acknowledges the significant value modders' labor added to the marketability and longevity of *Civ2* and its sequels. It certainly seems an appealing business model in which paying consumers are also unpaid producers. As time goes on, many will seek to refine arguments justifying this model.

e.   "Defense of the Ancients" for *Warcraft III*

Warcraft III: Reign of Chaos (2002) is a single-player real-time strategy game for the PC in which players build and command armies of Tolkien-esque, high-fantasy characters, including Orcs, Night Elves, and the Undead, and navigate story-rich campaigns in colorful settings with varying objectives, such as destroying an enemy army's base or defending a stronghold for a specified duration. On release, developer Blizzard Entertainment included a utility dubbed the *Warcraft III World Editor* with each copy of the base game, encouraging and empowering players to create custom maps and campaigns that could be shared through Battle.net, the company's digital distribution network. As is often the case, modders desired to modify more than what the *World Editor* natively facilitated, so third-parties developed unofficial tools for editing nearly every aspect of the game.

One day, a high-school student named Kyle Sommers, aka Eul (his online handle), released a mod tilted "Defense of the Ancients Beta 2" (2002), which was inspired by mod he'd played called "Aeon of Strife" (1998) for *Warcraft III*'s sci-fi

predecessor, *StarCraft* (1998). "Aeon" re-works the RTS's typical gameplay style of commanding armies to complete various objectives into controlling a single, powerful "hero" character, who is supported by a small number of other NPC units, in a map featuring three paths known as "lanes." These lanes separate the player's "base" from an enemy "base" and an opposing team of similarly powerful, AI-controlled heroes and allies. A steady stream of little NPCs called "creeps" flows from each base; they attempt to gradually wear down the opposition's defenses, posing a constant threat and imposing a soft time-limit (Dean, 2014). Although not the only person[43] to create a variation on "Aeon" for *Warcraft III*, Eul's mod gains traction; unlike the single-player "Aeon" scenario, "Defense of the Ancients Beta 2" allows for 10 players to inhabit the map, divided into two teams of five heroes. These elements combined yielded the basic formula for a distinct new gaming genre, the Multiplayer Online Battle Arena (MOBA), though for a time this type of game was colloquially referred to as simply "DotA."

When Blizzard released *Warcraft III's* expansion, *The Frozen Throne* (2003), Eul and a partner attempted to produce an updated sequel to "DotA" titled "Thirst for Gamma," but the project lost steam and was abandoned after a month (Softmints, 2014). In a post on the modding forum *The WarCenter*, Eul publicly declared his desire for "DotA" to be open source, seeming to relinquish ownership of it to the community there—a move that would have future legal implications. Even before said post, however,

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[43] "The first Aeon of Strife-styled map that took advantage of the ability to design custom spells provided by the powerful Reign of Chaos World Editor was Valley of Dissent made by a modder called Karukef" ("Dota History," 2017). "Valley of Dissent" may have helped inspire Eul's "DotA."

numerous variations of "DotA" had spun-off from Eul's, with modders—many of them anonymous—adding new hero characters, abilities, and refinements to overall gameplay (Orland, 2017) (*Blizzard v. Lilith*, 2017). A pair of anonymous modders released "DotA Allstars Beta v0.95," a curated compilation of "DotA"-related mods that quickly became the most popular variant ("History of DotA," 2017). By 2004, an individual known as Guinsoo—IRL name Stephen Feak—had taken lead of the "Allstars" project; drawing assistance from a range of sources including trusted friends, talented programmers, and community input, he directed development until the release of v6.0 in 2005, at which point he stepped down, entrusting the mod's future development to one known as Nechius. By this point "DotA Allstars" featured a stable, integrated competitive mode backed by a booming, yet organized, online community; understandably, Nechius felt burdened by the responsibility of directing such a big project, noting that it had begun to feel "more like a job" than fun, and so he passed the reins to a fellow collaborator, IceFrog, IRL name Abdul Ismail (*Blizzard v. Lilith*, 2017). IceFrog, supported by collaborators, oversaw the growth and development of a prosperous "DotA" until at least 2009. (V, 2011) (Bopp, 2017).

Enter the opportunistic Valve Corporation, which saw the popularity of "DotA" and decided it wanted to develop *DotA 2* as a stand-alone game, separate from Blizzard's *Warcraft III*. Valve hired IceFrog and Eul in 2010, and subsequently acquired both their rights to the "DotA" IP, such as they were. Guinsoo, meanwhile, had already been hired by another company, Riot Games, where he worked on developing *League of Legends* (2009), a competing MOBA with many similarities to "DotA;" Riot had arranged to

purchase Guinsoo's rights to "DotA," which they transferred to Blizzard in 2011. *Defense of the Ancients 2* was released in 2013; it, along with *League*, remain popular MOBAs, and have been regular features of international eSports tournaments since their respective releases ("theScore eSports," 2018).

The communal development of "DotA" by modders stands as testament to the possibilities for creative innovation when videogames are made open to modification. Of course, most modding projects are not nearly so large, nor so transformative, nor so successful; yet when large numbers of enthusiastic people are able to communicate and collaborate digitally, participating in building, refining, and customizing their media, even small, seemingly innocuous ideas can snowball into impressive, multifaceted, game-changing mods. With modding, videogames never need to stop expanding, evolving, and improving—they are never truly "done." Similarly, the stories of Eul, IceFrog, and Guinsoo are not over.

Blizzard Entertainment Inc. & Valve Corporation v. Lilith Games (Shanghai) Co. Ltd. & uCool, Inc. is a landmark case currently ongoing in the Northern District of California, featuring two big-name videogame giants suing two small, mobile-app developers over the latter's creation and sale of "DotA"-style games. The defense has presented an argument that "DotA," particularly "Allstars," should be considered a "collective work" because it was an arrangement of mods from various creators; Federal Judge Charles Breyer rejected that argument, offering a comparison: "[By] that logic, *Star Wars: The Force Awakens* would be a collective work because it arranged the most popular Star Wars heroes, settings, and one-liners into a new movie" (Orland, 2017).

Indeed, perhaps it would; as the Judge's statement shows, the participatory type of composition that modding exemplifies invites radical re-conceptualizations of traditional ownership across all media in which fans actively engage. Compellingly, the Judge has refused to render summary judgment in the case, inviting further review of the facts, and leading to speculation that the trial will be sent to a jury to determine a verdict. Two as-yet unpresented arguments may work in the defendants' favor: 1) *Warcraft III*'s EULA stipulates that modders may not use the *World Editor* for commercial purposes, a rule which the three modders clearly violated in their sale of the "DotA" copyright (it's worth noting that the EULA does not grant Blizzard rights to mods made for *Warcraft III*, which might have given them easy ownership of the IP); 2) Eul's aforementioned 2004 "open source" forum post, which may be interpreted as him giving up his claim on any rights to "DotA," and/or granting permission for anyone to develop a version of the game for any platform (Orland, 2017). The outcome of this case will undoubtedly have implications for the future of modding.

f.   Nintendo, *Game Genie*, and the "Rijon" series

Nintendo is notoriously against the modding of their products. In the first court battle involving a dispute over videogame modification, 1990's *Lewis Galoob Toys, Inc. v. Nintendo of America*, the company argued that its copyright was violated by Galoob's *Game Genie* (1990), a peripheral device/software designed for use with the *NES*. The *Game Genie* connects to *NES* game cartridges and, when operated, scans a game's code for integer values that control variables—this allows players to make temporary modifications, most popularly ones that "cheat" the game's intended programming by

granting players specific advantages or conveniences, such as immunity to enemy attacks or skipping to a desired level (Wallace, 2014). Manipulating and experimenting with Nintendo games' variables led some to discover hidden/unfinished features or content not intended for players to access; *Super Mario Bros. 3* (1988) contained numerous hidden levels in varying states of incompletion, plus some enemies that appear nowhere in the main game (Smith, 2016). The court ultimately ruled that, contrary to Nintendo's claims, the *Game Genie* should not be considered a derivative work in violation of fair-use since the modifications it enabled were not permanent, nor stored in any "concrete" form (Wallace, 2014).

Although the *Game Genie* could not be found in violation of Nintendo's copyright, the case established a solid legal discourse against any modification that could be considered a "derivative work" stored in a "concrete form," which would include most mods, since they are usually stored as copy-able digital files. Even as other companies, like id Software, began to facilitate and encourage such mod sharing, Nintendo maintained a litigious stance, particularly when their most profitable IPs are involved. The design of their early home consoles, being solidly screwed-shut and designed exclusively for compatibility with their proprietary, read-only memory chip, cartridge-mounted game formats, made a clear statement: do not modify. The company's design philosophy reflected a paradigm apart from the era of experimental PCs on which gaming and modding were two sides of the same coin; this was the era of consumer electronics, and "consumers" were expected to do just that.

Despite cartridge-based games being inherently harder to mod because they lack any native compatibility with PCs, modders proved creative, adaptive, and persistent in developing methods for working with Nintendo games. In response to clear demand, specialized, third-party devices were produced for a process called "dumping," in which files are copied from a cartridge's read-only memory chip, creating what is known as a read-only memory image file, or simply a ROM. On a PC, these files can be read and edited; they contain the game's code, which can be quite challenging for laypeople to decipher, requiring some working knowledge of assembly language, hexadecimal format conversions, and the games' unique scripting conventions, none of which is provided in any official documentation (Sawakita, 2011). Thus, Internet-based sharing would play a big role in helping modders access important information, techniques, and tools, all of which would be refined over time.

The earliest ROM mods (also commonly called "ROM hacks") were for rudimentary changes such as sprite-swaps or dialogue replacements, or "cheat"-style adjustments made to in-game variables (similar to what the *Game Genie* facilitated). As time went on, curious and/or dedicated people set about the challenging task of "mapping" ROMs: identifying various functions, variables, and scripts that could be adjusted to produce noticeable effects on gameplay; eventually, programmers would produce software tools that made use of the available knowledge on the ROM's inner-workings, making the ability to MOD cartridge-based games much more accessible ("Emulation," 2015). This, of course, depends on the motivation of unpaid amateurs; the more popular a game, the more likely/quickly such knowledge and tools will manifest.

Temporal Flux, a software tool developed by one known only as Geiger, was created to help mod the cartridge-based *SNES* RPG *Chrono Trigger* (1995); the game is a cult classic among RPG fans, involving an epic, time-travelling adventure that blends high-fantasy and sci-fi. With the help of *Temporal Flux,* a ROM mod titled "Chrono Trigger: Crimson Echoes," began its development in 2004; its developers, a team called Kajar Laboratories, emerged from the online fan community based around the *Chrono Compendium* website. Drawing ideas and inspiration from their fellow fans and the encyclopedic collection of *Chrono* knowledge available on the *Compendium,* this team's aim was to create an interquel to bridge the stories of *Chrono Trigger* and its loose-sequel, *Chrono Cross* (1999). Their mod re-used many of the characters, settings, and other assets from the original, arranging them with all new dialogue into a completely new storyline—purportedly around 35-hours-worth of total play-time. Additionally, the mod features combat challenges that test veteran *Trigger* players' understanding of core mechanics; these show that the sophisticated game design acumen cultivated within fan communities can lead to mods that rival, and even improve upon or surpass, what commercially-produced games offer in terms of gameplay. Like a work of fan fiction, the "Crimson Echoes" mod reveals the dedication and passion that people are willing to put into participatory media

After around four years of development spent on "Crimson Echoes," Kajar Laboratories received a cease and desist order from *Trigger*'s Nintendo-affiliated developer, Square Enix (Stuart, 2009). The one-page document threatens prosecution for "deliberate and willful" copyright infringement unless a list of demands is met: that they

"immediately remove, take down, delete, and destroy" all work associated with "Crimson Echoes" on all websites; and, that they "cease and desist all efforts to rip, hack, or circumvent our copyright protection measures or teach others to do so," referencing the *Temporal Flux* software documentation available on *Chrono Compendium* (Square Enix, 2009). It does not take long for the fans to comply. Nevertheless, the existing beta copies of "Crimson Echoes" could not be completely eradicated, and these remain in digital circulation to this day. Furthermore, bootleg copies of "Crimson Echoes" installed onto physical SNES-compatible cartridges have been discovered (by me) being sold online and in certain unregulated marketplaces, such as the floors of videogame fan conventions. It is highly unlikely that the creators of "Crimson Echoes" have benefitted from any sales of such cartridges.

One of Nintendo's best-known cartridge-based game IPs—which spawned a vast multimedia franchise—is the *Pokémon* (from the Japanese term "Pocket Monsters") RPG series. The series debuted in two versions (with slight differences) in Japan in 1996: *Pocket Monsters Red* and *Green*, for the *GameBoy* hand-held console. Inspired by creator Satoshi Tajiri's childhood fascination with insect collecting, players take control of a 10-year-old who leaves home to meet, capture, and train creatures—Pokémon—as part of a scientific journey to catalogue as many different types as possible. The game has a decidedly family-friendly tone, with the Pokémon often being cute, cartoonish, and/or fantastic beings, and featuring a narrative emphasizing themes of friendship between trainers and their Pokémon. Though the vast majority of gameplay revolves around engaging in one-on-one duels between the player's captured Pokémon and various

Pokémon opponents, the creatures never die[44] or experience violent injuries, instead simply "fainting" after enduring a certain amount of damage, and they are able to be revived with relative ease. An updated version of the Japanese game, dubbed *Blue*, would be re-tooled for an international release starting in 1998 as *Pokémon Red* and *Blue* ("History of Pokemon," 2018).

In 2004, a modder known as Koolboyman, IRL name Adam Vierra, released "Pokemon Brown," a complete re-working of *Red/Blue*; it maintains the core gameplay mechanics, but features an original story set in a new region called Rijon, which is presented as part of the main *Pokemon* universe (Machkovech, 2016). Koolboyman and others updated "Brown" over the course of at least a decade, adding new features and refinements ("History of Pokemon," 2017). As it spread, it is considered to have inspired a large number of *Pokemon* fans to see the RPGs as engines to tell their own stories, and indeed, there have been many influential *Pokemon* ROM-hacks released since "Brown" (KipTheFlareon, 2017).

Following the huge commercial success of Nintendo's so-called "first generation" of *Pokemon* RPGs, a trio of official sequel-versions—*Gold*/*Silver* (1999) and later *Crystal* (2001)—offered more Pokemon to collect, plus some refinements to overall gameplay. As revealed by Koolboyman in a 2014 Reddit AMA (Ask Me Anything) thread, "I love hacking [the second generation] the most. Gen II has a scripting system

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[44] Except off-screen, as revealed in the game's area "Lavender Town," which features a tower containing the graves of deceased Pokémon. This area is notorious amongst fans for introducing some relatively disturbing themes related to death, including the presence of an enraged spirit of a mother Pokémon who lost her child.

which makes creating new events a lot easier than Gen I." It is upon *Crystal* that he and some collaborators begin work on a mod known as "Pokemon Prism" around 2008; this sequel to "Brown" takes place in another original setting, Naljo, and also involves a return to Rijon. Players assume the role of a son or daughter of one of *Gold/Silver/Crystal*'s most popular characters, Lance the dragon-trainer, whose journey across Naljo involves addressing issues stemming from the region's heavy industrialization. The "Prism" project has been praised for its ambitiousness; Naljo boasts an in-game area larger than that of *Gold/Silver/Crystal*'s Johto, plus attempted improvements/innovations to existing gameplay mechanics ("Pokemon Prism," 2018). When Nintendo's third *Pokemon* generation, *FireRed* and *LeafGreen* (2004) for the *GameBoy Advance* console, were released, Koolboyman worked on a mod for them dubbed "Rijon Adventures" (2009), but on reflection admits, "I never really got into the Gen III games to be honest, maybe I was just getting older at that point, but those never really [sic] interest me that much, both hacking and playing." He passes leadership on that project to one known as Hiroshi, but continues to work on "Prism" ("AMA," 2017).

In 2016, after eight years of development spent on "Prism," Koolboyman received a cease and desist order from Nintendo's legal team just a few days before he intended to release the mod, ordering the immediate end of development on "Prism," as well as the removal of any download links to it, "Brown," or "Rijon Adventures." Quite a few people had been anticipating "Prism's" release, as indicated by over 1.4 million views on its YouTube trailer, and were subsequently upset by the news, announced by Koolboyman on his Twitter account: "I'm sorry everyone […] I should've seen this

coming. People warned me. But I didn't listen." (Klepek, 2016). The project was formally cancelled. A link to the notice sent by Nintendo, bearing legal letterhead, explained and confirmed the Tweet; its tone is at once conciliatory, acknowledging its appreciation for "the dedication and passion" of its fans, and uncompromising, insisting that it must protect its intellectual property in this case, and then outlining specific legal threats that Koolboyman would face if he did not acquiesce to a stipulated cease and desist procedure, which, of course, he did (Addisons, 2016). Yet, Koolboyman commented on Twitter that, if he hadn't drawn so much attention to the release of "Prism" by promoting it, and perhaps if he hadn't spent such a long time on development in general, fans of "Rijon" might have gotten a complete version of what he'd envisioned (Machkovech, 2016).

Although the website for "Prism" was indeed shut down and all its known developers formally disavowed the project, a version of the near-complete mod was quickly leaked onto the website *4Chan*, posted by, in their own words, "a group of people interested in seeing ROM hacks succeed." This anonymous group claims to have obtained "Prism" without any of its original developers' knowledge (implying that they stole the files through hacking). To protect "Prism's" known developers from culpability, the leakers removed their names from the credits that roll at the end of the game; instead, they include a general thank-you to the fans who helped carry the project along the way. Responding to an e-mail from a journalist at popular gaming news site *Kotaku*, they justify their actions thusly:

> Regardless of Nintendo's legal rights, we do believe that they are destroying their fans' hard work for no reason and at no gain. […]

> Nintendo could have used this (and any other good ROM hack) as an opportunity to promote the Pokémon series in general. They don't even have to do anything other than let the games live. (Alexandra, 2016).

This perspective, backed by the technological savvy of Internet-organized outlaws, poses a real challenge to the dominant perspective that exclusively favors copyright holders over modders. Nintendo has been unsuccessful at stopping the development and distribution of "Prism;" since the takedown, a new team known as RainbowDevs has taken over the project, and have implemented a series of updates to fix bugs and add polish to Koolboyman's final version. Having learned from Koolboyman's mistakes, the mod files are now only distributed through private, secretive channels. The developers remain anonymous, subverting Nintendo's ability to take legal action against them. All this combines to create an environment where modding is, by necessity, an underground activity—at least for those games whose copyright owners oppose it.

The de-legitimization of modding by forcing it underground seems to serve the conservative legal arguments of companies like Nintendo, but by threatening legal action against fan mods they also attract attention to them. Since at least 2014 there has been a surge in popularity of people video-streaming themselves playing games online; some of these streamers seek-out condemned mods to play them for an audience, drawing on their alluring, underground status to attract increased viewers (and also to engage with other fans). Streamers on platforms like *Twitch* are able to generate revenue from their videos, raising new legal questions about who owns copies of an individual player's game-play, and who can profit from them. These aside, Nintendo has recently targeted streamers, and

users of video-hosting sites in general, that utilize captured gameplay from mods of their IPs (Geigner, 2015).

g. Infiniminer and Minecraft

Minecraft (2009), the wildly successful IP based on a blocky, freeform building game, is relevant to the history of modding and ownership for a range of reasons; firstly, there's the fact that it began as a sort-of mod itself. Creator Markus Persson, widely known by his online handle Notch, one day stumbled upon an indie game called *Infiniminer* (2009) by Zachary Barth; though intended as a competitive resource-gathering game, Notch and other players were more interested in the game world's malleability, composed as it was of blocks that could be added, removed, and arranged to create all sorts of structures. *Infiniminer*'s popularity surged until its complete source code was allegedly leaked onto the Internet, at which point numerous, modified versions began to crop-up; this created difficulties for Barth, who saw the playerbase fragmented due to incompatibilities between different versions. Realizing how much work it would take to maintain control over *Infiniminer*'s development, Barth stops developing, making a gift of the game's source code to its fans along with his blessing to do with it as they wished. Notch, wanting to design a game that emphasized *Infiniminer*'s block-based building mechanics, began reverse-engineering the game and re-coding it to his own specifications—in a sense, modding *Infiniminer* into what would become *Minecraft*, and subsequently establishing the company Mojang (Goldberg & Larsson, 2015).

Next, *Minecraft* interested and attracted modders from the very beginning—as a game focused on free-form creativity and building, it seemed a great platform for

modders to play with. However, one thing Notch took from *Infiniminer*'s development was a desire to maintain tighter control over his version. To this end, "obfuscated" his code—this means rendering easily identifiable file-names much more difficult to identify by labeling them with nonsensical letters and numbers. This posed an obstacle to early modders of *Minecraft*; with each update, newly obfuscated file-names needed to be de-obfuscated, making it highly inconvenient to maintain a mod's compatibility across versions. (Mills, 2015). Nevertheless, modders developed methods to circumvent Notch, who made it clear he was opposed to "client mods" (anything that alters game mechanics or assets); some of these that were released include "Better Grass Mod" (improves the look of in-game grass), "HD Texture Pack" (allows higher-resolution textures), "Elemental Arrows" (adds a range of possible magical effects to the game's bow and arrow weapon), and "Rideable Pigs" (lets player-avatars ride around on the in-game pigs) (Reloque, 2015).

Finally, *Minecraft*'s modding community has achieved some truly impressive technical feats, leading some innovators to express concerns over the ownership and profitability of their work as modders. The most prominent case is that of an open-source modding project called "Bukkit" (2014), which adds multiplayer functionality to the game by enabling multiple players to connect to designated servers and inhabit the same world instance. The lack of inherent multiplayer functionality in the base *Minecraft* game frustrated many players, who pressured its developers to work on and implement this feature quickly; however, the developers opted to focus their efforts elsewhere. In consolation, however, Mojang seemed to devote less development time to thwarting this

type of modding project, which was considered a "server mod" rather than a "client mod." They even authorized the incorporation of their closed-source-code into the open-source, GNU public licensed (GPL) "Bukkit" API—this move made server-based play possible, but it also violated the terms of the GPL, which explicitly forbids licensed software from being incorporated into non-GPL (aka closed-source) programs. In 2012, Mojang would hire *some,* but not all, of "Bukkit's" developers; in so doing, they presumed to also possess the entire "Bukkit" project. Questionably, they continued to allow "Bukkit" to operate independently as a community-run project for two more years, with most of the unpaid contributors completely unaware of Mojang's "acquisition;" in the words of one commenter, "So [the modders] continued working, unaware that they were basically doing free volunteer work to enrich a multi-million dollar corporation by maintaining the largest Minecraft server platform in use." When people working on the project learned of the secretive purchase of "Bukkit"—particularly Wesley Wolf, a major contributor known to the community as Wolverness, who saw some of his former modding colleagues now working for Mojang and defending its actions—they were upset. Wolverness took legal action in the form of a DMCA complaint, pointing out the aforementioned GPL violation. This precipitated the end of "Bukkit," which was removed from most websites and ceased active development; Mojang, too, was required to cease any activity related to the project (redwall_hp, 2015).

h. Modding Today: Software Engines, Monetization, and Built-in Modding

I. Software Engines and SDKs

"Software engine" is a popular metaphor describing the core programming of a piece of software that manages and executes ("drives," in a sense) its characteristic functions. When it comes to videogames, the "engine" includes gameplay mechanics, but not graphics, sound effects, or any other media—these are called "assets," and they are considered as separate. This style of software resembles that which John Carmack intended for *Doom*, and which Brian Reynolds implemented for *Civilization II*; in a gesture of good-will towards modders, both of these developers distributed additional tools to help players make use of their games' engines, including the *Doom World Editor* and *Civ2*'s map and scenario editors. Today, most commercial videogame developers build their games upon existing, proven software engines (rather than from scratch) using specialized and comprehensive software development kits (SDKs). Of course, they must produce their own assets to attach to the engine, and must sometimes expand the engine's inherent functionality by developing programs known as "extensions;" modders, too, have often sought expand the functionality of officially released modding tools using extensions.

In theory, most videogames could be straightforwardly modded if players had access to the same, or similar, SDKs that developers used, but for a long time such tools were rarely made available for amateur use—SDKs for proprietary engines could be licensed, but usually at a price that would dissuade anyone without a clear business plan and capital to release a commercially-viable product. This has somewhat changed in the

last four years, with a number of big-name companies competing to attract more small/independent developers—and thus, more potential commercial titles featuring their engine—by adopting subscription-based or free (with additional, purchasable features available) models for their SDKs. Contemporary examples include Epic's *Unreal Engine 4* (2014) Amazon's *Lumberyard* (2016), and Unity Technology's (Apple-backed) *Unity 2017* (2017). Unity Technology CEO John Riccitiello has commented that powerful, accessible SDKs have contributed to the democratization of game development, and that he hopes that people outside the core industry (i.e. amateurs) will increasingly become users; he adds, "I think it's sad that most people are consumers of technology and not creators. The world's a better place when people know how to create, not just consume, and that's what we're trying to promote" (Batchelor, 2015). Perhaps Riccitiello is right about the impact of accessible SDKs, but modders, who are defined (in-part) by being "outside the core industry," were working to democratize games long before Unity Technologies. Indeed, there is a clear sense that the CEO is not concerned about modders: cutting-edge tools like *Unity* are primarily intended for designing stand-alone games, rather than mods. To prevent SDKs from being used to mod copyrighted material—if that is the copyright holder's desire—DRM measures such as encryption must be added to game files, or a compatible SDK must be programmed to detect and block such material.

On the other hand, some companies have continued Carmack and Reynolds's tradition of releasing SDKs specifically for modding their games. One prominent example is Bethesda Softworks's *Creation Kit* (*CK*) (2012); this software has evolved

from its first incarnation as *The Elder Scrolls Construction Set* (2002) for modding *The Elder Scrolls III: Morrowind* (2002) and *IV: Oblivion* (2006), to the *Garden of Eden Creation Kit*[45] (2008) for modding *Fallout 3* (2008), to the current version which accommodates modding for *The Elder Scrolls V: Skyrim* (2011) and *Fallout 4* (2016). Bethesda has historically maintained a positive, yet low-key relationship with its modding communities; in 2012, however, they engaged in a flashy PR campaign to promote the *CK* and encourage modding *Skyrim*, including a *CK*-dedicated website, blog, wiki, and—most notably—series of official video-tutorials featuring actual developers at Bethesda describing how to use the software, including suggested best-practices. This amount of public fanfare and resource investment was unprecedented for a modding utility—Bethesda game modders were hardly accustomed to their domain receiving so much outside attention—and it begged the question: was this a gesture of goodwill towards modders, or primarily an attempt by the company to generate more value from modders' labor? Rather than letting modding remain a niche activity for their games, as was the case prior to 2012, Bethesda had shone a spotlight on it, encouraging more players to participate; furthermore, they began taking an active role in the mod distribution and curation for their games, establishing a hosting system via *Bethesda.net*; this would allow them to censor content they deemed inappropriate, plus maintain tighter control (and ownership) over all content uploaded. Previously, the most popular place to

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[45] In the post-apocalyptic world of Fallout, the "G.E.C.K." or "Garden of Eden Creation Kit" is a recurring piece of technology that is supposed to be able to restore areas of irradiated wasteland back into a lush, habitable environment. One of the previous versions of the Bethesda's *Creation Kit* SDK, for *Fallout 3,* was actually called the *G.E.C.K.*

upload/download Bethesda game mods was the fan-run website *NexusMods*, which was not subject to censorship by Bethesda (though some of the more "explicit" mods found an alternative home at the site *Lover's Lab*). Some old-school modders refused to make the transition to *Bethesda.net*, noting concerns over Bethesda's treatment of their work, and fearing a loss of ownership

II.   Monetization

Bethesda, seeming to recognize that modders of their games who devote significant time and energy into producing original content should be able to claim some degree of ownership, and that makers of popular content should be rewarded, has been at the forefront of experimenting with models for monetization of mods. The topic of "paid mods" is a hot-button issue in gaming circles, particularly since 2015 when Bethesda partnered with Valve to allow modders of *Skyrim* who upload content to the *Steam Workshop* network to charge for their mods. The reaction from gamers online produced what Valve called a "dump truck of feedback," both positive and negative. Much of the negative feedback seemed to reflect gamers' frustrations over the rise of microtransactions[46] in recent years, leading to a lack of trust that games are being designed primarily for fun and entertainment, but rather, purely for profit. Additionally, some fans of modding felt that the best thing about mods was that they were freely

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[46] Microtransactions are prompts/options embedded in videogames that charge players money for in-game rewards—usually, the cost of these transactions are small, though they can also be quite large, and they can also add up to surprising amounts over time; thus, they generally have a negative reputation amongst gamers.

produced and shared by the community, and that instituting payment systems would erode the open-source spirit of those communities. Positive reactions included the observation that not all mods would necessarily become paid content—it was the mod creator's choice to charge for what they produced, and if people didn't want to pay, they didn't have to; another was that a payment system would encourage the creation of more professional-quality content, perhaps on the same level or better than that produced by Bethesda itself in the form of DLC, giving fans who grew bored appealing options for continued gameplay. Ultimately, however, it seems the negative outweighed the positive; Valve halted the paid mods system after a mere four days.

Despite the rocky rollout of paid mods in 2015, Valve CEO Game Newell has commented that modders "absolutely […] need to be compensated, they're creating value and the degree to which they're not being accurately compensated is a bug in the system" (Lahti, 2017). Bethesda has recently taken up that charge, in a sense, by implementing a new mod monetization system known as *The Creation Club* as a feature for their games *Skyrim* and *Fallout 4* (both of which use the same engine). Their idea is to allow modders to "pitch" them new content and features; if they like what the modders have, they work with them to ensure the mods meets certain quality standards, and then publish the mods in the *Club*, which is essentially a digital marketplace integrated into *Bethesda.net* where players can spend currency called "Creation Credits," which must be purchased using real money. Modders whose pitches are accepted receive payments upon reaching designated development milestones. Bethesda stresses that this system is *not* "paid mods;" they oppose the re-packaging of existing mods as *Club* content, and insist that

"all the content is approved, curated, and taken through the full internal dev cycle; including localization, polishing, and testing." The *Club* complicates issues of modding and ownership, begging the question: is creating content in-partnership with a game's developers *really* modding? Bethesda seems to assert that no, it isn't; rather, it's fishing from the pool of a talented modding community to find game designers to contract. Practically speaking, however, it *looks* a lot like modding, but with money involved.

III.   In-Game Modding

Some companies, desiring to harness the value of modders' labor while maintaining complete control over it, have turned to fostering what I would call "in-game modding," which perhaps isn't really modding per-se, but involves players being able to create and/or modify content for a game within the game itself, without any external SDKs. An example is Nintendo's *Super Mario Maker* (2015) for the *WiiU* and *3DS* platforms; in it, players are encouraged to create their own custom Mario levels using a range of assets from across the IP's history, and to share them online, as well as to play others' shared levels. In this way Nintendo has established a contained ecosystem in which Mario fans are encouraged to do as modders had been doing for a long time—create their own levels—except only within constraints the company determines. Assets for *Super Mario Maker* cannot be added by users, likely for fear that they will involve other copyrighted material or content Nintendo would not deem "family friendly;" rather, the company makes available a range of approved assets, including some characters from other Nintendo IPs (like Link from the *Zelda* series).

Maker is enjoyable for its playful, creative conceit and high-quality assets, but modders who desire more freedom and flexibility would find themselves heavily constrained; that is why there remains an active subculture of modders who prefer to work with *Super Mario World* (1990) ROMs edited through third-party software. One important *SMW* editor is *Lunar Magic* (2018), which has been credited as one of the best modding tools ever made for its ease of use (Joho, 2017). Developed by one known as FuSoYa, the free software has been updated for around 17 years (FuSoYa, 2018). Among the reasons *SMW* modders prefer their methods for Mario-modding over those available in *Maker* are: 1) there are fewer constraints, and those that exist can usually be overcome; 2) the community has, over time, aggregated a vast collection of assets that are more diverse than what Nintendo offers; 3) there is more potential for learning and applying advanced skills, such as programming and graphic design, because their system is open to expansion and new assets; 4) they feel a stronger sense of ownership and control over mods they have developed, troubleshooted, and refined outside of *Maker*'s closed system. Rather than undermine their community, *SMW* modders observe that *Maker* may have helped it grow, having given mainstream audiences a sense of the possibilities for designing their own variations on Mario, leading them to seek out methods with additional affordances (Joho, 2017).

The status of modders today remains uncertain; they exist somewhere outside of the mainstream videogame industry, but increasingly within its purview. Acceptance within the Academy, where modding is currently relatively unknown, would create a safe

space for modders to explore their creative potential and cultivate interdisciplinary skills to hone their craft.

Chapter 4: Modding in Practice

a. A Modding Process

Most people associate videogame design with "coding," which involves working with programming languages. As a layperson, looking at a screen full of professionally-written code can certainly feel like trying to read a foreign language; indeed, writing good code requires a level of "fluency" with a programming language that can only be achieved through dedicated study and practice. High-level coding—being able to create a videogame from scratch—requires a firm understanding of the fundamentals of mathematical logic and computer science; while such knowledge is increasingly common, it remains a specialized area, outside the realm of the average computer user's competence.

Yet, I would argue that the average computer user, with minimal coding knowledge, is more than capable of engaging in real videogame design. In the words of an experienced hobbyist game developer posting on Reddit:

> I can tell you this: making games is not much about coding. […] You don't need to be an expert coder to make a good game. All you need is to know enough of a language to be able to express whatever you imagine in it. It's not that high of a bar, probably half a year of goofing around with code is enough for that. (TeMPOraL_PL, 2016).

The above post reflects a defiant attitude towards perspectives of traditional game design, one which eschews the notion that it is the narrow field of software programmers/coders

that are able to communicate through the medium of videogames. Notice, also, that the poster emphasizes "goofing around with code," suggesting an electrate epistemology where **play** is an important part of the process.

The type of game design/modding I will discuss in this chapter reflects my own experiences; however, I feel that anyone who enjoys playing videogames will be able to relate to the heuretic process outlined here, because it emerges from a simple desire to participate in designing/redesigning any game with which one has a personal connection. And I do mean *any* game—in viewing modding as a style of rhetorical game design, and thus a genre of composition, the initial phase necessarily begins with **invention,** or the envisioning of the thing to be composed. Invention, in this sense, is sometimes alternatively referred to as a process of "analysis," "brainstorming," or "freewriting." The importance of this phase cannot be understated; by critically engaging with the games they play as rhetorical objects over which they can exert participatory design agency, modders can actively seek ways express themselves, address political exigencies, and subvert industrial/commercial/mainstream designs. Invention is likewise a major outcome of Ulmer's conductive, electrate genres, especially MyStory and MEmorial.

Next is the **research** phase; for modding, this may entail the same sort of traditional, content-based research needed to flesh out and support a potential **working thesis**, which serves as a guide for generating important **research questions.** For conductive invention, it may entail identifying and delving-into personal **archives** while being open to the sting of **punctum.** Of course, as has been previously established, videogames are themselves archives of digital assets, and much of a videogame's archive

can be experienced on the surface-level through normal gameplay. Yet unlike with live-action cinema where actors, acting, direction, sets, costumes, props, etc. are recorded in a single instance, never to occur the exact same way again, the assets of a videogame (characters, scripting, code, spaces, textures, objects, etc.) are stored in digital files that are continually accessed and re-accessed each time the game is played—they are not static recordings. Everything that constitutes an existing game can be extracted and examined, and new things can be introduced by carefully examining the structure of existing things and using that as a guide.

However, there are obstacles to modding, which can be divided into two major groups: **legal** and **technical**.

I would propose four levels of challenge when it comes to legal obstacles to modding:

- Level 1, the least challenging, involves modding games whose developers encourage and support such modding; mods produced, uploaded, and shared by communities of modders are not actively policed/censored, and there is clear language in the End-User License Agreement (EULA) indicating that modders will not be subject to legal action for producing/circulating mods that do not break any other laws (such as infringing upon third-party copyrighted material with/without attribution). Examples of games fitting into this level are rare, but

might include indie-developer ConcernedApe's *Stardew Valley* (2016)[47] or Team

Salvato's *Doki Doki Literature Club* (2017)[48].

- Level 2 involves modding games whose developers are generally friendly towards

  their modding communities, and they may provide some direct support to

  modders (such as distribution networks or software), but they do actively

  police/censor mods related to their game, striving to maintain control over what

  sorts of mods are associated with their IP. The EULA for such games likely

  includes some language about modders being unable to profit from what they

  create. Games fitting into this level include Mojang's *Minecraft* and Bethesda's

  Fallout 4.

- Level 3 involves modding games whose developers who would generally ignore

  the modding of their titles, but might take legal action against mods which garner

  enough popularity and seem to undermine their competitive/creative agenda. The

  EULA for such games might explicitly forbid third-party add-ons (which includes

  mods), but they do not actively monitor for them. Digital Rights Management

  (DRM) software may or may not be attached to the original game; if it is, it is

  mainly intended to prevent unlicensed copies from spreading, not specifically to

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[47] *Stardew Valley* (2016) was developed primarily by Eric "ConcernedApe" Baronne.
[48] *Doki Doki Literature Club* (2017) is a low-budget title produced by a small team, and was released via *Steam* as a free download. It quickly went viral as players experienced its unexpected and surprising gameplay/narrative. It was built using *Ren'py*, a highly moddable platform dedicated to making interactive fiction.

prevent modding. Games fitting into this level include Rockstar's *Grand Theft Auto V* (2013).[49]

- Level 4, the most challenging, involves modding games whose developers are actively hostile towards their modding communities. Mods for such games must be distributed in secretive, underground channels, including the dark web, to avoid being targeted by the developers' legal arm. Developers of these games do not hesitate to issue intimidating Cease and Desist orders to individuals associated with a mod's production and/or online hosting. The EULA for these games explicitly forbit modding, and/or DRM software attempts to actively detect and prevent mods from running. Games fitting into this level include almost anything associated with Nintendo, such as Game Freak's *Pokémon* RPGs[50].

Technical obstacles to modding are more diverse; they depend on a variety of factors, including:

- How a videogame was originally made (what hardware and/or software tools were used)

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[49] *Grand Theft Auto V* (2013) and its parent company Rockstar Games were involved in a recent PR-conflict with modders utilizing the open-source, third-party *OpenVI* SDK. After issuing a Cease and Desist to *OpenVI*'s developers, a public backlash of negative social media eventually forced Rockstar to make a deal with *OpenVI*, allowing it to be used for single-player modding but restricting any multi-player mods that would be used as cheats to unbalance the game's online mechanics (Alwani, 2017).

[50] Various Pokemon modding projects that have been shut down due to legal pressure from Nintendo, such as "Pokemon: Uranium," which was produced using the RPG Maker XP software engine (Messner, 2016).

- How accessible the game's digital files are (whether they are encrypted or not, for example)

- What hardware the game was intended to run on (Xbox, PlayStation, Nintendo, and PC hardware all have different constraints)

- What sort of scripting/programming language the game engine uses (such as Ruby or Papyrus).

- The availability/completeness of technical documentation (inter-company development documents are sometimes made public to players, though often they are not; alternatively, modding communities may collaboratively build Wiki-style sites containing technical documentation/guides, or share tutorial-style videos)

- Whether/to what extent the game's original designers accommodate or restrict modding in the software infrastructure itself. [51]

- The accessibility/availability of software tools specifically designed for modding, such as level editors/software engines (recent games such as *The Golf Club 2* (2017) and *Fallout 4* (2016) feature streamlined integration with external modding tools, such as *The Course Designer* and *The Creation Kit*, respectively, as a means to encourage players/modders to produce content)

- The compatibility between different combinations of software, hardware, file types, operating systems, etc.

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[51] For example, in the case of John Carmack and *Doom*, he designs the game to support modding, despite some resistance at his company (Kushner, 2003).

As these lists reveal, modding-in-practice is not always a straightforward or simple affair; however, this often stems from a game developer's unwillingness to accommodate modders. It is fair to say that every videogame *could* be modded, if the developers allowed/supported it. Yet, the relationships between game developers and modders are not always positive. Sometimes, modders are driven to ignore legal restrictions and to create what they desire anyway. Due to the potential for legal complications, it is in the best interests of any modder to conduct adequate research to determine what level of obstacles they are confronting.

From the research phase, having identified possible constraints to modding, one moves into the **organization** or outlining phase. At this point, the modder plans, in broad strokes, what the organizational structure of their mod will be. Due to the fact that mods can vary vastly in terms of degree of change and complexity, this phase helps the modder to visualize how their idea will fit into the game. In a sense, the modder "stakes out" their "claim" in the game, pin-pointing the specific areas within the game's architecture into which they can intervene, and perhaps beginning to construct "test" builds, which are often referred to in gaming parlance as **debug builds**, whose purpose is to serve as semi-functional place-holders for future development and testing of interactive features. Creating a **debug room** can be a useful way to approach this phase; such a room (or space) is separate from the main game-world, not unlike how a written outline is separate from a written draft, and is intended purely for the modder to experiment, arrange, and play with the game elements they are concerned with for their project. If the modder plans to construct their own external assets (such as image-based texture files, 3D

objects, or snippits of code called "scripts" which function as extensions of the game's original code), they will likely begin the preliminary sketching-out of these during this phase as well.

It is worth noting that much of the outlining phase, and the preceding phases, can be accomplished without necessarily possessing all the tools or knowledge that will be required to actually draft a functional, playable version of the mod being envisioned. In this sense, the first three phases of this modding composition process can be seen as **theorization**. Any game designer knows that this is where their imaginative talent shines the brightest and has the most impact—before things have been "set-in-code." Many aspiring game designers, like myself, have theorized projects in extensive detail that have never and will never manifest in-actuality, for a variety of reasons; nevertheless, theorization is where much of the fun of game design lies, though hegemonic logic often looks down on that which cannot be made "manifest." The potential of modding theorization for pedagogical purposes will be a topic of Chapter 5.

The next three phases are dedicated to practical **building**. When building a game from scratch, the more resources that can be invested into this phase (labor, time, money), the more quickly and efficiently it can occur, which is why the videogame industry is famous for its multi-million-dollar projects featuring elite teams of specialized talent working on fast-paced schedules. Modders are able to leverage some of that industrial-capital by making creative use of what has already been professionally produced; this is one of the appeals of modding as a rhetorical practice, [emerging as it does in-response to an overwhelming resource-divide between producers and consumers].

The **drafting** phase contains the bulk of dedicated building. The amount of building work required will depend on the size of the project; small, simple mods, such as one to change the texture of a single object, can take as little as a few minutes, while sweeping total-conversions or custom world-spaces will likely take months, if not years, of multi-focused (across various tasks) labor. Out of this phase a tangible "build" may emerge—a working version of the mod, capable of being tested.

The necessity of multiple tiers of game "testing" is widely accepted in game design circles. So-called **alpha** and **beta** testing resemble the tasks of **revising** and **editing**, respectively, which are the final[52] two phases of a model modding/composition/game design process. **Alpha testing** involves allowing a limited number of **playtesters** to interact with functional segments of gameplay with an eye towards improving the overall functionality and experience of the design. **Beta testing** typically involves interacting with a version of the game/mod that is nearly finalized, but with an eye towards uncovering hidden **bugs/glitches** or other problems that eluded detection during the earlier phases—this latter phase of testing will often involve a much larger number of playtesters, who will hopefully reveal, through their varied approaches to the available gameplay, any "unpolished" aspects of the design being tested.

Ultimately, modding should be seen as a type of multimodal, electrate composition, which means working with various media forms while simultaneously

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[52] "Final" is included with this caveat: the composition process never truly begins or ends; rather, at a certain point, one has to "stop" and move on, perhaps to return to the composition again someday, revisiting one, or all, of the phases of the process again.

playing, learning, and adapting to technical and contextual constraints. The heuretic

process outlined above, while modeled after a literary-apparatus writing process, takes on

distinctly electrate attributes when confronting the digital videogame medium. For the

remainder of this chapter, I will detail how I approached the modding of one particular

game, Bethesda's *Fallout 4*, which I chose for the following reasons:

- I am a long-time fan of the *Fallout* series. It helps to like the things you're
  modding, though it's not a requirement.

- I have thoroughly played *Fallout 4* in its original, unmodded form (including the
  official DLC installments *Nuka World*, *Far Harbor,* and *Automatron*), and thus
  am familiar with the game's narrative and thematic elements as well as its
  gameplay mechanics; I see much about the game to be praised, but also just as
  much, if not more, to be critically examined. Critique is a goal of mystoriography.

- Bethesda provides *The Creation Kit*, a comprehensive software engine/modding
  tool, as a free download to owners of *Fallout 4*, and have recently streamlined the
  process of uploading mods to their official servers as well as installing them
  within the game itself; due to Bethesda's promotion and distribution of the *CK*,
  their games have relatively highly active modding communities out of which
  resources and documentation are often shared, making learning to use the *CK* that
  much easier.

- The *Fallout* series is set in the "real world," by which I mean a version of Earth
  featuring recognizable geopolitical, cultural, and historical references—in
  particular, the games have been set in and around specific cities across the USA,

including San Francisco, California (*Fallout 2*) Washington, D.C. (*Fallout 3*), Las

Vegas, Nevada (*Fallout: New Vegas*), and Boston, Massachusetts (*Fallout 4*); this

makes the game an obvious canvas for bringing-in my own specific geopolitical,

cultural, and historical[/mystorical] references, and revealing/suggesting ways for

other modders to do the same.

- *Fallout 4* is a Triple-A title, meaning it had among the highest development

  budgets in the videogame industry; as a modder, being able to leverage such high-

  quality assets means being able to more easily build mod content of equal/similar

  quality to the original game.

- *Fallout 4* features high-definition-rendered 3D environments and textures with

  dynamic lighting—in other words, it has "good graphics," and I want to

  demonstrate that modding does not necessarily become more difficult the more

  advanced a game's graphics engine is, as well as explore some of the rhetorical

  affordances of high-end graphics.

- *Fallout 4* uses a 1st person "behind-the-eyes" camera perspective for players; this

  design feature mimics a person walking/running around a 3D environment, and it

  creates a more true-to-life/personal gameplay experience (than 3rd person floating

  cameras or top-down "god camera" perspectives, for example), allowing the

  player to more easily imagine themselves as moving through and interacting with

  objects directly in front of them in the digital world.

- *Fallout 4* is a feature-rich game by contemporary standards; there are many

  different gameplay mechanics, each with a range of rhetorical affordances that

can be re-appropriated by modders. While it might be easier to analyze a feature-minimal game (such as the minimalist 2D indie game *VVVVVV* (2010), whose only mechanics are left and right horizontal movement, shifting gravity up or down, and single-input object interaction), feature-rich/mechanically diverse games like *Fallout 4* offer more access points for modding intervention—they are not necessarily more difficult to mod because modders need not intervene in every available feature or mechanic, only the ones that serve their rhetorical purpose.

b. Invention

Modding starts with simply playing games—over time, a player can begin to identify the elements that comprise a game, see how they work together, and imagine how they could be changed.

The experience of gameplay reveals how the player relates to a game; it may affect exhilaration, fear, anxiety, triumph, anger, frustration, sadness, or any other emotion, and these feelings point to a confluence of stimuli produced by the game and internalized by the player. A game is nothing without players, just as a book or film is nothing without an audience. Every player experiences games from their unique perspective, and the interplay between game and player forms the basis for invention in modding. It helps to play critically with a mind towards learning and theorizing about the game—asking what the game does well, and what it doesn't—but even casual gameplay can, and often will, lead to inspiration. Ideas for mods can be small or large, simple or complex, shallow or deep, realistic or un.

Many gamers feel strongly about their favorite games NOT being altered; their attachment to their personal experience of the game may make them resistant to change, and so they prefer not to use mods when they are available to them. Discussions about modding often address issues of "authenticity" in gameplay—some gamers desire to experience games as their official (corporate) developers intended. Such a mindset reflects an adherence to literary-oriented (and neo-liberal) thinking, where the source of authenticity is an entity known as "author," whose work is their intellectual property. Electrate thinking, influenced by post-structuralist notions of the "death of the author," sees both creator and audience as involved in shaping the meaning of a piece of media, thus de-centralizing authenticity from a singular source. Nevertheless, if a modder agrees with what they perceive as a developer's intentions for a game, they may attempt to emulate the developers' style and ethos as closely as possible. In modding parlance, adherence to a game's apparent official narrative and aesthetic style produces mods that are "lore-friendly;" adherence to a game's apparent official mechanics (which are assumed to be properly "balanced") produces mods that are "non-game-breaking." These issues may or may not be of concern to modders, depending on their rhetorical objective in modding and their relationship to the game and its official developers.

Using *Fallout 4* as an example, a gameplay-based, analytic invention process is outlined below, assuming no prior knowledge of the game. The outline is broken into sections based on game mechanics, which are described in order of appearance during a typical gameplay session, and loosely categorized based on clusters of related functionality (such as the various input sources and related effects that comprise

"movement and camera control"), though they are not mutually exclusive and, indeed, are often overlapping/layered to produce combined effects under different circumstances. Analyses of each mechanic from a modding perspective follow each description.

I.   Title Screen

When the game is started, after a few corporate logos are briefly displayed, the title screen appears: in the background, a slowly panning and zooming camera reveals different views of a dusty workshop, introducing the game's 3D graphical style. Super-imposed in the foreground, a short menu is presented in a green text-box: "New," "Load," "Settings," and "Crew." The Settings submenu offers numerous options for adjusting graphical quality/performance, subtitle displays, button input preferences, and the game's "Difficulty" ("Very Easy," "Easy," "Normal," "Hard," and "Very Hard").[53]

Adjusting in-game Settings/Options resembles modding in some ways; the concept of allowing users to adjust features to their preferences speaks to a player-centered design philosophy that has critical intersections with modding theory. The desire to adjust a game's difficulty to make it more or less challenging has often motivated modders. For challenge-seeking players, adjusting to "Hard"/"Very Hard" is appealing because it encourages/demands a more a more strategic approach to gameplay and makes all the in-game mechanics more relevant to achieving over-arching goals. It would be possible to introduce additional Settings adjustments through modding; for example, if

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[53] This is before Bethesda released an official update adding the more challenging "Survival" difficulty.

one feels "Very Hard" isn't challenging enough, they may investigate how the game

manages variables relating to Difficulty, and find a way to adjust those variables (indeed,

in an update released several months after the game's debut, Bethesda released a

Difficulty mode dubbed "Survival," which resembles several similar endeavors by

modders, such as the "More Complex Wasteland" mod (LeCount, 2016)).

II.   New Game and Introductory Cinematic Video

When playing for the first time, or desiring to start again from the beginning,

"New" must be selected, and then confirmed. The background then cuts to black with a

small loading icon in the bottom-right corner, indicating that the game is processing data.

After the load, a cinematic video plays, introducing the game and its premise. A

narrator's voice speaks: "War… war never changes," he says, echoing words from the

introductory cinematic videos of previous games in the *Fallout* series. The scene is all

black-and-white, making it resemble a film-reel of footage from the 1940s-50s—this

serves to begin establishing the game's graphical aesthetic style, which draws heavily

from this time period. It becomes clear that this cinematic video does not utilize the

game's graphical engine to render 3D models or environments; it is included as a

conventional means of narrative introduction, resembling the style of many popular films.

There is no interactivity during the video, except for the option to skip past it if desired.

Upon starting a New game, players are presented with the same introductory

video, and then are placed at the same starting point, each time. By learning how the

game determines what occurs when a New game is started, a modder could conceivably

replace or remove the video and choose a different starting point as a means of changing how the game begins.

Introductory cinematic videos are a common feature of many videogames. Their inclusion suggests that a game engine is built to accommodate the playing of full-screen video files. A modder could change *Fallout 4*'s introductory cinematic; for example, they could remove the narrator's audio using an external video-editing program and replace it with an alternate narration track.

Professionally produced cinematic videos for mainstream videogames are made using advanced digital animation techniques, their audio/visual quality reflecting a level of resource investment that is beyond what most amateurs are capable of easily replicating. They frequently have higher graphical definition[/resolution] than actual gameplay footage, which is possible because, with video files, there is little required data processing, as compared to rendering active 3D gameplay. Unlike active gameplay, which is managed by the game's engine, external video editing, animation, and graphic design software must be used to create or edit videos.

III.   Character Creation Interface

The game begins in-earnest with an interface for customizing the player's primary avatar[54]. This is the first interactive portion of *Fallout 4*'s storyline with 3D graphics rendered by the game engine. After a cinematic fade-in from white and clouds of steam parting dramatically, a scene featuring a male and female character standing in a

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[54] "Avatar"

bathroom begins; a brief dialogue reveals that they are husband and wife, and both are getting ready for their day. The player can select both the husband and wife and adjust their default appearances using a series of option-filled menus that each control a different facial characteristic; the level of detail and control over the characters' facial features is higher than the vast majority of games featuring customizable avatars. There are a range of default appearances to choose from, representing a variety of facial types, making it easy to get started without spending extensive time exploring and adjusting all the available options. There is also a triangular interface for adjusting the characters' body types along three axes: "Thin," "Muscular," and "Large." Players can alternate between the husband and wife characters to customize them individually, but must ultimately choose one of them to serve as the player's controllable avatar and the narrative's protagonist.

The character creation interface reveals some of the game engine's native assets and capabilities related to 3D human models. Since the game allows for extensive customization of the PC's appearance, it is reasonable to assume that the same customization options could be used to create NPCs—indeed, the player chooses between the husband or wife for the protagonist, and the other one becomes the first NPC encountered in the storyline. Through modding, additional appearance options, such new hairstyles, could be added by identifying the type and parameters of 3D files utilized by the game engine, and then creating a compatible file using external software.

Fallout 4's basic control scheme for movement is a style commonly seen in 3D games. Players utilize two sets of inputs: one controlling the X-axis (horizontal spatial movement, including forward, backward, and lateral) and the other controlling the Y-axis from a fixed, upright position on the X-axis (directional orientation of the camera, including panning up, down, left, and right). For keyboard-and-mouse based inputs, the QWEASD keys control the X-axis, and the mouse controls the Y axis; gamepad/controller-based inputs commonly use the poplar dual joystick design[55]. There is also a button for "jumping," which allows for a short burst of vertical movement, with in-game physics realistically simulating Earth's gravity. The game is set to run with a first-person camera perspective by default, meaning that directional orientation of the camera simulates turning one's head to look around a 3D environment from a fixed position behind the avatar's "eyes;" from this perspective, the player typically does not see their own avatar, except for as a pair of arms and hands that reach out from behind the camera. There is also an input option to toggle a third-person camera perspective, which zooms-out from the fixed, behind-the-eyes view to reveal the player avatar, which anchors the camera in the center of the screen; directional orientation controls cause the camera to orbit around the player avatar, and the Z-axis can be adjusted within a limited range to be closer or farther from the avatar. This style of input may feel second-nature to

[55] Dual joystick design for controllers

experienced players of 3D games, but it takes practice to become comfortable with it; as it is essential to gameplay, it can pose a learning curve for new players.

Movement and camera control mechanics in a 3D game are important because they help simulate the experience of space. The speed of movement can be adjusted to resemble walking, running, or even sprinting. Like many games that use a grounded, humanoid-avatar-based perspective, vertical movement is mostly limited to jumping, though there are some exceptions (swimming and jet-pack mechanics appear later in *Fallout 4*, allowing for different types of vertical movement). From the first-person perspective, the overall effect of movement and camera control simulates the experience of free horizontal movement and directional orientation, and gives players the ability to look at nearby objects in the game world more closely. The option of switching to a third-person perspective opens up additional affordances, particularly the ability to see one's full player avatar, which is appealing in a game boasting extensive character customization options. Through modding, the variables controlling the player's speed while running or sprinting could be adjusted for allow for faster horizontal travel; the restrictions on vertical movement could also be lifted, allowing players to move freely up and down without being subject to the game engine's simulated gravity. On a more rudimentary level, the native affordance of movement simulation makes it possible for modders to create/alter things and places to be spatially investigated and explored.

V. Object/NPC Interaction

This is perhaps the simplest and most comprehensive mechanic to execute for the player, yet it possesses extremely broad applications. *Fallout 4*'s 3D virtual environments

can be said to be comprised of three basic elements: terrain geometry (which forms the ground/foundation of an area), textures (which alter the surface appearance of terrain geometry), and objects—the latter includes all 3D and 2D pieces that collectively populate the terrain of any area (for example: trees, books, doors, food, guns, toys, computers, furniture, clothes, trash, and NPCs, to name only a few). Many objects in *Fallout 4* are set to be interactable with the press of a single input button, which typically triggers some kind of effect—often, objects intended for similar purposes will share similar effects (i.e., most doors function similarly to each other, as with food objects, NPCs, and weapons). When an interactable object is in the player's crosshairs (meaning under their mouse cursor's position or in the center of the camera, depending on control inputs), a descriptive name is displayed as text in the lower-right quadrant of the screen, and available input buttons are displayed (usually just one, though some objects have alternative interaction input options). To interact with any object, the player avatar must be spatially positioned "in range" of it—this typically equates to roughly arm's length. Examples of environmental interactions in the opening gameplay portion of *Fallout 4* include: interacting with the player character's infant son, Shaun, triggering a short line of dialogue and an animation of the player avatar leaning over his crib and tickling him; interacting with Shaun's spaceship-themed mobile, causing the object to animate by spinning for a brief time; interacting with the front door, causing it to swing open, and triggering a dialogue interaction with an NPC who is standing behind it.

In theory, any existing effect can be linked to be triggered by interacting with any object in the game. Modders can also add new effects, or combine other existing ones in

creative ways. For example, a common object in *Fallout 4*, the soda bottle, could be modded to, upon interaction, trigger an explosion at the player's position, instantly teleport them to a distant location, open a locked door, display a custom text notification, or grant them the ability to jump twice as high as normal.

VI.   Interactive Dialogue Interface

Fallout 4 features a dynamic interactive dialogue system which simulates rudimentary conversation. Many NPCs, when interacted with, will trigger an interface for dialogue: the camera zooms-in and centers on the NPC (when in first-person mode), some lines dialogue are delivered (often with professional-level voice-acting as audio), and the player is presented with one or more options for responding to the NPC's dialogue. After a dialogue option is chosen by the player, their avatar will deliver some lines, and a wide range of effects can be triggered (similarly to basic environmental interaction, nearly any effect can be triggered by linking it to a dialogue option). Many dialogue options the player can choose are consequential and will be tracked by the game engine, leading to different options being available in future dialogue interactions—for example, being rude to an NPC through chosen dialogue may trigger in them a relatively negative disposition towards the player in future interactions. Many of the player's actions and choices outside of the dialogue system still influence it, making it a central gameplay mechanic that can produce many different outcomes. The interactive dialogue system is the primary means of conveying *Fallout 4*'s branching-path narrative[s].

As a storytelling tool, the interactive dialogue system has near-infinite potential for modders. By introducing new NPCs and dialogue into the game, modders can express

subaltern political views or tell a story of personal significance. The ability to incorporate

voice-acting/audio into the dialogue system means modders can literally add their voices

to the game, and through interactivity, engage in simulated, digital conversations with

many players.

VII.   Notifications

In *Fallout 4*, a notification is a text-based message that appears in the top-left

corner of the screen; their appearance does not interrupt gameplay, and their purpose is

usually to inform players of pertinent information in a brief, comprehensive, and

unobtrusive message. They often provide useful descriptive details, instructions, or

reminders. By default, the game will automatically save the player's progress at certain

points, and a notification is always displayed when this occurs.

Notifications can be triggered by most in-game actions, making them a versatile

tool for communicating to plyers. Modders could use this mechanic to display an update

whenever a certain variable changes, or provide useful instructions for completing a task.

While most notifications in the native version of the game are primarily functional, a

modder could subvert this purpose to incorporate notifications that provide creative meta-

commentary on the player's actions, such as displaying the text "You shouldn't have

done that" when certain conditions are met.

VIII.   Interactive Prompts

Unlike notifications, interactive prompts interrupt gameplay by pausing all movement in the 3D world, allowing the player to focus on what is being displayed in the prompt. Prompts can convey information critical to gameplay that may be too important to leave as a notification, require the player to make an immediate choice among available options, display narrative details (for example, finding a discarded note written from the perspective of a certain character), or serve as a situational menu-style interface with various options displayed. In theory, prompts can be used to trigger any in-game effect, and are therefore highly versatile.

Modders could use prompts to explain new features they've added to the game, provide instructions/hints to accomplish a specific task, convey narrative details, or offer a menu of listed options to select from. They could also be deployed as user-friendly in-game interfaces for easily managing/adjusting certain important gameplay variables or inputting custom user data to be stored for future use.

IX.   Scripted Events

An "event" in *Fallout 4* describes any series of related animations, dialogue lines, interactions, and/or effects that occur over a period of time in response to some trigger activated by the player. Triggers that initiate scripted events can include nearly anything, but the most common ones are interacting with an object, moving into a designated area, or choosing a specific line of interactive dialogue. Some events, particularly those which convey the game's main storyline, are intended to only occur once (such as answering the door and speaking to the salesman NPC in the game's first playable scene, which triggers

a series of subsequent events that drive the story forward) while others occur repeatedly under specified conditions (an NPC may be programmed to follow a looping routine that simulates a scheduled lifestyle, such as a store-owner getting out of bed, walking to their place of business, fixing a broken object, sitting in a chair to eat, then returning back to their bed). *Fallout 4*'s game engine employs "radiant" events, which are intended to occur suddenly and unexpectedly while the player is exploring; they incorporate a degree of randomness and/or conditional variables towards the purpose of diversifying players' experiences, such that every player is not expected to experience every radiant event in the same order or manner. It is not always clear what triggers radiant events to initiate, but it usually comes down to being in the right place, at the right time, under the right conditions (for example, there may be a 70% chance of encountering and being confronted by unique NPC upon moving into a certain area, but only while the player possesses a specific item). Using radiant triggers to initiate scripted events can lend gameplay a responsive, organic feel. If the interactive dialogue system is the primary means of conveying *Fallout 4*'s narrative, then scripted events (which typically occur outside of the dialogue interface) are a close secondary.

Modders can craft intricate series of scripted events by linking together existing triggers, animations, and effects. Scripted events can be useful for pushing a storyline forward with a scene featuring animated NPCs delivering lines of dialogue, leading the player from point A to point B, or enriching the game world to make it feel more "lively" and active. In addition to their narrative affordances, scripted events can form the basis of entirely new mechanics—for example, adding an object that, when activated, causes any

nearby NPCs that are marked as hostile to the player to become friendly, and then start singing and dancing, until the object is activated again (in which case the scripted event consists of the initial object-based trigger, removal of hostile traits, audio playback, and an animation loop).

X.   Hard Pause Menu

A "hard pause" is a feature that completely stops gameplay (i.e. all movement in the 3D world ceases, all dialogue halts, etc.). In *Fallout 4*, hard pausing brings up a system menu similar to the Title Screen's; it lists options for saving the game, loading previous save files, accessing game settings, etc. Because it is always accessible, a hard pause will be commonly utilized by players when they desire to stop gameplay for a period of time, for whatever reason, and then return with the confidence that nothing about their game state has been altered. The hard pause menu is also where, after post-release patch, an option for managing mod files can be accessed.

Hard pausing is a convenient feature when gameplay must be interrupted. It is also a place where options relevant to meta-game features (things that are "outside" of the game world, such as graphical settings, etc.). Modders could theoretically add additional functionality to the hard pause menu. One could also potentially disable the hard pause feature, removing the ability to interrupt moments of intense combat to think, or the ability to save the game data whenever the player desires, to impose an extra challenge on players.

Soft Pause Menu, AKA The "Pip Boy"

Fallout 4's "Pip Boy" is a ubiquitous object within the series' lore that functions

as a player character's personal computer for accessing/managing a range of information

and data relevant to gameplay. After the Pip Boy is acquired early in the game, the player

avatar wears it on their wrist, and players can access its various functions by pressing its

associated input button; this causes an animation wherein the avatar raises their forearm

to check the Pip Boy's screen, which is then zoomed-in on and brought into clear focus.

Accessing the Pip Boy constitutes a "soft pause"—movement in the game freezes while

the Pip Boy is displayed, but many of its available functions actively affect the game

world in real-time, so it is unlike a hard pause during which the game state remains

completely unaltered. Most information about the player character and their progress in

the game is accessed via the Pip Boy's menus, which includes the following primary

sections: "STAT" (stats), "INV" (inventory), "DATA" (information related to quests or

other discoveries), "MAP," and "RADIO." The Pip Boy seems designed to make dealing

with these numerous details feel like an immersive part of gameplay, given its highly

stylized interface and use of custom animation (when switching between menu sections,

the player avatar's fingers are shown adjusting a dial on the in-game device) though in

practice it is clearly interruptive.

As a system of menus, the Pip Boy can be altered by modders to include options

for initiating or toggling any effect imaginable. Not unlike the aforementioned interactive

prompts, the Pip Boy usually serves as an interface for accessing specific functions.

Interestingly, the Pip Boy can also serve as a screen upon which games within the game

of *Fallout 4* can be played—the vanilla version includes a few titles based on 2D, retro-arcade gameplay. By discovering how these games are implemented and their technical constraints, modders could add entirely new Pip Boy games, or alter existing ones.

XII.   Quests

"Quest" is a term deployed in many RPGs to describe any task with an ultimate goal that is achieved by completing one or more gameplay objectives that the game engine keeps track of; often, as in *Fallout 4*, there is a "main storyline" which unfolds over a series of related quests, and then numerous, optional "side-quests" that provide additional narrative details and in-game rewards, and may (or may not) have no direct bearing on the main storyline. Individual quests have titles which are listed in an interface known as the quest menu, accompanied by relevant details/hints and a list of specific objectives. Objectives for quests vary in nature, but when their conditions are fulfilled, a notification will be displayed; when all of a quest's objectives are fulfilled, "Quest Complete" will be displayed next to that quest's title. As the player explores and completes quests, they receive various in-game rewards and discover narrative details. Quests provide a clear narrative structure and help players to navigate numerous storylines that may occur in varying sequences, depending on their individual choices.

Quests, for modders, are like containers for related scripted events and interactions. New quests added by modders can be triggered through any event, such as moving into a new area or choosing a specific dialogue option. Custom objectives that guide players to specific locations, counters that keep track of specific variables (such as the number of "tin can" items in the inventory), and count-down timers that impose a

specific duration during which certain tasks must be completed; these are all common mechanics in the main game that can be re-appropriated for various purposes, then managed/tracked through the Quest menu via the Pip Boy.

XIII.   Exploration and Navigation

Navigation of *Fallout 4*'s sprawling 3D world is simplified and streamlined through use of the HUD compass at the top of the screen. The compass indicates which direction the player avatar is facing, and also displays various marker-icons indicating important locations or quest[56] destinations, and how far away they are. One Quest at a time can be set to be "tracked" through the compass, allowing the player to focus on locating destinations related to a chosen objective without being distracted or confused by others. Detailed maps are also available to be viewed by players in an interface via the Pip Boy's "MAP" menu; these maps are divided into two types, "local" maps, which depict interior spaces (such as inside buildings or caves), and "world" maps, which display large exterior spaces known as a "worldspaces;" worldspaces usually contain numerous interior spaces, and whenever travelling between the two, a loading screen will be displayed.

Adding accurate, custom maps allows modders to maintain the vanilla game's tradition of including a map for nearly every location, though it is possible to include areas without any associated maps, which could pose a new navigation challenge for players. Unless the game engine automatically generates maps based on data from the

game's 3D environment, they would need to be custom-made in a 2D graphic design program, saved into a file-type that is compatible with *Fallout 4*'s engine, and then imported into the *Creation Kit*.

XIV.   Inventory Management

Many objects in *Fallout 4*, when interacted with, can be added to what is known as the player's "Inventory." The most basic process for this involves the player locating an object in the 3D game environment, placing their crosshairs over it, and then pressing the input for the interactive prompt labeled "TAKE," if it is available. The object will then disappear from the 3D world and be visible in the Pip Boy's "INV" menu, which is subdivided into the following sections dedicated to the main object classifications that are relevant to gameplay: "WEAPONS," "APPAREL," "AID," "JUNK," "MODS" (referring to inventory items whose purpose is to modify the attributes of weapons, not to be confused with mod files made using the *Creation Kit*), "MISC," and "AMMO." Objects fitting into these categories can be considered as separate classes (in the OOP sense) of items, with each menu category possessing certain attributes that make items listed in them functionally similar. For example, all weapons have similar attribute-variables such as damage and durability, while all aid items have a completely different set of attributes; apparel and weapons can be "equipped" and remain in the player's inventory after use (and also appear in the game-world on the character's body or held in their hands), while aid items produce a specific effect and then are "consumed," causing an instance of the object to permanently disappear from the inventory. Having certain items in the player's inventory is a common requirement for quests. Items in *Fallout 4* usually have a "value"

attribute associated with them, which relates to that item's conversion-ratio into a unique class of item that is tracked at the bottom of the "INV" menu: "caps" (represented by a circular icon with a "C" in the center), which refers to bottle caps, the *Fallout 4* universe's post-apocalyptic currency, which is used to barter with merchant-class NPCs for items in their inventories. Aside from "taking" items in the 3D environment, items may also be added to the inventory by interacting with a "container" class object, which causes an interactive prompt to appear with a textual list of available items to take (merchant class NPCs are functionally similar to containers, though caps are usually required to take items from them), or the game engine may automatically add an item to the player's inventory as a result of a certain interaction (such as choosing a certain dialogue choice, causing an NPC to "gift" the player an item). One feature of *Fallout 4*'s inventory system that poses a challenge is that (almost) all items have a stacking "weight" attribute, and past a certain threshold of that variable, the player's movement speed and combat ability is reduced (among other drawbacks).

For modders, adding new or modifying/replicating existing inventory objects is a concrete and straightforward task; this is a likely starting point for any modder working with *Fallout 4*, or object-oriented SDKs in general, because regular gameplay familiarizes players with the functions and attributes of existing inventory items. For example, they learn that the "damage resistance" attribute listed on all pieces of apparel affects their combat survivability, and that a high number for that variable is usually desirable, though it may come with trade-offs like a higher "weight" attribute. A rudimentary mod might involve duplicating an existing high damage resistance piece of

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armor, re-naming it as a new object, and then editing the "weight" variable to be smaller; beyond that, a huge range of effects can be linked to and triggered inventory items. A more complex mod idea might involve editing equipable apparel items to trigger specific dialogue reactions from certain NPCs, since most NPCs usually don't react to the player's clothing/armor (meaning avatars dressed in fine clothing are usually treated the same as those in spiky raider gear).

XV.   Character Progression and Attribute Management

Many triple-A RPGs heavily emphasize character customization through a process of acquiring "experience points" (a variable which increases incrementally to reward players for completing quests or other objectives), "leveling up" (reaching a threshold number of experience points which triggers some sort of positive effect for the player) and progressively selecting options that influence various aspects of gameplay (allowing players to experiment with and/or refine their "playstyle," or unlocking certain content/mechanics). *Fallout 4* is the same in those regards, and boasts a uniquely robust range of options for players to choose from, many of which are tied to the series' trademark attribute matrix: the "S.P.E.C.I.A.L." system. The acronym stands for the player's primary attributes: "Strength," "Perception," "Endurance," Charisma," Intelligence," "Agility," and "Luck." Early in the game, the player is prompted with an interactive dialogue interface to distribute 28 points into each of these stats, which determines the PC's initial abilities. Each of the S.P.E.C.I.A.L. categories has a related series of "perks," which are special abilities that can be helpful for overcoming certain challenges; these are unlocked by spending points earned at a level-up. For example, the

"Strength" attribute affects how much "weight" a player can comfortably carry in their inventory, and also how much damage they deal to enemies with melee weapons (such as baseball bats and sledgehammers); upon leveling up, players with at least 2 points in Strength can acquire the first tier of the "Big Leagues" perk, which increases the PC's melee damage. The certain events (such as the completion of quests) automatically grant players unique perks or increase S.P.E.C.I.A.L. attributes without requiring them to spend level-up points.

The rate of character progression is calibrated according to experience points received, which varies based on the game's difficulty setting. Many in game activities— like hacking into computer terminals, killing enemies, and completing quests—grant experience points. Modders could adjust the amount of experience points received for certain tasks to make the rate of character progression slower or faster, which would facilitate two very different gameplay experiences: the former making progression occur over a shorter span of gameplay and thus granting access to more perks sooner, and the latter making progression occur over a longer span of gameplay and thus limiting the accumulation of perks. Modders could also add entirely new perks, or modify the effects of the game's built-in perks; for example, some perks are far more situational than others, and as a result are less appealing/useful to most players; replacing or enhancing the less useful perks would open up more viable playstyles and progression paths. Given that S.P.E.C.I.A.L. attributes are fixed after being initially selected, modders might want to add more options for adjusting skill points (such as adding more items that permanently increase attributes).

XVI.   Crafting and Settlement Building

Crafting in *Fallout 4* involves acquiring items of a special class named "components." Components can be found in the same way as any other item (by picking it up in the field or retrieving it from a container), but they can also be acquired by "scrapping" other inventory items (such as weapons and armor) or, sometimes, pieces of debris (burnt-out cars, trash piles, etc.) that litter the world map. Debris can only be scrapped in special areas known as "settlements," the first of which is introduced early in the game—others can be discovered by exploring the world map. Items can be crafted by interacting with special objects called "workbenches," which brings up an interactive prompt dedicated to all things related to crafting. Different classes of items can be crafted depending on the PC's S.P.E.C.I.A.L. attributes and perks; for example, six intelligence points makes the "Science!" perk available to choose at level up, which unlocks a range of craftable items featuring advanced technology. In addition to inventory items like medicine, weapons, and armor, players can craft items to be placed nearly anywhere in settlement areas, allowing them to decorate and customize entire locations. Adding certain items to settlements increases their viability stats, which include food, water, beds, and protection; viable settlements can attract NPCs called "settlers" who can be directed by the PC to engage in specific tasks (like running a shop, tending some crops, or manning a watch-tower).

Rather than place newly created items in a particular location in the game world, modders might prefer to make their item craftable at one of the game's many workbenches, choosing what components and prerequisites (attributes, perks) would be

required to make it. When adding new settlement-oriented items, making them craftable

is a requirement (all settlements have a workbench). While 3D models for existing items

can be re-appropriated (for example, by reskinning them), new 3D models can also be

added to the game as long as they are a compatible fire format. Since settlements are the

only locations in the game where players can craft items that can be placed while in-

game, the potential for introducing new building-pieces that add character and style to

these customizable areas is huge—these spaces often serve as a "home base" for players

and their avatars in the game world, and may come to acquire a special significance to

them. Bethesda has released numerous additional craftable items with their *Fallout 4*

DLC, though different players will likely desire all sorts of settlement-oriented items that

have not been officially added, thus making modding a necessity for incorporating the

many potential omissions that would make for a more diverse game world.

XVII.   Combat and V.A.T.S.

For an RPG that bills itself as choice-based, implying that players can take

numerous routes and employ various playstyles to completing many objectives, probably

90% of *Fallout 4* is all about combat. YouTube videos recording attempted "pacifist"

playthroughs of the game—where the PC does not kill anybody—reveal that it is

impossible to avoid combat situations (a work-around for pacifists involves the charisma

attribute and empowering various "companion" NPCs to fight in the PC's stead, though

of course this still makes violence a necessity). Numerous scripted events in the main

story quest will initiate objectives requiring the killing of particular characters, which is

usually achieved through combat. Combat simulation is by far the most complex,

nuanced, and detailed system of mechanics in *Fallout 4* (dialogue and interaction

mechanics are, comparatively, rudimentary); it draws upon other mechanics like

inventory management and character progression, which are designed to be utilized as

part of preparing for and engaging in combat situations (equipping weapons and armor,

using medical items, choosing perks to give advantages, etc.). Every S.P.E.C.I.A.L.

attribute has some bearing on combat, often in multiple ways.

By default, combat occurs in real-time in the 3D world; pressing the "use

weapon" input triggers whatever weapon the character currently has equipped to be used

(if it is a gun, it shoots; if a melee weapon, it is swung; if a grenade, it is thrown), and

enemy NPCs will attack with their own weapons based on their AI settings (some NPCs

are sniper-types and stay mostly in one spot to shoot at the PC when at sufficient range;

others are programmed to charge directly at the PC whenever they are in sight; others

utilize stealth and attempt to ambush the PC). However, *Fallout 4* offers an alternative to

real-time combat (which is the norm in FPS style games) that involves use of a unique

mechanic called "V.A.T.S." ("Vault-Tec Assisted Targeting System") which, when

activated, slows the in-game time down to a crawl; if there are enemies within range of

the PC, V.A.T.S. will automatically detect and allow the player to cycle through available

targets; on each targetable NPC, there may be several available regions to target (such as

the head, legs, arms, or—in the case of some robotic NPCs—power cells). Then,

depending on the player's attributes ("agility" plays a major role here), they can execute

one or multiple targeted attacks that have a given percentage chance to be successful, as

well as a smaller chance to be a "critical hit" (which multiplies the damage dealt to the

target, dependent largely on the "luck" attribute). V.A.T.S. can be seen as a compromise between the FPS and RPG genres that *Fallout 4* combines; while real-time combat is highly optimized and players never really need to use V.A.T.S., it is an appealing feature to players who are perhaps less proficient with the FPS aiming and shooting controls, and for expert players, may be useful if they are overwhelmed by NPC attackers and need to slow things down to strategize.

Modding the combat system in *Fallout 4* would entail identifying some specific points of entry in existing mechanics. In professionally developed games, much attention is paid to "balance" in combat mechanics, ensuring that certain playstyles and/or items are not "overpowered" or "underpowered," thus maintaining a certain level of challenge that is intended to appeal to all players. Modders might desire to further balance the game beyond the developers' version, having identified through regular play some "game breaking" feature that renders most combat trivial. Or, they might simply want to playfully break the game, adjusting combat to produce weird, glitchy, or over-the-top effects; for example, a mod could produce an effect that causes all hostile NPCs within a certain proximity of the PC to automatically have their heads explode like bloody balloons by dealing an excessive amount of targeted damage. Modders could disable the V.A.T.S. mechanic entirely to emphasize real-time gameplay, or introduce a new resource that limits the use of V.A.T.S. (such as making it require the use of rare power cell items). Given the intricacy of *Fallout 4*'s combat system, modding it is likely one of the more challenging tasks a modder could undertake, though because of how pervasive combat is in the game, small, subtle changes to individual mechanical systems might

produce significant differences in gameplay experience. It would also be an interesting modding challenge to produce a version of the game where combat de-emphasized, made less essential, and/or there are more options to avoid it or stop it once it has started.

XVIII.   Radio

A final mechanic that merits mentioning is deployed primarily in an aesthetic, rather than functional, capacity: the PC's Pip Boy has a functional radio that can detect signals from radio stations within certain areas of the *Fallout 4* landscape, allowing players to enjoy some flavorful music and radio-host banter as they travel across the vast wasteland. Turning on the radio is entirely optional; players can opt to leave it off and will then hear only the game's ambient soundtrack. Yet the selections of music and the topics of conversation that are played over the radio seem to add depth to the world, introducing some style and culture to post-apocalyptic life. Many of the musical tracks are actual, historical songs popular during the 1930s-50s eras, including tracks by The Ink Spots and Nat King Cole—these reflect and enhance the games' 1950s retro-futurist aesthetic; there are also some original arrangements done in a distinctly old-school style (such as a series of songs by a club singer NPC named Magnolia).

Modders could, with relative ease, introduce many new radio playlists. The radio mechanic offers a means of bringing music into the game in a way that does not break immersion—indeed, it enhances it, since a lack of it would imply a world full of people with no interest in listening to music (it's doubtful that even the apocalypse would put an end to humanity's musical sensibilities). Of course, in addition to music, audio content

similar to a podcast could be imported into *Fallout 4*, allowing modders to inject spoken commentary on any topic they might desire into the game itself.

c. Research

I. Initial Research and Questions

Play is a part of conductive research as well as invention; through gameplay, one gains not only ideas about how they might alter the game, but functional knowledge of the game engine; this will help identify potential affordances, challenges, and/or obstacles that will need to be confronted in this phase. Building upon an idea that emerged during the invention phase (which we will call a "**working thesis**" even if it is not a fully-fledged statement yet) electrate modders will need to begin delving into various **archives** to uncover collage material and concepts for their project, including, if possible, the archive of the game itself. At the same time, they will need to ask many **research questions** until they find the ones that resonate most strongly with their project's purpose and/or relate to a mediated experience of **punctum**. The research phase also involves gameplay, but typically it is more advanced form of end-gameplay known as **theorycrafting** in which the player, having reached a level of mastery over the game as-such, begins to test the boundaries, limitations, and possibilities of gameplay.

As I played *Fallout 4*, I became interested in the game's aesthetic representation of the post-apocalyptic Boston area and how players might experience it differently; for me, exploring the ruins of a modern civilization (while fighting off endless numbers of enemies) was most rewarding when I uncovered, through aleatory exploration, narratives dealing with the conflicting values such as survival, justice, civilization, and

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technological progress; these are embedded all over the game world, sometimes in small instances (such as a lone raider's hut where he has written a journal about his personal journey to embracing cannibalism), or sometimes featured prominently in main story quests (as in the game's climax, which involves judgments about the status of synthetically-created lifeforms). There is also the (often humorous) application of the retro-1950s aesthetic—songs on the radio like "I Don't Want to Set the World on Fire," "Atom Bomb Baby," "Uranium Fever," and "Crawl Out Through the Fallout," and billboards/posters featuring "Red Scare" era anti-communist propaganda (one reads, "Spotted a Commie Devil? Call 1-800-REPORT-RED") and consumerist slogans (an ad for a bright-red, fusion powered sports-car blares the text: "Life is a race… win!") add a distinct, shall I say "jaunty," flavor to the game's setting. A lot of detail was put into crafting this aesthetic (both visually and narratively), and then tempering it with the more grim, severe counter-aesthetic of nuclear devastation. The songs and objects that reflect the 1950s are experienced as artifacts of a bygone era that, nevertheless, remain in the ruined world, their former liveliness dulled by somber layers of dust, grime, and ash that covers nearly everything in the game; many objects and structures are broken, falling apart, or destroyed, forcing one to guess at what they looked like when whole. Then there is the Boston area itself, which includes numerous well-known historical sites that evoke aspects of American history—particularly a mien of Revolutionary-era patriotism that is made manifest in a faction of NPCs known as the "Minutemen," which takes up residence in the ruins of Fort Independence (a real world site).

I began to ask research questions like the following:

- In what ways is this game a critique of American 1950s culture and its post-WWII notions of futurism, consumerism, and anti-communism? How far does the critique go? What are some contemporary parallels?

- As a player, through my gameplay, am I able to establish my relationship to this critique—favorable or otherwise?

- What topics seem to be overlooked, or perhaps deliberately ignored?

- Given that the 1950s was an important era for American civil rights, and that the game features music from artists who were also prominent civil rights activists (including Ella Fitzgerald and Bill Kennedy), what is the status of civil rights in the *Fallout 4* universe (which diverges from real history shortly after America's atomic bombing of Japan in 1945)?

- What does it mean to build on top of old ruins, as do the post-apocalyptic survivors in *Fallout 4*? What do ruins teach us? How are videogames like, and unlike, ruins themselves?

- Why is combat so central to gameplay in *Fallout 4*? How does dealing with constant hostilities detract from the environmental exploration aspect of gameplay which I find especially rewarding?

- What is the function/affect of Boston as a setting for the game? What would the game be like if it had a setting like my current city, Clemson, South Carolina? What narratives might a new setting allow players to confront?

From asking these questions, and in pursuing their answers, an idea for a mod begins to take shape. It would take a form similar to Bethesda's official *Fallout 4* DLC

packs, which often introduce new areas/settings for players to explore (as is the case with *Nuka-World* and *Far Harbor*). This mod would attempt to re-create a space that has personal significance to me and others in my local community: Clemson University. Far smaller and less well-known than Boston, Clemson, like any town or city, bears traces of its history and culture, even when the people are removed and the buildings are in ruins. Drawing inspiration from Ulmer's heuretic genres of MyStory and MEmorial, this project would hone-in on a local problem that I have some connection to; since I questioned the status of the American Civil rights movement in *Fallout 4*, I am led to thinking about a recent event in Clemson: protests against the name of the University's most prominent and iconic building, Tillman Hall.

Tillman Hall, I learn through following local news regarding the protests and conducting my own independent research, was dedicated to Benjamin Tillman, a violent white supremacist and SC politician who played a role in the founding of Clemson University, by some of his progeny in 1946—coincidentally, right around the time that *Fallout*'s fictional timeline diverges from the historical record. Prior to this, it was known simply as "the Main building" or "Old Main." At a time when the Civil Rights movement was ramping up, the naming of Clemson's central structure after a man who helped orchestrate two massacres against black militia members in predominantly black communities in SC, and was an outspoken racist, seems particularly telling. In recent years, the building has been marked with graffiti messages including: "RENAME TILLMAN HALL," "TILLMAN WAS A VIOLENT RACIST," "STOP HONORING TILLMAN," and "BLACK LIVES MATTER" (AP, 2016; Field, 2015; Kalsi, 2016;

Crumpton, 2016). Another pair of graffiti messages, set side-by-side, strikes a more

personal chord: "R.I.P. SEN COKER," a reference to Simon Coker, the black senator

who was murdered in 1876 by the Tillman-led paramilitary group, the Red Shirt militia,

while investigating the rampant racial violence in Aiken county; and to the right, "R.I.P.

SEN PINCKNEY," referring to Clementa Pinckney, the black SC senator who was

gunned-down in the 2015 Charleston church massacre (Volskay, 2015). Seeing these

messages in diptych, one is forced to consider connections between the first event,

occurring over 140 years ago, and the second event, occurring only three years ago. Of

course, all the graffiti is quickly removed from the building. The Clemson University

board of trustees, a group with the power to officially change the building's name, has

rejected proposals to do so, citing a common, yet facile, argument, oft-deployed in

defense of preserving the names of buildings: that such erasure constitutes a denial of

history, and that not changing the names of buildings ensures that people will confront

even uncomfortable aspects of history and, in so doing, learn from them; such was the

stance of Trustee Chairman David Wilkins when he delivered the board's verdict in a

public statement (Cary, 2015). The same line of logic was deployed ad-nauseum by

proponents of preserving confederate memorials in the subsequent, and deadly, "Unite

the Right" rally held in Charlottesville, Virginia, and that event's extensive aftermath

(Bertrand, 2017). Thusly am I led to this thought: memorials are graffiti, and graffiti are

memorials, yet graffiti is supposed to be erased, while doing so to memorials constitutes a

denial of history. Tillman Hall is not only a monument to a white supremacist, built from

bricks made by predominantly black convict laborers (a re-named form of slavery), but

an embodiment of the hypocrisy of architectural aesthetics: memorials that, in preserving one idea, erase all others that come forth to challenge its material logic, leaving no space (even the 2D space of graffiti, which is treated not as participatory authorship, but as vandalism) for subaltern viewpoints.

I decide that, at the very least, my mod will feature a re-creation of Tillman Hall, but one which is marked with the actual graffiti messages that had been erased in real life—after all, in a post-apocalyptic world of ruins, there are probably fewer people concerned with erasing graffiti (indeed, with the destruction of civilization, the status of graffiti is significantly elevated in-general). Using readymade objects/assets from *Fallout 4*, it should be possible to achieve this vision, which could become both MyStory and MEmorial. MyStorically, it already leverages archival elements that fit into the four discourse areas suggested by Ulmer in *Internet Invention* (2003): career/school, in that the setting, Clemson University, is the school that is preparing for my career, and where I have developed a foundation of theory for virtual critique; community, in that Tillman Hall is a local icon for the Clemson community, and the recent discussions regarding its renaming have provoked heated, emotionally-charged rhetoric—this is particularly visible in the comments sections of local news articles; entertainment, in that of course *Fallout 4* is a mass-market videogame designed for entertainment, intended to appeal to a broad audience, and notably leveraging the global spectacle of nuclear apocalypse as a backdrop for gameplay; and family, in that modding, as my chosen medium for expression, is something I tie to my childhood passion for telling stories in games along with my sister, and also in that I come from a Southern family where not everyone would

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agree with me about renaming Tillman Hall. MEmorially, it merges the problems of

racial hatred in the American South, resistance to subaltern perspectives on historic

monuments, and—through using *Fallout 4* as a platform—nuclear war and post-

apocalyptic hyper-violence, blurring them into aspects of the general accident in the

dromosphere; in this high-speed discourse, when does nuclear violence emerge from

racial hatred? The Charleston church massacre, among other recent violent atrocities

committed by right-wing extremists[57], are not random acts—they bear traces of a

pervasive rhetoric that Benjamin Tillman embraced, and which finds outlets all across the

South, and is particularly potent now, having been strengthened by a certain politician

whose trademark campaign slogan, "Make America Great Again," has been a rallying cry

for defenders of white supremacist memorials and anti-white sentiments (Miles, 2017).

Recognizing this, my Tillman Hall MEmorial is also intended to be an interactive

mourning space; ideally, players could add their own graffiti comments to the walls of

my virtual ruin, which exists in a post-apocalyptic America laid to waste by its supposed

greatness, transformed into a playground where nearly all the rules for play (mechanics)

revolve around violence—indeed, in *Fallout 4*, the ultimate weapon in many respects is

dubbed the "Fat Man," a portable launcher of miniaturized nuclear warheads; named, of

course, for the actual atomic bomb detonated over Nagasaki, Japan (Atomic Heritage

Foundation, 2014). A troubling figure—an anti-image of wide-scope—appears: Dylan

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[57] The Anti-Defamation League's Center on Extremism published a study revealing that, in the
last decade, far-right extremists have caused 71% of all fatalities in instances of domestic terrorism,
suggesting a disturbing trend in far-right rhetorics (Greenblat, 2018).

Roof, in a costume like from *The Road* (an inspiration for the violent raiders in *Fallout*), wielding the Fat Man. My counter-image: Tillman Hall, castrated—its iconic clock tower collapsed—and bearing graffiti markings in mourning of an ongoing catastrophe.

II.   Identifying Obstacles and Points of Entry

As established at the outset of this chapter, modding in practice is not always easy from a technical standpoint, nor is it always permitted from a legal one. *Fallout 4* for the PC is appealing as a modding platform because it is at the forefront of contemporary videogames whose developers are supporting, facilitating, and encouraging modding (as noted in Chapter 3, Section h). I classify it as having Level 2 legal obstacles because, while its developers do permit and encourage modding, they have taken lengthy measures to exert control over the distribution, content, and development of mods. From a technical standpoint, modding *Fallout 4* is extremely accessible because Bethesda offers its SDK, *The Creation Kit* (*CK*), as a free download. The *CK* software may be intimidating to first-time users, but after dedicated study and practice its functions are revealed to be well-organized, user-friendly, dependable, and, as a bonus, extensively documented across various Internet sites, including Bethesda's official *CK* wiki: "a community-run site that is a living help file where you'll find everything you need to use the Creation Kit and make mods" ("Creation Kit," 2018). Beyond that, other users[58] have published detailed tutorial videos by recording their computer screens as they demonstrate concepts from

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[58] For many examples, see the YouTube channels of Seddon4494 (2018), Hellcat5 (2012) FelloutIsLife, (2016), and GamerPoets (2017).

and applications of the *CK*. Importantly, it is not necessary to understand the *CK* in its entirety; as revealed by the tutorial videos, it is possible to break the software's affordances down into comprehensive categories; for example, Hellcat5's (2012) video tutorial library is divided into playlists such as "creating followers," "voice overs," and "story manager," each of which instruct viewers on a distinct modding task (typically, from start to finish). For this reason, play is even more critical to the process, as it is regular gameplay that will allow players to identify the different categories of mechanics that exist in a game (as I do in in the previous section). Perhaps the most technically challenging aspect of modding with the *CK* involves the use of its unique, object-oriented scripting language, Papyrus; however, it should be noted that many modding tasks can be completed without any actual writing of code, as the software is programmed to automatically implement bits of code ("scripts") when available lists compatible options are selected from within *CK* windows.

For my mod, I know I want to re-combine/arrange existing assets from *Fallout 4* to create a representation of a new place: Clemson, SC, centered around Tillman Hall, as electronic monument. To achieve that, I must research how the *CK* facilitates the 3D arrangement/placement of objects, which is easy enough, since there are numerous tutorials detailing this exact thing. Inserting a new object in the game world that is based on an existing class of object is as simple as dragging an item from the *CK*'s "Object Window" (which is dedicated exclusively to navigating the vast archive of objects that constitute *Fallout 4*) into the "Render Window" (which is dedicated to rendering a static, but movable, 3D model of the game world, centered around specific coordinates on the

game's digital worldspace map). Simple shortcuts allow for toggling movement (via the

mouse cursor) along the X, Y, and Z axes, as well as 3D rotation and

increasing/decreasing the scale (size), of objects, as well as the toggling of light sources

(to change how the render is illuminated) while in the Render Window. I take the time to

look through as many items in the Object Window as I can, using the "search" function

and keywords to locate specific set-pieces (such as "brick," "roof," and "door"). I begin

keeping a list of objects that strongly resemble parts of Tillman Hall. I make several in-

person visits to Tillman to take photographs from every angle I am able to; these I save

into a Lightroom album for later reference.

There is also the matter of generating an accurate geography for my mod's

worldspace. Desiring accuracy so that players will be able to potentially recognize the

real-world space my mod represents, I look into how the *CK* manages topography.

According to the *CK*'s official wiki, it is possible to either manipulate the landscape

manually (by setting an "X" variable for default land and water levels and raising

portions of geometry in the Render Window using the "Landscape Editor" interface), or

by importing a "heightmap" that illustrates the precise distribution of elevation across a

given area. The wiki (2012) states: "The Heightmap editor was not used by Bethesda

Game Studios as a fully-featured tool during [development]. Outside of import/export,

the features of the tool are considered obsolete and unsupported." This leads me to focus

upon the import/export features, which I learn about via a voiceless YouTube tutorial

from user SuddleMercury, "Fallout 4 Height Mapping Tutorial" (2016). Following their

demonstration, which depicts the creation of a heightmap based off of public elevation

data from Death Valley[59] National Park in Nevada, I attempt to download a heightmap of the Clemson area from the Internet, but find that the quality of online maps is too low to realistically capture the diverse topography of the region. Luckily, as a student of Clemson University, I am able to establish contact with the school's Center for Geospatial Technologies, which shares an elevation map of the Clemson area that is exactly 4,572 meters by 3,048 meters (with each meter being equal to one pixel in the file), with an elevation range of 84 meters (determined by the image's greyscale). Importing that map into Photoshop allows me to super-impose a grid that is set to the precise ratio of the *CK*'s "units" to real-world meters (according to the wiki, 1 unit = 0.01428 m), based on a calculation of the proportional size of each "cell" (or grid square). The heightmap, when imported into the *CK*, is translated into an accurate, in-game geometry across the area of a whopping 4056 cells! (even larger than *Fallout 4*'s Commonwealth worldspace). As I learn from the documentary video, *The Making of Fallout 3* (2014), the developers at Bethesda do not necessarily use satellite maps to generate perfectly accurate terrain areas, so their rendering of Boston's topography is not quite as accurate as mine of Clemson's (it will be important to negotiate accuracy versus playability during the design process). Still, this time-saving technique could be quite useful to modders (assuming they have access to fairly accurate heightmaps, which is more common for popular areas with drastic changes in topography and few trees) trying to re-create landscapes that are significant to them.

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[59] Coincidentally, Clemson University has its own "Death Valley," the name of its football stadium.

Upon this raw, untextured geography, I am now able to begin mapping the major landmarks in my mod's worldspace, which I have dubbed "Clemson." The mapping process brings us to the organization (outlining) phase.

d. Organization

With a landscape generated in a new "Clemson" worldspace, I turn to Google Maps to identify each building/area on campus within the gridded Photoshop image, and change the names of individual cells in the *CK* to reflect their most prominent landmarks; in particular, I make note of the cells on which Tillman Hall would be located. Since, in the real world, structures aren't all built on a perfect grid, I decide to create an alternate, blank worldspace as a "debug room" in which I can arrange objects and build structures using the *CK*'s "snap to grid" and "snap to angle" options to keep everything perfectly aligned. I dub it "The Forge," and it is there that I begin laying the foundations for my version of Tillman Hall.

I use the Photoshop map to help sketch out a rough outline of the building's dimensions in the Render Window by dragging in basic "wall" objects, of which there are many options to choose from using *Fallout 4*'s existing assets. Since the walls are organized according to size in terms of stories, I am able to roughly approximate the height of Tillman Hall, which is three-stories at its base structure, and then another three-stories high for the clock tower. I then begin looking for specific objects that I know I'll need to model the building; by double-clicking items in the Object Window, I'm able to quickly bring up a 3D rendering of anything in the game, and then judge whether or not it fits into my design. I browse many objects as I search, using keywords uncovered during

the research phase as a reference, and bringing them into The Forge in loosely-arranged

clusters based on theme (a cluster of windows, a cluster of roofing, of stairs, etc.). Based

on the photographs I took of Tillman Hall, I identify comparable pieces from amongst

those I've clustered. I also discover that I can apply nearly any texture in the game to any

object in the game, and use that technique to select a red shade of bricks that more

accurately matches Tillman's (which is a critical design choice, since those bricks were

made from SC's characteristic red clay, produced by convict laborers in the antebellum

Reconstruction-era).

I follow the same process as above in outlining two more major landmarks that I

hope to eventually flesh-out in the mod: Clemson's Thomas Cooper Library, and my

favorite local oasis, Nick's Tavern. Aside from these significant areas, I plan to use the

CK's prefabricated buildings and rubble-piles to approximate other, less important (for

my purposes) structures. I discover that I can easily copy and paste entire city blocks

from *Fallout 4*'s map (filtering out everything except for building objects—there are

many invisible objects that litter the game world for various purposes) and re-use them in

my mod, fine-tuning as needed. With the cells mapped out and my major landmarks'

foundations and materials established, I can begin "drafting" the mod in earnest.

e. Drafting

Typically, the drafting phase constitutes the lion's share of labor in a modding

process. Having sketched out a few buildings and identified the objects I will use to make

them, the time comes to actually begin putting together something that will, eventually,

be seen in-game. Building Tillman Hall is a meticulous process; it takes time to align

each object so that there are no unwanted graphical artifacts/glitches/gaps, though, by

following a few video tutorials, I quickly pick up and make use of some keyboard and

mouse shortcuts that accelerate the construction effort. It makes sense to first place the

brick walls, then the roofing, then windows, trim, stairs, doors, and so forth with

increasing small details; having little experience with virtual architecture, I am building

by instinct (much in the same way I played with Legos as a kid, I feel as I go). As I draft,

I am forced to make a few more visits to the actual Tillman Hall to take pictures of

specific things that I need more visual data on. I go inside the building to get a feel for its

inner-dimensions, then climb the clock tower to feel out its height—though in my vision

for the mod, I see the tower as fallen from the shockwave produced by a nuclear bomb.

When I construct the tower, I first build it as part of the main building to ensure its

proportions are accurate; in what I feel is a clever appropriation, I discover that I can

drastically increase the scale of one of *Fallout 4*'s "street clock" objects, then place it

inside a square-shaped brick tower in such a way that the clock's face is the only part of it

that peeks through the wall texture—thus, combining existing objects to create the

illusion of an entirely new object. This technique is rather unique to modders, since the

actual developers would likely prefer to assign one of their 3D artists to create any

needed object, rather than mashing them together in a hodge-podge; still, I am pleased to

find that the illusion works in-game. In a similar design situation, I take the game's only

existing set of 2D, alphabetic letter objects (intended for use on a movie theater

marquee), and arrange them on the walls of the Hall to spell out the graffiti messages that

are central to my mod's MEmorial purpose: "TILLMAN WAS A VIOLENT RACIST,"

"R.I.P. SEN COKER," "R.I.P. SEN PINCKNEY," and, to drive the point home,

"BLACK LIVES MATTER" front-and-center, above the main entrance.

Once the building has been finalized in The Forge, it is a straightforward matter to

copy the entire thing (which is composed of many individual objects, though these can be

"grouped" together into a single entity), and paste it into my Clemson worldspace, then

rotate it so that it is facing the same cardinal direction as in the real world. With the

building placed, I can begin mapping out surrounding landscape features (such as roads,

trees, etc.), which will also be built in The Forge before being pasted into the mod's main

worldspace. The same process is repeated for each subsequent building; gradually, the

area begins to resemble the place it is modeled after. A *CK* feature called the "Landscape

Editor" is then used to "paint" the untextured geography with textures such as grass or

dirt (or, since this is *Fallout*, radioactive waste, scorch marks, and cracked concrete).

Finally, in order to reach my new Clemson worldspace from the game's Boston

worldspace, I drag in a non-hostile alien NPC to stand next to a teleporter pod (which is

actually a high-tech shower stall) in the middle of an unused cell, near *Fallout 4*'s starting

area, to make it easy to locate for testing purposes; later, I may contrive a more

immersive means of bringing players of my mod to the Clemson worldspace, such as by

introducing a quest that directs them there (though I'd like to keep the random alien[60]

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[60] Aliens in the *Fallout* games are the stereotypical pale-green-skinned, large-headed variety, resembling the sort commonly associated with extraterrestrial encounters—coincidentally, these started being recorded in the year 1947, around the time of the *Fallout* series' divergence from the historical record (History Channel, 2009). The aliens have always played a mysterious role in the series, possessing saucer-shaped UFOs and outfitted with sci-fi technology, which makes them a good candidate for providing the

NPC, and maybe give him some dialogue). Linking a "door" type object to another

"door" type object is a fairly intuitive procedure, though it actually involves a small

amount of indirect scripting within the *CK*'s dedicated menus for door-class objects.

While drafting, it may be necessary to revisit previous phases if progress is unable

to be made. As with composition in any other form, drafting is a matter of making

tangible steps forward until a version emerges that can stand on its own, or is at least

ready to be shared with others; at that point, testing can begin.

f. Testing

In videogame design, **alpha testing** usually begins as soon as possible; that is,

once a functional build has emerged from drafting. Alpha tests involve rough drafts, and

are intended to help identify and smooth-over rough patches that can't be easily noticed

while in the SDK, and to gather initial impressions from a potential player's point of

view. For that reason, alpha builds must be able to be actually executed—that is, the

software has to not crash. From the *CK*, mod data may be saved in the form of "plugin"

type files that can be attached to "master" files (which include the entire main game and

all its official DLC packages); Bethesda has introduced a convenient "MOD" section in

its title menu which allows users to search for, download, install, and load mods from

within the game itself (without such a feature, modders would have to develop their own

means of executing plugin files in-conjunction with master files). When properly loaded,

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technological means, and the desire, to teleport to different places in the world, as a lore-friendly narrative
hook for my mod.

mods are automatically run as part of *Fallout 4*. I test my mod for the first time by saving

it, exporting it from the *CK*, loading it in my game, and walking my avatar to the alien

and teleporter I've placed; finding them there, I know that my mod is functioning. It is

possible for numerous errors to interfere with the running of a mod, and *Fallout 4* itself,

when attempting to load mods at the game's startup; even if there are no errors that

prevent the game from running, errors within mods can cause the game to unexpectedly

crash, necessitating troubleshooting (a return to the research phase). Upon interacting

with my teleporter, I am pleased to find that the game does not crash, and I am taken to

the Clemson worldspace. There, I can observe the structures/geometry in my mod from

an avatar's eye view, which is often illuminating, since the *CK*'s Render Window has a

free-form camera that, while building, gives one a top-down perspective from high above

the game's ground. At this point, I can pass the controller to a friend and see what they

think—"do you see where I'm going with this?" While alpha testing is often done

internally within the development team, seeking outside help can yield valuable,

alternative perspectives.

Beta testing occurs when a version nearing completion is ready. The main idea of

beta testing is to attempt as many possible combinations of actions as possible in order to

uncover any bugs or glitches that may exist; these artifacts can be unpredictable and

detract from the mod's intended purpose, though sometimes discovered glitches can

produce unexpectedly interesting results. Big-budget videogame studios sometimes

employ professional game testers. Alternatively, beta-versions of games or mods can be

distributed online to potential players. With the *CK*, beta testing can be a simple matter of

uploading a version of the mod to *Bethesda.net*, ensuring that it is set to be "public," and mentioning in the text description that the current build is in development, and that feedback is welcome/encouraged. If a more focused or private round of beta testing is desired, then *CK* mod files can be copied and shared similarly to any other digital file. Potential testers with the mod file will require access to a copy of *Fallout 4* in order to run it. While the *CK* technically supports the creation of mods that can be run across platforms (*Fallout 4* has been published in PC, PS4, and Xbox One versions), there are many constraints that would need to be adhered to to ensure cross-compatibility, plus additional testing on each platform.

While testing, like editing and revising, can seem like an endless process, eventually, as with all compositions, one must simply stop. Since *CK* mods can always be re-opened and altered, they can be updated continuously (like most software). By experimenting with collaborative and participatory mod authorship, projects can be developed beyond the capabilities of a single individual; mods may even diverge into separate versions as different authors take charge of development, then re-merge into the same mod again. The flexible nature of videogame mods, especially when complimented by a powerful SDK like the *CK,* makes them potential "living" compositions, both in the sense that they grow and change over time, and that these differences can be experienced through play.

Chapter 5: Videogames as Electrate Expression

a. A Modding-based Pedagogy

This chapter introduces an idea for an upper-level, interdisciplinary (but rhet/comp focused) college course based around the practice of modding. Titled "Videogames as Electrate Expression," the course is intended to appeal to fans of videogames (of which there are many amongst student populations) and/or those interested in researching them.

As David Trenholme and Shamus Smith (2008) relate, "Building realistic virtual environments is a complex, expensive, and time consuming process." Modding, they say, ameliorates this somewhat through the reuse of existing technology and architecture. Today, modding is the leading method of videogame development by non-industry-professionals (Scacchi, 2011). Still, it can be a challenge for educators to adapt to and incorporate modding as a constructivist teaching method; no two classrooms are the same, and access to technology varies across contexts. Bilal Khaleel Younis (2012) describes the creation of an instructional guide titled "Game Modding for Non-Professionals" intended to help Palestinian college instructors of varying age, gender, teaching experience, and videogame playing experience to design educational mods for *Neverwinter Nights 2* (2006). Similarly, Mario Soflano (2011) mods *Neverwinter Nights 2* to produce an application to help educational developers more easily create so-called "serious games." Katie Salen Tekinbas (2008)'s *The Ecology of Games: Connecting Youth, Games, and Learning* draws upon a breadth of prominent game theorists to construct a framework for videogames in education that emphasizes inclusivity,

interactivity, collaboration, and connections between gameplay and real life; these features ensure that videogames in classrooms do not reinforce the dominant hegemonic power dynamic which favors white, upper-class, English-language culture and marginalizes others—instead, by incorporating accessible modding practices, students are empowered to subvert existing power dynamics in videogames and engage with the rhetorical choices of professional designers, enabling them to actively participate in the discourse of contemporary videogame design.

Despite the challenges of bringing modding into the classroom, Jerremie Clyde and Chris Thomas (2008) argue that, while "it might be assumed that the only way to build a game for use inside or outside the classroom is to have a significant amount of time, skill, and funding…. When modifying a commercial off the shelf game… one really only needs the first of those three things, time." Thus, modding is positioned as an accessible practice open to potentially any user given enough time to become familiar with the functionality a software engine—while this is still a significant obstacle for many, the skills required for entry-level modding are fundamental aspects of computer literacy that are becoming increasingly commonplace. Technical questions and solutions can be specifically addressed within a classroom-type structure (including online course management systems), by the instructor, enrolled students, and, if necessary, by turning to online forums where modding practices are discussed. One goal of this course is to imagine a future in which modding becomes on-par with word processing and video-editing for communicating arguments and ideas in the form of interactive experiences tied to existing media.

"Videogames as Electrate Expression" fills the need for an upper-level college course dedicated to the discussion, analysis, theorizing, and practice of videogame design that is approachable by non-programmers. It would likely fit within existing English, Communication, Rhetoric, and/or Digital Production Arts programs, though technically falls under the interdisciplinary field of Game Studies which has a growing presence in Universities across the US. Game Studies, being a relatively new field, continues to struggle to gain acceptance within academia, and must strongly assert its importance in order to earn a portion of the already stretched-thin resources apportioned to the humanities. This course aims to revolutionize pedagogical approaches to Game Studies by focusing on modding as its central composition practice, a move which leverages existing, popular media as tools/platforms for electrate-style learning: exploring entertainment discourses, deconstructing interactive digital media, engaging in hands-on play, and connecting these things to significant sociopolitical/cultural issues.

Collaboration is a core theme of the course—videogames, being a highly collaborative medium (typically involving many contributors for any given project), are ideally suited for fostering students' abilities to work with others, and also to help them envision composition, in general (but especially within the electrate apparatus), as a collective endeavor. In addition to group discussions of assigned readings, the entire class will collaborate regularly on a semester-long project to brainstorm and create a functional videogame mod. The choice of what game to mod for the semester-long project will be up to the instructor; I recommend *Fallout 4* to start with due to its accessibility and

moddability. Whatever game is chosen should provide a platform for students (and instructor) to address a significant sociopolitical/cultural issue. Responsibilities for different components of the mod will be divided amongst the entire class. This idea is inspired by Gregory Ulmer's notion **konsult,** a way of learning that he proposes for the electrate apparatus; it involves a collaborative effort of seeing, making, and doing (in other words: theorizing, practical design work, and social activism). Konsult leverages digital media, technology, and communication practices into active, participatory learning, breaking from the tradition of composing within the confines of the classroom and strictly according to models proscribed by the literate apparatus (scientific report, argumentative essay, etc.). Konsultation is a major objective for EmerAgents/egents (Ulmer's idea of a global student network) in the digital dromosphere.

Ulmer provides an example of konsult in the form of a project engaged-in by his group, the Florida Research Ensemble (FRE), which is a collective of students, scholars, and other creative individuals operating in and around the University of Florida in Gainesville. The project addresses the real-world, tangible, yet seemingly unsolvable catastrophe of pollution in Florida (and worldwide) by focusing upon the local Cabot-Koppers Superfund[61] site, 140 acres of land deeply polluted by industrial waste from the century-long production of pine tar resin in the area. Cabot-Koppers, the chemical company for which dozens of Superfund sites across the US are named, continues to operate to this day, reflecting an attitude of nonchalance in the face of mounting

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[61] A Superfund is a federal program intended to fund the cleanup of areas highly polluted by industrial waste.

environmental concerns that, ultimately, can be said to affect everyone's well-being, though the worst of the disaster is borne by the most disenfranchised communities, which are usually the first to be poisoned by things like contaminated soil and ground-water (as is the case in Gainesville) and the last to receive adequate medical care. The FRE's konsult is not an attempt to propose a straightforward solution to this dilemma, which of course would be practically impossible in a society with so many actors and interests involved in the allocation of resources over time, but instead to interrogate the disaster and deconstruct its many traces of responsibility. Their project, titled *Murphy's Well-Being*, illuminates, through research, histories of materials like pine tar resin (used to coat telephone poles) and their role in contemporary society (facilitating rapid communications), tying them in unexpected ways to deeper histories (of ancient, sacred rituals involving the burning of pine wood to produce charcoal, with pine tar as a byproduct; of ship-building, as pine tar resin was used to coat the hulls of ships and prevent their decomposition in warmer waters; of the spice trade, which economically motivated the building of such ships and inspired many colonial/imperial practices) as well as past and contemporary mythologies (the image of the hero as a singular individual capable of righting the world's most challenging wrongs), and philosophies (ideas about well-being that can be traced through the literate apparatus). These are juxtaposed with the video-testimonials of real people living in a neighborhood directly affected by the Superfund site's pollution. It aims to engage not only the students and other participants, but also local communities and political activists in a re-evaluation of the values and policies which conspire (in his own metaphor, a con-game) to victimize those who are

complicit with them. *Murphy's Well-Being* has, as its interactive component (a necessary component of the konsult), an artistic installation in Gainesville which consists of a circular table with an interactive touch-surface and two synchronized video projections which respond to participants' touching of the table surface. In its interactive design, *Murphy's Well-Being* actually resembles a sort of videogame (a player's inputs prompt procedurally generated responses that are projected as audio/visual stimuli). Thus, the leap to adapting konsult for my (and many others') interactive medium of choice is not too great.

Another core rationale for "Videogames as Electrate Expression" is derived from James Paul Gee's riveting book *The Anti-Education Era: Creating Smarter Students through Digital Learning* (2013), the thesis of which is that the state of contemporary education is extremely disconnected from real pedagogical ideas about teaching and learning for the purpose of more fully and actively engaging people in social issues that face their communities, country, and global society as a whole. Instead, they focus upon a twisted version of "learning" that involves the rote memorization of facts for the purpose of passing tests, and ultimately achieving a degree conferring a certain amount of status or implying preparedness for a specific line of work. Gee and others like him reject the traditional classroom, which is quite literally a box that confines educational activity to a seemingly oppressive space, and favor what he terms **passionate affinity spaces**, which are not bound to a specific location but include a network of distributed sites and actors that facilitate learning in a more organic and realistic fashion. These spaces are called "passionate" because activity within them is fueled by the spirit of amateurism, in its

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literal sense, meaning for the love of what one does. Modding communities on the internet already resemble such spaces; they include distributed sites like message boards, video channels, wikis, and the worlds inside videogames themselves, and their participants can be said to be motivated by a desire to participate more fully in the creation and manipulation of the cultural artifacts through which they derive all sorts of meaning in their lives. Gee's style of learning favors playful, or aleatory, invention, so there is much less emphasis on testing students than facilitating a journey of exploration and discovery in which failures are not a bad thing—indeed, to try and then to fail is highly encouraged.

Jody Shipka lends further pedagogical support to this course through her remarkable book *Towards a Composition Made Whole* (2011). She, perhaps moreso than any other active figure today, has inspired and continues to inspire students and teachers to explore non-traditional forms of communication and expression. She asks teachers to have the courage to push forward to new, experimental alternatives in the classroom, associating this virtue with the Fluxus movement in the 1960s/70s; like that movement, Shipka notes that she and other teachers must endure critique that problematizes turns towards non-literate modes of inquiry. Similarly to Gee, she points to the fact that students engage in various composition practices outside of the classroom which are pursued enthusiastically and energetically—something that every teacher dreams about achieving for their coursework. One way to do this is to encourage introspection by allowing students to compose about topics of personal significance to them in a style that is also deeply personal. She requests that her students seek out materials that would not

typically find their way into a composition classroom and use them creatively to express themselves and their scholarship. She also notes that, in the digital age, computers offer undeniably revolutionary access to composition tools allowing one to weave together text, images, video, and sound; in the wake of these technologies, composition theorists are engaging in a wide-spread re-evaluation of what students should be able to know and do. Videogame modding fits into Shipka's vision for a composition made whole because it is (and has always been) a fringe activity, little understood or accepted within traditional academic circles, whose practitioners—many of them young people who are or will be college students— see no place for the dedicated study of the composition practices they ardently pursue and theorize about with friends and online communities. Thus, the course will help students see that composition is not an activity confined to any one medium, and that, in the electrate apparatus, videogame design can be seen as authentic academic discourse, dispelling the sense of limitation that may have been instilled in them through years of broken, traditional education.

One outcome of this course will be improved technical and computer skills, particularly in the area of understanding how videogames work and how they can be modified. The *CK* software engine for modding *Fallout 4* will be specifically utilized in this version of the course; although it is specifically geared for modding a narrow range of videogames (it is compatible with several Bethesda titles, including *Skyrim*), the *CK* design interface is fairly well representative of SDKs used for most contemporary videogames. It is complex and feature-rich, yet highly approachable and user-friendly if one takes the time to understand its layout and logic-- to aid in this, there exist many

high-quality YouTube tutorials dedicated to explaining the interface and guiding viewers through specific, common tasks. These video tutorials, along with extensive Wiki documentation and message board discussions that exist online, will be invaluable resources for students in this course, and their use will also support the course outcome of learning to overcome technical hurdles through dedicated research/troubleshooting. Other technical skills involved in this course include (or may include) digital audio/video recording and editing (including Machinima[62]), managing and installing extension files (another name for mods), basic code scripting/programming, usability testing (beta testing), and effective writing of technical documentation.

Improved knowledge of digital rhetorics, and rhetorical theories in general, is another key outcome of this course. Students will be invited to think about and discuss topics such as online communities/social media, multiplayer vs. single-player games, interactive fiction/cinema, identity representation in videogames, and the role of digital technology in persuading people in their everyday lives. Videogames offer an ideal medium around which such discourse can orbit, presenting, as they do, an amalgamation of media forms including 2D artwork and textures, 3D models and environments, animation, voice-acting, musical composition, text, and computer programming. Individual aspects of videogame design can be focused-upon and dissected by the class in order to better understand the processes involved in their creation.

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[62] Machinima is a style of video creation that utilizes gameplay footage, often combined with added voiceovers and new soundtracks.

I believe that students from a variety of majors would find this course useful, not to mention appealing, as an elective—videogames have applications across a variety of professional and academic fields including business, engineering, medicine, computer science, new media, history, architecture, and psychology. The course could also serve as degree class for students majoring in English, communications, rhetoric, or digital production arts, satisfying their curricular need for a course devoted to multimodal digital rhetorics/composition.

c. Class Projects

The following are three projects I propose for this course which are intended to facilitate the aforementioned learning outcomes.

I. Project 1: Mod a Game, Any Game

This project, undertaken early in the semester, entails creatively imagining how an existing videogame could be different by planning and proposing a theoretical mod for it. This project is designed to prompt theorizing about modding games that would be extremely difficult to actually mod. The students will incorporate ideas from their readings into these theoretical mods and, in the end, attempt to defend their mod's rhetorical significance with an in-class, multimodal presentation.

II. Project 2: My Videogame Story

In this project students will play a game of their choice and transform that experience into a personal narrative in the form of a written essay (or other forms including machinima, video blog, graphic art, podcast, etc.). They are encouraged to

envision the gameplay as a form of writing in-itself by seeing each interaction as a meaningful choice that adds to a continuous narrative in their mind. Possibilities for this project include:

- Using an open world, non-linear game that allows students to create a custom avatar representative of themselves and make numerous independent choices throughout gameplay [such as *Terraria* or *Minecraft*]

- Using a game featuring an existing protagonist that the student can identify with and role-play as, weaving their own perspective into that of the character [such as *Spec-Ops: The Line* or *Bioshock: Infinite*]

- Using a game with a first-person perspective and silent protagonist, enabling the students to imagine all the thoughts that character might have throughout gameplay [such as *Half-Life 2* or *Portal*]

- Using a simulator game that lets students manage and interpret an interactive system [such as *The Sims 3* or *Civilization V*]

Students will share and workshop these narratives in class and be encouraged to publish them in an online portfolio of the entire class's work (likely using Adobe's *Behance* platform), and perhaps to submit them to online scholarly (such as *Critical Distance*) or literary journals (such as *Cartridge Lit*) that specialize in videogames.

III.   Project 3: A Combined and Uneven Apocalypse [The Fallout 4 Konsult]

The title of this project is taken from Evan Calder William's book *A Combined and Uneven Apocalypse*, a collection of musings on the dark fascinations people these

days have with the end of the world. It is particularly relevant in looking at *Fallout 4*, a hugely popular title from the videogame company Bethesda Softworks, a game which happens to be one of the most moddable ones in existence today. Students will be assigned to play a portion of the game either on their own or in groups, and this experience will help inform their decisions about how they can collectively design a mod that will address a significant, real-world problem which the game poses: atomic war. By uploading this mod to Bethesda's dedicated, cross-platform servers for people around the world to potentially download and experience, this project will constitute direct participation in public-sphere, popular media discourse, in the same vein as Gregory Ulmer's konsult.

The *Fallout* series' popularity reflects pop culture's obsession with doomsday scenarios that would radically reduce the human population and reconfigure society. *Fallout 4*'s iconic retro-futurist aesthetic is intended to playfully appropriate the 1950s-era American obsession with new consumer goods and devices; the game's designers do a great job of capturing that time period's ideas about what the future would look like, including things like atomic cars, personal robotic assistants in the home, and big, bulky computers with dark screens and bright green text (that were nevertheless top-of-the-line for the time). The game seems to ironically juxtapose this light-hearted, optimistic, utopian vision of 1950s mainstream America with the dreary emptiness of the wasteland as depicted during gameplay—the world is mainly burnt-out and collapsing buildings, craters filled with atomic waste, mutated animals, polluted water, and a scorched earth, with the surviving remnants of humanity desperately clinging to small settlements

cobbled-together from the wreckage. Despite the game's undoubtedly dark and disturbing premise, it is also intended to be fun—it achieves this by empowering the player to be a force-to-be-reckoned-with in the wasteland, one who becomes more and more powerful and capable as they progress. In this way it can be said to serve the purpose of allowing players to performatively enact a virtual power fantasy. What are the problems with this? Additionally, *Fallout 4* poses many situations to the player that might be considered ethical dilemmas, but these deserve to be critiqued from a rhetorical perspective by asking questions like, what do the ethical choices in the game signify? How are they limited? Which perspectives are featured, and which ones excluded? Through a close-reading of the game's style and mechanics, the class will come to an agreement about what they should introduce into the existing gameplay systems to add new rhetorical meaning to them. The goal is to subvert the assumption of the post-apocalypse, atomic wasteland as a "fun" environment and, instead, teach players in some way about the serious problems posed by atomic warfare and the sociopolitical attitudes that support its perpetuation as a valid form of foreign policy.

d. Sample Readings

Provided below is a selection of sample readings for the proposed course. These are intended to provoke discussion about issues in digital rhetorics, videogame design, and modding, rather than teach how to accomplish specific technical tasks. The readings will be useful for students in theorizing about their own projects.

- Henry Jenkins, from *Convergence Culture*, on participatory media and online fan communities

- Espen Aarseth, from *Cybertext: Perspectives on Ergodic Literature*, on the foundational concepts and theories leading to the formalization of the field of Game Studies

- Alexander Leigh, "Advent," on computers, childhood, and early adventure games

- Ian Bogost, from *Persuasive Games: The Expressive Power of Videogames*, on how videogames present arguments to persuade their audiences

- Jane McGonigal, from Reality is Broken: Why Games Make Us Better and How They Can Change the World, on escapism vs. activism in games

- Gregory Ulmer, from *Electronic Monuments*, on electracy, the EmerAgency/konsult, and choragraphy

- Jan Holmevik, from *Inter/Vention*, on hackers as egents (electrate agents)

- Steve Holmes, "Aleatory Invention and Glorious Trainwrecks' Accursed Share," on aleatory invention, collaborative digital design, and Georges Bataille's concept of the accursed share

- Cynthia Haynes, "Armageddon Army: Playing God, God Mode Mods, and the Rhetorical Task of Ludology" on political and rhetorical game design

- Hussein Ibrahim, "What it's like to Always Play the Bad Guy: On the Portrayal of Arabs in Online Shooters," on the prevalence of stereotypical representations of "other" cultures in videogames, especially of Arabs and Muslims in recent years

- Evan Narcisse, "The Natural: The Trouble Portraying Blackness in Videogames," on the videogame industry's aversion to politics and limited success in portraying black characters

- Zoe Quinn, "A Game I Had to Make," on *Depression Quest*, the challenges facing independent game designers, and the value of deeply personal videogames

- Anita Sarkeesian and Katherine Cross, "Your Humanity is in Another Castle: Terror Dreams and the Harassment of Women," on Gamergate (a recent event/movement within videogame culture that is notoriously misogynistic) and the challenges facing women who make, play, and write about videogames

- Merritt Kopas, "Ludus Interruptus: Video Games and Sexuality," on mainstream game design conventions, gaming culture's obsession with hyperviolence, and the possibilities for positive representations of sexual/erotic relationships in videogames

- Katie Salen and Eric Zimmerman, *The Game Design Reader*, on playtesting and user-centered design

In addition to the above, the course will assign students to investigate/experience a selection of videogames and mods (usually in-class and facilitated by the instructor, but sometimes also independently and via online walkthrough/Let's Play videos[63]), including the following:

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[63] Let's Play is a genre of online video that features screen-captured footage of videogames being played by an individual or group, often with audio commentary from the player[s].

- Video footage of Cory Archangel's "Super Mario Clouds" art installation, which features a copy of *Super Mario Bros* modded to remove everything except for the blue-sky background and its slowly scrolling, white, fluffy cloud sprites, as a statement on the abstract representation of pop culture in modern art

- *The Witcher 3: Wild Hunt*, a big-budget, open world, action-RPG, and the "Hearts of Card" mod which removes all combat from the game, replacing it with a turn-based, strategic trading card game called Gwent

- "Chrono Trigger: Crimson Echoes*,*" a stand-alone, fan-created mod/expansion of SquareEnix's *Chrono Trigger* for the SNES; well-known for being hit with a cease-and-desist order from Nintendo after it began being distributed in the form of re-produced SNES cartridges

- *The Elder Scrolls V: Skyrim*, another big-budget, open world, action-RPG, and its "Thomas the Train Engine" mod, which replaces the game's iconic dragon antagonist with the recognizable children's cartoon character Thomas the Train Engine; a simple, yet somehow quite profound, rhetorical mod that demonstrates some of the effects of cross-over media in modding

- *Stardew Valley,* an independently produced title powered by *Game Maker*, and its series of "Diverse NPC" mods, which swaps the spritesheets of the game's predominantly white, normative characters with those representing numerous diverse minority groups

- *Counter-Strike*, a famous FPS (first person shooter) game noteworthy for originating as a mod for the game *Half-Life* and then taking on a life of its own,

and the "Velvet-Strike" mod by Anne-Marie Schleiner, which is conceived of as a response to the so-called "War on Terror" and the upsurge in violent rhetoric following September 11, 2001; the mod inserts a number of anti-war graffiti tags that can be sprayed on in-game walls by players

- The "Nic Cage" mod for *The Legend of Zelda: Majora's Mask*; a cult-classic game modified to feature a cult-classic (?) actor to amusing, and slightly creepy, results

- *Dragon Age: Inquisition*, a story-heavy RPG from Bioware Studios which allows characters to develop an original character through gameplay choices in an expansive fantasy setting; the "Bisexual Cassandra" mod, which was the subject of some controversy, changes a minor variable within the game's code to allow one of DA:I's female characters, a warrior named Cassandra, to be "romanced" in-game by a female player-character, whereas in the officially released version this was not possible (though it is rumored that it was planned, but cut due to time constraints)

Chapter 6: Conclusions

Let us be clear: the most important characteristic of modders and mods is that they **intervene** in existing (readymade) media. When it comes to videogames, modding acquires a unique character that makes it different from intervening other popular media forms (such as text or film)—mods are experienced directly as part of the game they modify, their code is executed within the thing itself as its software runs and its player

plays, influencing an unfolding experience in ways that range from subtle to spectacular.

Or, mods are performed (as my sister and I would do with *Kirby Super Star* growing up)

or theorized (as in the online spaces of theorycraft referenced by Haynes (2016))

alongside or tangential to the thing itself. Mods—especially post-structuralist mods—

need-not be crystalized in a tangible/copy-able format; they are, above all else,

interventions. Another important dimension of modding, given the implications of

dromology, is its speed; though modding in practice can take a huge amount of time,

there is potential for it to be done very quickly, including spontaneous, instantaneous acts

of what might be called "**flash modding**" as performative or rapidly-prototyped

compositions.

The term "modding" has sometimes been used quite broadly in this dissertation,

such as by comparing it to certain forms of game design that utilize accessible software

engines (such as *Game Maker*, *Twine*, or even *Unity*), and while these practices do have

similarities to modding (principally, the utilization of an existing game architecture), they

are not the type of intervention-oriented invention that I see as most relevant to Ulmer's

electrate apparatus. Modders treat the games they play as, in Barthes' (1970) terms,

"**writerly texts**," which are never complete and always open to—and indeed, invite—

changes and additions introduced by the audience (which becomes author, destabilizing

both concepts). Where the games industry sees engineered play as the end-goal, modders

see **freeplay** instead. Modding is also a form of **applied grammatology**, meaning "a new

mode of writing whose practice could bring the language and literature disciplines into a

more responsive relationship with the era of communications technology in which we are

living," and serves to "overcome the logocentric limitations of discourse" (Ulmer, 1985, p. 5). With the electrate apparatus, **entertainment**, **fantasy**, **aesthetics**, and **play** become critical tools of civic and academic engagement; these concepts have long histories that far predate computers, yet it is that precise technology that is facilitating (and indeed, necessitating) their revitalization in a globally networked world where decisions are made at light-speed, and videogames—a wildly popular medium that has inspired a new generation of **egents**—depend on each one of them to create engaging experiences. The simultaneous-spatial mode of **figure** offers an important alternative/supplement to the temporal-linear mode of argument for people negotiating rhetorics in the incredibly fast-moving **dromosphere**. **Flash reason**, an ability for rapid decision making, is fundamental to playing games, but is also applies to the meta-gameplay of modding when modders are "authoring on the fly," creating mods for the sheer fun of it, or as a means of participating in a general economy of **aleatory inventions** (ideas from dreams, generative experiments, pleasurable mechanics, etc.) (Ulmer, 2012; Holmes, 2016). Modding emerges as a natural electrate response to the videogame industry's mass-market, proprietary (closed software), resource-intensive design philosophy by to adapting what is ready-at-hand for the sake of speed; whereas the traditional model of industrial videogame design tends to require huge investments of time, labor, and money, modding offers the potential to make quick changes by manipulating existing assets, which fundamentally transforms what purposes videogame design can serve—games can be modded as gifts to loved ones, to include memorials/monuments of mourning, to make rapid refinements to one's personal gameplay experience, or even in response to public

events in the news. Obviously, learning to create a fully functional mod takes time, and it may involve a lot of trial and error and seeking online advice, but that is precisely the type of contemporary learning that should be most encouraged (as opposed to the literate pedagogy of pass/fail); the learning process is enhanced by drawing upon electrate skills that a generation of digital natives have developed through familiarity with computer technology, including videogame skills and knowledge that allow them to deconstruct and interpret what is happening—both on the surface and below it—when they are playing.

Composition teachers should do their utmost to encourage students to be **hackers,** approaching life's fast paced, rhetorical challenges with a mind towards "innovation, style, and technical virtuosity" (Levy, 1984, p. 8). It helps to see hackers as hybrid artists and computer scientists; programmer-dreamers who tinker with technology as a means of self-expression and self-exploration, possessing the amateur zeal needed to pursue passion-projects even when there are significant obstacles. We should also realize that hackers are more vulnerable when their methods are rejected and misunderstood; as sources of valuable innovation, companies are finding ways to harness the hacker that exists in nearly everyone, preying on the common desire to produce and share in the digital world to extract value from legally-disenfranchised users. Modders, as hackers, are marginalized as an inferior category of game designer, and thus they struggle to gain acceptance as authentic developers. Academia could provide a space for modders to flourish in their art while advancing their knowledge of computer science, and the digital, multi-modal composition classroom—armed with electrate theory—is poised to offer a

point of contact in the humanities. The proposed course, "Videogames as Electrate Expression," is one possibility.

As the history of modding shows, uncertainty about the value versus the danger of users tinkering with videogame software has resulted in divergent attitudes within the industry. Maverick individuals like John Carmack are to thank for upholding the values of the Open Software Movement in the face of the creativity-stifling business logic of closed, proprietary software/media; without such proponents, modding would surely not be as popular or accessible as it is today. The future of modding will depend on the relationship between players and developers; if the latter is unwilling to help the former, modders will struggle to find acceptance and their activities be driven underground; if they are willing, then there is potential for mainstream acceptance of intervention in videogames as a dynamic, electrate mode of communication. What's certain is that, as long as videogames exist, players will want to mod them; sharing with them the means to do so, and granting them the freedom to control and share what they create on their own terms, seems the best way to avoid repeated conflicts in the long-term.

The *Fallout 4* mod I describe by way of outlining modding-as-composition-process is a real idea I had while playing the game and living in Clemson, South Carolina. I think that many people have a desire to explore their real world virtually, even if, as is the case with my mod, there are no enemies to fight; like walking in ruins, doing so allows us to contemplate the place without its inhabitants and see its spatial rhetorics in a detached, yet recognizable way. As it stands, my mod features a lone structure: Tillman Hall, its iconic clock tower fallen to the ground, bearing graffiti that was erased

in the real world, but transported into the virtual. Conceptualized using MyStorical

heuretics, then manifested as a MEmorial of mourning dedicated to victims of the

general, ongoing catastrophe of racial violence—particularly in the American South, but

also historically and all over the world—this mod serves as a model for future electrate

mods. My dream for it would be to flesh out the entire surrounding area and bring it to

life with details, interactions, and events, keeping Tillman as a central destination that

draws players close, and then adding networked functionality along with better graffiti

lettering to allow anyone who downloads the mod to contribute to it, and have their

contributions seen by others. Since the *CK* does not support in-game network

functionality (at least, making it do so would require a custom extension that would

probably go against Bethesda's EULA), I may ultimately have to settle for leaving my

mod, with its accurately generated Clemson area topography, to the school itself, giving

future modders free license to do whatever they like with it—hopefully, to tell their own

electrate stories about their relationships between community, school, family, and

entertainment, and in so doing, to uncover a sense of their *dasein*, or to stumble upon the

ruin I've left behind and recognize it as an electronic monument to the erasure of

subaltern mourning.

Glossary of Jargon

- **FPS:** Acronym for "First Person Shooter," a genre of videogame.

- **MMO:** Acronym for "Massively Multiplayer Online," a category of videogame that involves networked gameplay between many different players online.

- **Platformer:** a game featuring jumping around on platforms, as in the classic 2D *Super Mario* games, but also including 3D games like *Mario 64*.

- **Rhet-Comp**: Short-hand for the academic fields of Rhetoric and Composition, which are often combined; "rhetoric" implies theories of communication, while "composition" implies communication in practice.

- **ROM:** stands for "Read-Only Memory", in reference to the style of computer chip used by most early videogame developers, which deliberately restricted the user's ability to access, copy, or modify stored digital files. A "ROM file," "ROM image," or simply "ROM," is a copy of a Read-Only Memory-format videogame (or any videogame that is DRM protected).

- **DRM:** Acronym for "Digital Rights Management," a category of software that is designed to prevent unauthorized copying or modification of a videogame.

- **RPG:** Acronym for "Role Playing Game," a genre of videogame.

- **SDK:** Acronym for "Software Development Kit," a type of software used to mod videogames.

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