Gaming Culture: Intellectual Property, Capitalism, and their Impacts on the Culture and Gendering of Video Games 1970-1995

A DISSERTATION SUBMITTED TO THE FACULTY OF THE UNIVERSITY OF MINNESOTA
BY

ELIZABETH BADGER

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

TRACEY DEUTSCH

JANUARY 2024

Dedication

This dissertation is dedicated to the late Leonard Helfgott, Professor Emeritus at Western Washington University, who looked at my submission for his class and decided that a paper about World Fair food was worthy not only of a presentation at the Phi Alpha Theta conference in 2012, but also of fleshing out into a full-blown Master's thesis rather than settling for the non-thesis option I had originally planned on. While I did not end up writing my doctoral dissertation on food, his encouragement and acknowledgement of the value of my contribution to history set me on this very long road to becoming a doctor, and it was with great sorrow that I learned of his passing in 2021. I can only hope my accomplishment makes him proud.

Acknowledgements

This dissertation has been a long road which has required the aid of many kind, generous, and knowledgeable people to complete. In particular, I must acknowledge the massive role my advisor, Tracey Deutsch, played in the writing of this dissertation. Truly one of the greatest advisors in the History department at the University of Minnesota, she helped me in so many ways navigate the confusing and stressful world of academic scholarship. In addition, her insights into the scholarship of both the history of gender and capitalism helped me in fleshing the dissertation out into its final incarnation. I could not have asked for a better person to guide me through my doctoral training.

I also thank the members of my dissertation committee. To Jennifer Alexander, who was always enthusiastic and encouraging about my choice of topic, who helped with much of the framing to ensure that it fit within existing histories of technology, and who did everything in her power to ensure that I was as relaxed as possible for the defense. To Jeffrey Yost, who was more than happy to hear of a cultural historian looking at technology history and lend his expertise to the committee. To Kevin Murphy, who may not have known a lot about video games, but he was nevertheless willing to help where he could, engaging fully with the dissertation and making critical suggestions about finding broader audiences. And to Malinda Lindquist, whose modern Americanist course helped me start to set up the literature I needed, and who stepped in at the beginning and the end of my doctoral career when I needed her the most. All of you are responsible for me getting this far, and for this you have my undying thanks.

So many archives! I give my thanks to all of them. The Strong Museum of Play in Rochester in particular stands out for their gracious funding and access to their archives, but thanks must be provided to the archives at Stanford and the Dolph Briscoe Center at the University of Texas Austin as well for their assistance. I must also give special thanks to the following: to the IEEE History Center in Hoboken, New Jersey, for accepting me as an intern, with particular thanks to Alexander Magoun for giving me so much insightful info about the RCA collection, and Joseph Weisbecker in particular. To the Hagley Library and Museum in Wilmington, Delaware, a place which I was delighted to find held a collection which proved to be the cornerstone of the dissertation, and who was interested enough in my work to fund me twice. And to Eric Hintz and everybody at the Lemelson Center at the Smithsonian National Museum of American History – is there any bigger confidence booster than to get a fellowship at the Smithsonian? Not only that, but they provided me support for my research and encouraged me in so many ways beyond just the financial, and for that I must thank them profusely.

Finally on the academic side, there are the two professors who were willing to talk to some girl coming in out of the blue: Laine Nooney at New York University, who took one look at the original version of my dissertation and told me to reframe the whole thing, resulting in a much richer project, and Gerardo Con Diaz at the University of California San Diego, who is as wonderful a person as everybody had told me, graciously speaking to me over Zoom to assist me with strengthening the legal analysis of my dissertation. Their generosity and encouragement truly helped inspire me, giving me faith that this long project I endeavored towards was worthwhile.

I would like to thank Joyce Weisbecker as well for allowing me to speak with her about hobbyists and her father. Her insights about women in engineering were vital towards providing critical pieces of analysis regarding women and games, as well as the culture of hobbyists. She also helped with smaller details about her father, which made him a much richer subject. I should have liked to have met him as well, but the love in his daughter's voice as she spoke of him will suffice.

On a more personal note, I obviously must thank my family. My parents, Linda and Scott Badger, may have hoped futilely that I would play less video games when I got into the doctoral program, but were also nothing but encouraging when I pivoted even harder into them and turned them into my historical focus. The same goes for my sister, Amy Badger-Asaravala, even if she likes to tease me sometimes by leaning into the "video games are bad for you" rhetoric. (Which, you know, the answer is in the middle.) Thanks to my Aunt Laura Schwendinger and Uncle Menzie Chinn, both at University of Wisconsin Madison, for empathizing with me and my chosen route in the social sciences, and for sending incredibly generous gift cards for Christmas every year in support. Finally, thanks to my grandmother, my Po, for helping finance me through this time. Even if you cannot attend my graduation, I am glad you were still around to see my momentous achievement.

Thanks as well to my spouse, Quinn Gordon. Ze, who was willing to come all the way out to Minnesota with me despite us still only dating at the time, who supported me during my most stressful moments as I did zir's. Ze who finally decided to put a ring on it, resulting in the year of my doctoral triumph also being the year I finally got married. And ze who has promised

to do zir darnest to wade through zir spouse's dissertation, even if ze does not fully understand it. Thank you. (And thanks for understanding my own foibles with pronouns!)

One final note: the story of my doctoral education has simultaneously been the story of the revelation of my autism, and the gradual process of self-realization and understanding that came with it. Had I not received this diagnosis and been given the space to learn about the ways it affected me both past and present, I would imagine that I would have been a lot harder on myself during these many years than I ended up being. I give my thanks to the Autism Society of Minnesota for diagnosing me, and for providing valuable therapeutic support as I began to learn more about the world of neurodiversity, enough for me to consider an advocacy career of my own.

Abstract

How natural is the relationship between consumers and producers? Video games have been understood as a commodity exchanged from producers to consumers, and yet the production of video games and software both illustrate precisely how blurry the line between the two is. This dissertation examines how the game industry set up boundaries using zealous patent and copyright enforcement, attempting to criminalize what had once been common hobbyist practice. It further argues that this precise protectionist attitude towards games contributed to the "gendering" of games by incentivizing promotion of "masculine" tastes as determined by the industry, while simultaneously leaving women out of reach through an inability or unwillingness to acknowledge women's preferences which diverged from the industry's preconceptions.

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Introduction

Video games are now over fifty years old. Seen at various times historically as a fad, they have endured long enough to become a prominent cultural phenomenon globally. The field of Game Studies has emerged from this, representing a diverse range of academic analyses ranging from literary critique to investigations in the advantages video games can play in areas such as education and business.[1] Video games have, in other words, become recognized at long last as an art form as many of their proponents argued they were.

Despite this, video games continue to occupy a contested space. Within the culture of gaming as well as wider social forums such as newspapers and television, the content of games inspires discussions about their contents not dissimilar to those that movies and television have contended with for years, such as levels of sex and violence, or what constitutes acceptable censoring. What distinguishes games the most from movies, music and the like, however, is a third question which continues to inspire fierce debate: specifically, whether there is a "correct" way to consume games. Are we restricted to merely playing through the program as intended? Or can we edit our experience to fit our own personal needs and skill levels? Should there be

[1] For one of the earliest texts about the positive potential of game for education see James Paul Gee, *What Video Games Have to Teach Us About Learning and Literacy* (New York: Palgrave Macmillan Trade, 2003). For a good sense of the broad swath of ideas Game Studies have developed, an excellent early example is ed. Mark Wolf and Bernard Perron, *The Video Game Theory Reader* (New York: Routledge, 2003) as well as ed. Mark Wolf and Bernard Perron, *The Video Game Theory Reader 2* (New York: Routledge, 2008). For a look at the application of game ideas – or "gamification" – in business, see ed. Mikolaj Dymek and Peter Zackariassan, *The Business of Gamification: A Critical Analysis* (New York: Routledge, 2017).

limits to the amount of control players have over legally purchased products? What do corporations stand to gain or lose by preventing players from using their products in unorthodox ways, or from altering them? In short, what is the boundary between fair use and piracy for a medium whose very nature is malleable down to its component elements?

This dissertation examines the evolution of this conversation, and the ways in which capitalist desire for full control over intellectual property not only shaped the cultural and philosophical direction of the video game industry, but also that of consumers and the cultures they created around video games. In doing so, this dissertation attempts to bring video games into larger discourses about copyright, corporatism, and the ways in which capitalism affects the ways we interact with entertainment. In the process, this dissertation creates bridges between topics which have previously been seen as discrete from each other: between the history of computing as a whole and gaming, and between the consumer and the producer. Specifically, in creating these connections, this dissertation aims to problematize the borders created between producers and consumers, arguing instead that for computing, the two groups historically came from the same origin point.

This dissertation thus, in denaturalizing capitalist borders, considers how structures of consumption are crafted in the first place. If the processes involved in purchasing and consuming a product are themselves social constructs, then analysis must be focused on understanding how those processes were conceived of, by whom, and for what purpose. Why is the question of how games are consumed so frequently a point of contention for players and creators alike? Is it something inherent to the medium that people should argue whether there is a “right” way to play – or even own - a game? Or are these questions ones which should be

expanded to include other, seemingly naturalized methods of consumption? If being a "gamer" is considered an identity by those who identify as such, then like any social identity it exists as a construct, an artifice whose creation may not be as straight-forward as being a simple matter of whether a person plays games or not.

Part of the creation of this identity is tied directly into the historical development and evolution of games themselves. Despite the size of the industry, there is an inherent countercultural element to video games. Games were, much like many technologies developed during the Cold War, a side effect rather than a direct goal, one which defied its serious conflict-based origins in favor of encouraging peaceful play. One of the inventions often cited as the "first" video game, for example, involved utilizing an oscilloscope used for defense research to make a ping pong game instead.[2] Likewise, some of the earliest computer games came not from directed commercial interest, but from a crew of college students sneaking into college computer labs to make games about shooting rocket ships or exploring caves.[3] And the company that first truly put commercial gaming on the map nurtured a sex, drugs and rock and roll image as it distributed a brand new medium of bar entertainment across the country.[4] In short, something about the video game always seems to inspire people who push against a view of technology as existing purely for the sake of national and industrial progress.

Part of it may have to do with the term itself. A "game" is associated with "play," which is an act of make-believe people are societally expected to grow out of performing. Games were

[2] Willem Higginbotham, *Tennis for Two*
[3] The famed MIT Hackers, most notable for developing the game "Spacewar!" in the late 1960s.
[4] Atari, at least in the first half-decade of its existence. More on this is detailed in Chapter 4.

thus thought of as at best a distraction from important computer work and education, and at worst a disruption. At colleges with the PLATO system installed, for instance, conflicts emerged between people who felt that the computers should primarily focus on education versus those who designed and played games on them.[5] Many women who were pivotal pioneers in computing saw gaming primarily as a distraction from more important aspects of computing.[6] To continue to play and develop games into adulthood was to reject the expectation that adulthood was meant to be serious, challenging the very notion of "adult" activities.

This perception of games as a juvenile endeavor has, compared to other forms of entertainment media, resulted in pushback against attempts to examine them as works of art. Roger Ebert, for example, was notorious for refusing to consider games as having any artistic value, with only a scant few meeting his personal approval.[7] Much of this was due to lacking the appropriate theoretical language for looking at game stories, resulting in people attempting to critique game works purely through their text, something which games could, either through technical limitations or their primary focus on experience over narrative, rarely compete with other forms of media.[8]

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[5] Joy Lisi Rankin discusses this phenomenon in Joy Lisi Rankin, *A People's History of Computing in the United States* (Cambridge: Harvard University Press, 2018).

[6] The collection of Women's Oral History interviews on the Engineering and Technology Wiki run by the IEEE highlights a lot of these opinions. Most notable is Marlene Hazle, who goes so far as to suggest that women seeing computers more as a tool than a toy prevented them from enjoying the playing or development of games. See *Marlene Hazle: An Interview* Conducted by Janet Abbate for the IEEE History Center, 11 February 2001, https://ethw.org/Oral-History:Marlene_Hazle

[7] One of such games, *Cosmology of Kyoto*, functions in more of a textual space than a game space, given its limited interactive potential. Players would encounter events, but very rarely have any active hand in resolving them, with the game instead functioning as a showcase of various stories of the era. Arguably, this might explain why Ebert, a film critic, found the game more approachable. Softedge, *Cosmology of Kyoto* (1995).

[8] It is worth noting that arguably, the analysis of "hypertexts" – stories which utilize technology to enhance the storytelling process through such elements as mixed media and use of links – provided an essential entry point

Introduction

One of the biggest breakthroughs in bringing video game analysis to academic came from Computer Science professor Ian Bogost, who in his book *Persuasive Games: The Expressive Power of Video Games*, coined the term "procedural rhetoric."[9] According to Bogost, if books told stories through a series of words and movies through a series of images, then video games told their stories through a series of procedures – in short, the way a game directed a player's actions was how it communicated its story rather than what it showed visually or aurally. Bogost thus created the first truly concrete separation between the storytelling tactics of written or recorded media and computer games. By identifying that the act of "doing" was as important to game stories as the process of "seeing" or "reading," Bogost effectively identified a way to be able to analyze narrative elements in games on their own merits rather than via less-fitting methods borrowed from literary and movie critique. This new theoretical framework created new opportunities for critics to look back at games and understand what made their storytelling effective on their own merits. It also aided in expanding how academics could analyze games as texts, providing new language in understanding games which made them easier to interpret as primary sources.[10]

But just like any media form, especially in the twentieth century, the video game is vulnerable to the same forces of cultural corporatism that other media such as books, film and

towards eventually identifying how game narrative worked, bridging the gap between "game" and "text" as it did. [INSERT EXAMPLES]

[9] Ian Bogost, *Persuasive Games: The Expressive Power of Video Games,* (Cambridge: MIT Press, 2007).

[10] Numerous online video critics particularly have been able to analyze games utilizing these tactics. Jacob Gellar, one such popular content creator, often interweaves discussions of games to broader philosophical topics of life, death, and other such heavy topics, describing them through the experiences they provided rather than on their writing alone and seamlessly connecting them to more traditional forms of media. See Jacob Gellar, https://www.youtube.com/@JacobGeller

music had fallen to. Regardless of whether people took games seriously as a pastime or not, they absolutely understood their value as a commodity. The ongoing tensions between "AAA" games, or games made by large studios with large budgets, and "indie" games which can have as little as a single person involved in development, resemble similar conflicts between blockbusters and independent movies, corporate-produced music versus small labels, and major publications versus self-publishing. More importantly, the desire to claim financial control over the ideas presented in games is as powerful as any other form of authored work. Once the potential of the video game as a method of making money became clear, companies began to work just as hard to claim intellectual property rights while preventing others from benefiting from the same.

Games and software, however, have two aspects to them which make this process even more difficult than for other forms of media. Like music, their end results are highly malleable, capable of being copied with little effort, and thus easier to access without paying any money at all. The chief difference, then, lies in identifying the difference between a "recording" and an "executable." Specifically, with most forms of media, each material instance of it is its own discrete product, whether that be a videotape, a record, or even a digital recording like an MP3. While you can play with elements of it, that recording still exists in its base form and its base constituents. You cannot go retroactively into a recording and change the performers any more than you can go back in time and alter history's participants. No matter what you do to it, the original recording remains as an ingredient.

In contrast, programs work as "executables." Enter a command and the program works as it currently exists. Change a few aspects in it, maybe streamline some code or remove some

bugs, and the result is still identifiable as the same program even though its actual component language has been altered. Software can not only be copied, but also modified directly, something which technology could not easily accomplish with recordings until it could convert them into data – and even then, most people still differentiate altered recordings from one another.[11] Not only that, but talented programmers can, and have, fully recreated programs from the ground up utilizing completely different code, as can be seen by various unofficial ports - or versions of a specific game title which are designed to run on different computers or consoles – created by hobbyists. What results is a form of media constantly haunted by the philosophical dilemma of the Ship of Theseus: if someone reverse engineers a game from the ground up or changes a few things in the program directly, is it still the same game, the same program? If we assume that each modified version of a game does, in fact, make it its own discrete product, then who owns the intellectual property of the game in these cases? In a society that puts monetary value on everything, who is allowed to profit?

What complicates the debate further is the fact that these acts of copying, modifying, and sharing were, in fact, what game culture was for many in the earliest days of computing. Computer hobbyists exchanged programs and fixes openly all the time in newsletters and magazines, frequently providing the full code for others to enter freely at their leisure if they did not wish to pay the usually nominal fees to receive a recording of the program directly. The hobbyist world was one of comradery through mutual appreciation of a device which, at the time, was still highly niche among wider populations. Television console games, too, showed

[11] Think, for example, of the conflicts over Napster in the early 2000s, or the intellectual property fights many Black hip-hop artists faced over sampling in their music.

some potential for hobbyist culture through electronics kits, though whatever potential it showed for communal works was quickly halted through legal maneuverings forcing even the smallest companies to pay royalties to the owner of the patent. Nevertheless, the hobbyist world illustrates alternative methods of commodity consumption which continue to exist in various forms to this day, and which highlight the artificiality of the consumer/producer contract when it comes to software.

In other words, video games, and by extension video game culture, encourages the breaking of boundaries. For this exact reason, the fights that ensued to establish those boundaries were among the fiercest of the emerging era of microcomputing software, fought both in the courts and in the code. An emerging corporate industry required predictability of consumers and control of products, after all – and when neither your consumers nor your products fit into rigid categories, the fight to force them to conform to capitalist expectations becomes particularly fraught.

The historical body of literature is one which has been slowly growing within the last twenty years. Like many fields, it started primarily as examinations of established companies and "great men" before increasingly delving into larger topics. Amateur historians also began uncovering and discussing obscure games, something which became increasingly accessible to non-historians as the internet provided platforms for people to write and discuss games through free web hosts such as Geocities. The early internet was littered with websites documenting games both popular and otherwise, continuing to do so today as young readers inspired by such sites continued to examine and expand their reach. Many of these early amateurs would later go

on to form the backbone of game preservationist movements, with Frank Cifaldi of the Video Game History Foundation being perhaps the most prominently active example.

From this, interest has slowly developed in academic historical analysis. While the field of Game Studies has existed since the early 2000s, historians have only within the last decade begun to start earnestly analyzing gaming from a historical standpoint. As recently as 2021, Jeffrey Lawler and Sean Smith have called for an increase in historian contribution to the field, noting that while Game Studies themselves have expanded dramatically, there are still only a small number of studies which provide insight from a trained historian's perspective.[12] This, in conjunction with the alarming finding by the Video Game History Foundation that a paltry 14% of all video games are legally available for historical and public access,[13] highlights an increasingly urgent need for historians to see the full academic potential of video games.

To an extent, this has been shifting. Studies have ranged from individual console and company studies to regional examinations, to gender equality issues, and even to the utilization of games as a method of telling and analyzing history in and of themselves.[14] Yet compared to the body of literature in other fields, there is still a massive amount of room for new

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[12] Jeffrey Lawler and Sean Smith, "Reprogramming the History of Video Games: A Historian's Approach to Video Games and Their History," *International Public History* 4(1), 2021: 47-54

[13] Kelsey Lewin, "87% Missing: The Disappearance of Classic Video Games," *Video Game History Foundation*, https://gamehistory.org/87percent/ accessed 09/19/2023

[14] A few examples: For a book analyzing the material history of games, see Raiford Guins, *Game After: A Cultural Study of Video Game Afterlife* (Cambridge: MIT Press, 2014). For games as methods of teaching or thinking about history, a couple of examples include ed. Zach Whalen and Laurie Taylor, *Playing the Past: History and Nostalgia in Video Games* (Nashville: Vanderbilt University Press, 2008) and Adam Chapman, *Digital Games as History: How Videogames Represent the Past and Offer Access to Historical Practice* (New York: Routledge, 2016). For a look at gaming cultures outside of the "usual" spheres of the US, Britain and Japan, see Jaroslav Svelch, *Gaming the Iron Curtain: How Teenagers and Amateurs in Communist Czechoslovakia Claimed the Medium of Computer Games* (Cambridge: MIT Press, 2018). Finally, for a book about how games can be used as a historical teaching tool, see ed. Kevin Kee, *Pastplay: Teaching and Learning History with Technology* (Ann Arbor: University of Michigan Press, 2014).

interventions and ideas. This dissertation aims to help expand the field further by incorporating video games into a broader historical analysis of capitalism itself, connecting corporate actions in the gaming industry with other issues such as piracy and misogyny within gaming communities.

One major intervention this dissertation provides is to place a greater emphasis on the role the legal interventions of game companies and creators had on the overall shape of the game marketplace. While legal battles have been considered by historians, they have for the most part only been considered on a case-by-case basis, such as William Ford's investigation into the first major video game related lawsuit.[15] In contrast, while this dissertation does touch on specific cases, it does so to better illustrate the direction in which such legal interventions sent the gaming industry as a whole. It thus has much in common with Gerardo Con Diaz's work on the effects of patent law on the general software industry, in which he argues that "the commercial, legal, administrative, and conceptual problems that these patent protections have generated since the 1950s have facilitated the emergence of software as a product and a technology; enabled firms to challenge one another's place in the computing industry; and expanded the range of creations for which American intellectual property (IP) law provides protection."[16] This dissertation takes this argument – that these legal acts shape industry – and extends it to video games, effectively reincorporating video games back into the broader history of computing.

This dissertation, furthermore, builds on these ideas by highlighting the effects on the consumer space as well as production. Patent and copyright law are both heavily tied into the

[15] William K. Ford, "Copy Game for High Score: The First Video Game Lawsuit, 20 J Intell. Prop. L.1" (2012).
[16] Gerardo Con Diaz, *Software Rights: How Patent Law Transformed Software Development in America* (New Haven: Yale University Press, 2019): 4

notion of the ownership of ideas, and thus are the tools which individuals as well as corporations use heavily to combat attempts by others to capitalize on or utilize their creations without their consent. In that sense, they too attempt to resolve the question of how people are allowed to interact with games in that they give certain groups full authority on how they desire to distribute their ideas. They also are responsible for the creation of the borders which, in turn, attempt to define exactly who is allowed to alter or build on a work and who is merely allowed to consume it. Thus, this dissertation aims to emphasize the artificiality of these economic constructs and how they affect consumers just as much as producers.

To be clear, though this dissertation touches heavily on intellectual property, it is not itself a legal history. The history of the interrelationship between intellectual property and video games is still a notable absence in the literature of the history of computing, and a more detailed history would be best left to historians with more grounding in the overall history of patents and copyright. Instead, this dissertation examines the cultural impact of IP, and the way in which the developing battles over the right to ownership of ideas in gaming affected the overall culture of games.

This dissertation also touches on the issue of the ongoing issue of gender within gaming culture. More importantly, it addresses both conscious and unconscious forms of misogyny which have negatively impacted attempts to make gaming an appealing space to women even as more women began to show interest in games. Historians such as Carly Kocurek have attempted to analyze issues regarding exclusionary practices in consumer PC and arcade spaces.[17]

[17] See, for example, Jennifer DeWinter and Carly Kocurek, "'Aw fuck, I've got a bitch on my team!' Women and the Exclusionary Cultures of the Computer Game Complex" in *Gaming Representations: Race, Gender, and Sexuality in*

However, many of these analyses focus primarily on the cultural side, attempting to address the ways that game culture excluded women without subsequently considering the deliberate project of manufacturing a male audience. In addition, attempts to break down gender issues on the production side often focuses on surface level issues relating to the amount of women in the industry, or emphasizing figures who provided contrary evidence to the idea women did not enjoy games. This dissertation, rather than analyzing numbers, instead attempts to find root causes for these attitudes, tying it into the broader game industry project of constructing their consumer base. While it would be a simple matter to simply point to the broader issues relating to women and computer science – Rankin, for example, highlights a lot of misogynistic language leveled towards women protesting the overuse of school computers for gameplay and development during the 1970s[18] - this dissertation instead examines other, outstanding issues that, if not actively creating a culture of misogyny and the myth of gaming as a "boy's activity," at least reinforced it.[19] Specifically, this dissertation argues that, while initially culturally discouraged from displaying interest in video games, the bigger problems that prevented women from becoming a central market for the game industry involved the same corporate gender ideology that and practices contributed to the crafting of the "ideal" male game consumer. These

Video Games (Bloomington: Indiana University Press, 2017): 57-73 and Carly Kocurek, *Coin-Operated Americans: Rebooting Boyhood at the Video Game Arcade* (Minneapolis: University of Minnesota Press, 2015).

[18] Rankin, 219

[19] Ironically, this may have been purely a matter of perspective, however; the number of women who utilized "game" as a description of what they were doing suggests that early female programmers did find fun in computing but were, for whatever reason, unable to make the connection to this and the utilization of computers as forms of leisure. A broader history of the approaches towards women and hobbies would be the best way of understanding this. See for example Lynn Spiegel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago: University of Chicago Press, 1992) or Steven M. Gelber, *Hobbies: Leisure and the Culture of Work in America* (New York: Columbia University Press, 1999).

issues were compounded by an uninterrogated culture of machismo within the industry itself, of which the aggressive patent and copyright fights only partly represent. The gender exclusion problem, as a result, is a problem of the industry's own making rather than the supposed disinterest of women.

At the center of this is a repositioning of women as standing in "opposition" to what the "true" culture of games is. A blurred line between antiestablishment and misogynistic impulses has continued to exist within gaming, one which those enmeshed in the culture continue to battle even as the right to female leisure expands. By objecting to men playing on work computers, women opposed the counterculture of games. By having the game industry attempt to directly court them to expand its customer base, women represented an attempting "mainstreaming" of games which, for a male culture desperate to preserve their "masculine" cultural spaces, placed them as dangerous representatives of the "sanitization" of gaming. Simply by existing as representative of "feminine" ideals such as nonviolence and romance, women opposed the "counter" culture of video games. This ignores the reality that women came to represent this "other" force through exclusion, not through choice.

Finally, this work inserts video games into a broader history of the computer, globalization, and the cultural and social construction of technology. Though the academic study of video games is becoming increasingly robust as game players have come of age, more efforts need to be made to connect video games to broader analyses of capitalism. The history of the video game goes hand in hand with the history of the computer, given that video games were born from the desire for experimentation with programming computing devices. That more attempts have not been made to create a direct line between the video game and the computer,

and subsequently tapping into the richer history surrounding the development and proliferation of the microcomputer, represents a major gap in the literature of both fields. Thus, this dissertation asserts that video games are essential in understanding the development and expansion of computing, and likewise computing essential towards understanding the rise of the video game as a media form.

By necessity, this dissertation includes a lot of language which is specific to the culture of gaming. Perhaps one of the biggest is the difference between a "console" game versus a "computer" game. While both types of games run on digital hardware, a "console" is typically defined as a device whose primary focus is playing games, and which typically utilizes independent screens other than computer monitors for its visual component. "Computer" games, meanwhile, relate specifically to games being played on computers which may be used for multiple other purposes, such as word processing or art design. A third type of device, a "handheld," refers to consoles whose screen is built into the device itself, affording it an independence from external devices.[20]

Also worth addressing is the relatively constrained place of this dissertation within the global context. As a dissertation which leans into the social construction of technology (or SCOT, as it is often frequently abbreviated), an inherent limitation exists in that it focuses primarily on those countries which developed technology internally, rather than importing.

[20] Which is not to say this is absolute. The Nintendo Switch particularly complicates this relationship between handheld and console by functioning as both depending on how it is being utilized. Nintendo especially tends to blur the lines, with devices such as the Wii U and its tablet-like controller or the Game Boy Player which allowed games for Nintendo's handheld line of consoles to be played on televisions via the Gamecube console.

Introduction

Hyungsub Choi, in analyzing the technological history of Korea, noted the inherent limitations of the SCOT methodology of historical analysis in that, by focusing on the technical details of the development of technology, countries which had no hand in their original invention and production were left without a useful framework for understanding how technology affected and influenced society in ways unique to those countries, or vice versa.[21] As a result, a history of the game industry's development inevitably becomes a cultural history of the countries with the greatest hand in developing the video game as a global cultural artifact, which is to say the US, Japan, and to a lesser extent the United Kingdom. Countries which largely imported game playing technology, or which were denied legal avenues of obtaining games, are subsequently disconnected to this history.

This is not to say that importing countries are not essential to the story of gaming, however; in fact, the peculiar nature of games developed extralegally outside of the US, Japan or Britain play heavily into the same conversations about intellectual property as those developed with full intellectual permission. The Chinese bootleg game scene, for example, presents all sorts of questions regarding the protection of assets in a game, whether that be a standard rip of a preexisting game, a "sprite edit" in which essential graphics are altered, or even situations where an entire engine or set of graphics from one game is utilized to make a totally original product. For those countries, even if they did not develop the original technologies, their reinterpretation, appropriation, and utilization of those technologies nevertheless opens consideration for social connections to technology – and, in turn, ties again into the question of how we are allowed to

[21] Hyungsub Choi, "The Social Construction of Imported Technologies: Reflections on the Social History of Technology in Modern Korea," *Technology and Culture* 58:4 (Oct. 2017): 905-920

consumer and produce games, and the ways in which legal and commercial constructions shape these industries.

Perhaps most importantly, this dissertation poses a broader question: how do we analyze capitalism as a force of production and consumption when the producer and the consumer are one and the same? In the hobbyist days, people frequently consumed others' games, and in turn would program their own. For men particularly, who had the privilege of viewing computers as a form of leisure, the production of games was considered a valuable method of learning the ins and outs of how to program a computer. Since games tended to have relatively simplistic code and lower stakes than more productivity or work-related programs, they provided a low risk place to experiment, to figure out what worked and what did not. They also functioned as sites of social interaction either through playing them or through the sharing and modification of code. On top of this, many of the biggest names in gaming history got their start playing the games of others. Even the former CEO of Nintendo, Satoru Iwata, was as much a player and producer of games as he was a marketer, which has lent to his almost hallowed image after his untimely death to cancer in 2015. Attempting to isolate one group as pure producers and one group as pure consumers in this setting, therefore, would be nearly impossible.

What this presents, therefore, is a glimpse at the artificiality of the producer-consumer split, especially when it comes to creative endeavors, and especially when it comes to software. To attempt to restrict a group to one category or the other ignores the ways in which the two groups frequently cross over. To place legal restrictions on the way a consumer can utilize a product is to create a society in which one group can only display agency through the spending of money rather than in the actual use of technology. As the history of gaming culture shows,

however, the situation is frequently more complex and ideologically fraught than the binary framing capitalism attempts to enforce.

This dissertation is split into four chapters. The first chapter utilizes the figure of Joseph Weisbecker, developer of the ill-fated RCA Studio II, to tell a story about the hobbyist days of computing, in which a vision of the computer as simultaneously a source of pleasure and a source of productivity was at its strongest. It also highlights how participants in this culture could simultaneously work within traditional models of corporate engineering, thus highlighting the shared position of consumer and producer of many computer hobbyists.

Chapter two introduces the conflicts which plagued the early development of video games and software in the 1970s as represented by two men: Ralph Baer, inventor of the Brown Box and the self-titled "Father of Video Games," and Bill Gates, founder of Microsoft, whose "Open Letter to the Homebrew Computing Club" provides the first real evidence of friction between hobbyist groups and software production companies. In both cases, the focus is less on the actual legal fallout than it is on the sort of cultural tone their actions left upon video game culture, as the zealous protection of intellectual property and the right to be financially recognized for work on software and games began to impinge upon those who believed in the right to universal access. Baer particularly, as the proclaimed "Father of Video Games," requires close analysis given the contradictions between his public presentation and his actions behind the scenes as an entrepreneurial inventor defined by self-interest over community. His long history of encouraging and embracing legal action against individuals and groups for encroaching on his patent, as well as his inclination towards viewing other game hardware and software creators as

competition rather that comrades, can be seen as influencing the cutthroat ways in which gaming corporations would later interact with both their consumers and each other as well.

Chapter three looks at the 1980s, a period where the definition of "software piracy" was becoming more set in stone. It examines the debate as it developed, shifting the increasing hard line as corporations took greater and greater control over the industry. It also highlights the development of the growing conflict between "hackers" and business, as increasing attempts to legally restrict how users could interact with programs conflicted with traditional hobbyist activities of sharing and modifying preexisting code. Furthermore, an increasing cultural separation of "software" from "games" took place as computer companies attempted to display "maturity" by distancing themselves from gaming, hoping to appeal to new adult users for business and productivity purposes. This process subsequently orphaned games from their shared history as computer programs with productivity programs such as word processors and database programs. It also contributed to a cultural devaluation which deprioritized their piracy battles below more expensive, higher end business software, leaving games to fend for themselves against a growing cadre of youth with all the interest in games and computers and none of the money to purchase any of them. This chapter is perhaps the most global in scope, as attempts at creating a globalized market and standardized set of expectations regarding the proper use of gaming software were daunted by users actively encouraging the sorts of hacking corporations detested.

Chapter four takes a bit of a turn, shifting its focus from the "masculine" struggles of the early game industry towards that seemingly most elusive market for video games: women. Specifically, it examines how attempts to control the distribution of software and games and

mitigate the risk of profits lost to piracy actively contributed to the industry's inability to create a stable and predictable female consumer base even as the male audience continued to grow. The industry's obsession with finding the "magic formula" to bring women in blinded many game companies to potential solutions despite women often actively telling the industry what their financial and cultural priorities were regarding video games. Furthermore, many avenues which could have made games more appealing for women to purchase were cut off due to the difficulties in tracking "official" versus "bootleg" copies. As a result, despite women showing increasing interest in non-productive leisure time, game companies were locked in models which suggested women would be uninterested in using that leisure time on games.

With commercial media such as video games, we can take for granted the expectation that they exist purely as commercial products, and certainly many consume them in that mode and that mode only. But the relationship between consumer and producer is as manufactured as any social system, and through understanding how this process is manufactured, we can better understand not only the structure of this relationship, but also the ways in which consumers may be able to break out of it in a hypothetical post-capitalist society.

Chapter 1: "No Law Against Having Fun With Computers:" Joseph Weisbecker and the Philosophy of Hobbyists

Discussing how intellectual property conflicts affected gaming culture requires first understanding where the alternatives lay. There are many famous examples of games that became well known due to commercial success even in the earliest days of the industry. Nolan Bushnell, for example, was fond of the apocryphal story of how *Pong*'s success in the arcades was proven when they would get reports of the machine failing to function, and upon investigating the machines would find this was due to the coin slots overfilling to the point of making it impossible to start a new game.[22] Good sales make for an easily tracked metric by which people can trace the history of video games – but does so at the cost of flattening the narrative to only include the work of notable entrepreneurs and popular titles, subsequently viewing the history of games purely through corporate financial success.

The most prominent casualties of this capitalist perspective, of course, are the failures – those products and companies which fell into obscurity due to a lack of sales. Some would become a source of humor among game hobbyists, such as cell phone company Nokia's attempt at a handheld console.[23] Others would remain forgotten by all but the most devoted of video

[22] Walter Isaacson, "The Invention of Pong: How Nolan Bushnell Launched the Video Game Industry," *Slate,* http://www.slate.com/articles/technology/technology/2014/10/the_invention_of_pong_how_nolan_bushnell_launched_the_video_game_industry.html, Oct. 7, 2014, accessed 03/09/2023

[23] Also known as the N-Gage, which became more known for its unorthodox design than its actual games and quality. See Nancy Gohring, "Nokia to Pull Plug on N-Gage Platform," *Computerworld* Oct. 30, 2009 https://www.computerworld.com/article/2764218/nokia-to-pull-plug-on-n-gage-gaming-platform.html

game historians – most people will not, for example, even know that the television company JVC attempted to make their own game console.[24] In either case, their lack of financial success has rendered them, in the eyes of capitalistic meritocracy, unworthy of consideration in the broader canon of the game industry's growth, ruthlessly curated out of memory. Yet it is precisely in these industrial dead-ends that we may find visions of an alternate gaming culture –and perhaps nothing does this better than the RCA Studio II and its chief engineer, Joseph Weisbecker.

The RCA Studio II was arguably one of the biggest console failures in the early game industry. Already dated by the time of its release in 1977, it had graphics reminiscent of the first home game console, the Magnavox Odyssey, despite being released five years later and contemporaneously with graphically superior consoles such as the Atari 2600. On top of that, its controls were awkwardly designed, located directly on the console and utilizing a modified number pad rather than a joystick or a dial. The console thus paled in comparison to all its contemporaries, and only lasted a year before RCA itself scrapped the project. Given this, as well as RCA's poor support for the console, one would thus be forgiven for viewing the RCA Studio II as a cynical cash-in attempt on a growing new industry.

The console itself, however, is just part of a larger canon of work for a man whose life and legacy provides valuable insight into a pre-industry video gaming culture, one which was integral to the development and promotion of the microcomputing technology which would become central to game development, and which prioritized encouragement of new creators

[24] The X'Eye. For a video on the topic, see The Gaming Historian, *JVC X'Eye* https://www.youtube.com/watch?v=ssfKMxrj2IE

rather than individual achievements of companies and players. For Weisbecker, the Studio II was a very earnest attempt to enter the fledgling video game industry, one which he believed in with all his heart. Like much of his computer work for RCA, Weisbecker's ambitions lay independent of RCA's interests or self-promotion, tied instead to his own passion and belief in the potential of computers as sources of entertainment. And though it may have seemed as though Weisbecker's work was ultimately fruitless, he was able to succeed at the smaller, more personal goal he set for himself: creating easy to afford computing technology for hobbyists utilizing the resources of one of the biggest electronics corporations in America.

Weisbecker's story may seem insignificant in the face of juggernauts such as Nintendo or Microsoft. However, his work is arguably far more representative of the history of the video game than people realize. For while he may not be the household name his contemporaries became, he is a perfect example of the hundreds of thousands of enthusiasts whose love of computing and gaming created the framework upon which the culture and industry of video games would be built. While they might be shorter and ultimately perceived as evolutionary dead ends, these smaller histories are nevertheless essential towards bringing forth a technological history of simultaneity rather than singularity, a story of multiple groups reaching towards the same goals via different methodologies rather than prioritizing individual companies or people as developing their ideas from a void. Those who failed may not have their accomplishments recognized by the larger historical timeline, but the smaller things they leave behind each contribute to a more nuanced understanding of how every bit of technological innovation ties together towards our present state.

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In this sense, Weisbecker's work for RCA should not be identified purely by the failure of the Studio II project. Though he may have been a company man on the surface, his true loyalty was to hobbyists, and to the democratization of computing technology. The Studio II may have been a failure, but the vision Weisbecker had while developing it was one he would continue to nurture his entire life: a computer which people could have fun with, and which would inspire people to learn how to make better computers and more fun games.

Weisbecker represents a viewpoint on video games which sees video games not only as a stepping stool to more serious endeavors or a diversion, but as a holistic combination of education and entertainment. In focusing on Weisbecker's work, this chapter not only establishes how deeply integral the hobbyist culture was to the rise of both gaming and the microcomputer, but also reveals a different world for video games in which the biggest promoters of games were not the corporations developing them, but the people working on them, playing with them, and most importantly sharing them and encouraging others to do so in kind. Weisbecker's microcomputer work may not have ever dominated the gaming market, but his faith in the potential of computing technology as fun rather than productive nevertheless provides a narrative of gaming which is not only connected to the microcomputer, but directly involved in its development. And his hobbyist loyalties further remind us that corporate development firms may have provided the materials, but the hobbyists provided the motivation and will to promote gaming and computing technologies to wider audiences, thus contributing to the eventual growth of both industries.

Chapter 1: "No Law Against Having Fun With Computers:" Joseph Weisbecker and the Philosophy of Hobbyists

Weisbecker's Career

From the start of his engineering career, games and computing technology were intertwined for Weisbecker. His earliest recorded computer project, conceived in 1954 and built in 1955, was the ASTRC-1, or Automated Sequential Tic-Tac-Toe Relay Machine. As indicated, its primary purpose was to play tic tac toe with a human opponent. Writing about the project, Weisbecker's sense of humor was already present from the first page, in which he noted that "while this is not the only machine of its type it is however completely original and any resemblance to existing machines of its type is purely coincidental [sic]."[25] This project –a thesis project connected to his Electrical Engineering degree from Drexel University in Philadelphia, Pennsylvania, was a simple project, one which by his own admission had been a starting point for many others learning about computers. However, whereas some who worked in computers used games as a form of experimentation in the pursuit of more "professional" affairs, Weisbecker's career would continue to embrace the ways in which computers could entertain rather than merely compute.

Even before graduating from Drexel, Weisbecker had already started working with RCA. Not only that, but he was already assisting with computer development and design, which RCA was still in the business of developing during the early to mid-1960s. For the most part, this would be the company he spent the rest of his life with. However, he briefly left the company from 1963 to 1966 to work for another company, DCI, or Data Communications Incorporated, in

[25] Joseph Weisbecker, *ASTRC-1* in M&A 875, Folder 16, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

Terminal Development and Design. When the company was bought by Exxon and its headquarters moved to New York City, Weisbecker, citing disinterest in working out of New York, instead chose to rejoin RCA, and in 1967 he was back with the company with no interruption in years of employment.[26] Compared to the sudden shift of management and location experienced by DCI, RCA apparently provided the security he preferred, as he never left the company again afterwards. Nevertheless, Weisbecker defied the traditional image of corporate engineers in the 1960s, demonstrating a level of savviness and independence not often associated with the staid image engineers found themselves suffering from by the 1970s.[27]

He was also incredibly creative and inventive. Throughout the 1960s, he also worked as a freelance inventor, developing games and toys which he would shop around to various toy and game producers to develop. These ranged from the simple, such as cardboard puzzles, to complex devices which were as much toys as they were games. Many of his game ideas functioned as methods of introducing children to ideas of electrical and programming logic, such as on/off switches and binary. The Think-a-Dot, a toy specifically designed to introduce children to automata theory, is a primary example. The toy utilized ball bearings which were dropped into the device to flip the "dots" to one or two colors. The dots were simple switches whose color depended on whether the internal mechanism was switched to the left or right, altered by

[26] Joyce Weisbecker, "Re: Joseph Weisbecker and DCI," e-mail, 2019
[27] Letter from H. Kleinberg, *Computer* V.3 (September/October 1970): 44. The letter writer, noting some of the troubles facing engineers of the time, notes a specific image of an engineer as "a studious, pale fellow, whose clothes are sober and conservative and don't really fit well," which he contrasts with a conversation about the social and cultural obligations of the profession. For a recent book that goes into more detail about this conflict, see Cyrus C M Mody, *The Squares: US Physical and Engineering Scientists in the Long 1970s* (Cambridge: MIT Press, 2022).

the dropped bearings. Simple in concept, the game nevertheless had a complexity afforded to it by the different positions the gates could be in, up to a total number of 2^8 or 256. Understanding the basic "either/or" logic of the toy was important for winning the different games suggested in the instructions for the Think-a-Dot. In that sense, the toy allowed people both to learn how computer logic worked and have fun with it, with the understanding that the toy would still be fun to play even after successful communication of its base concepts.[28] More importantly, however, it highlights how Weisbecker felt that computers were, in themselves, games, and part of learning how to use them involved playing with them. This commitment to the intermingling of fun, computing and education would be the same mentality by which he approached his work at RCA.

FIGURE 1: THE ORIGINAL THINK-A-DOT, DESIGNED BY WEISBECKER.

However, to make games and computers, he had to get his company in on the project. In this, there was already a major obstacle for this objective: RCA had withdrawn from the mainframe computer industry in the early 1970s.[29] In order for Weisbecker to get RCA to let him work on his dream projects, he had to convince them that computers – especially the new microcomputers that were emerging as

[28] Joseph Weisbecker, *Think-a-Dot and Computers* in M&A 871, Folder 7, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE
[29] Computer History Museum, "September 17, 1971: RCA Withdraws from the Computer Market," https://www.computerhistory.org/tdih/september/17/, accessed 09/19/2022

the result of the creation of the microprocessor – was worth RCA's time and money. Weisbecker seems to have realized to some extent that he needed to sell RCA on the wider applications on the microprocessor, as his early writings on the topic are mostly dry and technical, befitting the serious nature of engineering.[30] Once he had managed to make his case, however, his intentions became much clearer not only in the projects he developed for RCA, but also in how he introduced it to the public at large, never once neglecting to mention in his descriptions of his projects that gaming was always on the forefront of his mind.

The RCA 1801 and 1802 processors, referred to as "COSMAC" microprocessors (or Complimentary Symmetry Monolithic Array Computer, named after their specific architecture), were the core of Weisbecker's microcomputing projects. Utilizing a specific style of microprocessor known as a complementary metal-oxide semiconductor (CMOS), these processors could run at lower speed and lower power than microprocessors produced in other fashions such as NMOS (or N-type metal-oxide-semiconductor). Unique at the time, this style would later become the dominant way of producing microcomputers due to lower power consumption and higher complexity, making it harder to replicate.[31]

For RCA, the appeal of these chips was a method of entering the microcomputer market utilizing their own internally developed technology, ensuring low cost to the company by removing the need for royalties. Weisbecker was also interested in creating a low cost

[30] An example of this sort of dry writing can be found in Joseph Weisbecker, *An 8-Bit Micro-Processor*, Internal RCA Report: October 1971 in M&A 875, Folder 3, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[31] For a more technical explanation of CMOS technology as well as a comparison to NMOS, please see "Difference between CMOS and NMOS Technology & Their Working," ElProCus - Electronic Projects for Engineering Students, October 20, 2014, https://www.elprocus.com/difference-between-nmos-cmos-technology/.

microprocessor, but for an entirely different reason: as part of the creation of a microcomputer anybody could make for a relatively low price, thus expanding access to microcomputing technology. He did not take long to capitalize on the chips as soon as production began, submitting a build which utilized the chip to the hobbyist magazine *Popular Electronics.* Known as the COSMAC Elf, Weisbecker's instructions required only that the microprocessor itself be RCA's while allowing the rest of the build to be whatever suited hobbyists' tastes or budget.[32] While a prebuilt option in the form of the COSMAC VIP would be available in the late 1970s, the Elf was how most hobbyists came to know Weisbecker as a computer engineer, and letters submitted to Weisbecker continued to remember the project fondly.

Within RCA, however, Weisbecker's projects met with mixed success. Surprisingly, games were among the first things Weisbecker's division attempted to utilize COSMAC technology for, with early development focusing on the potential of the microprocessor for arcade machines. These machines were ruled as unfeasible by RCA's Distributor and Special Product Division on testing.[33] The arcade prototypes, however, were not without merit; they would introduce the possibility of developing home entertainment systems instead utilizing the same technology, the development of which Weisbecker would helm. These home computing and entertainment projects would be his main focus within RCA for most of his career throughout the 1970s.

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[32] Joseph Weisbecker, "Build the COSMAC 'ELF:' A Low-Cost Experimenter's Microcomputer, Part 1," *Popular Electronics* August 1976: 33-38

[33] R.O. Winder, *Annual Report for LSI Systems Design Group for 1975* in folder M&A 874 Folder 6, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection Box M&A 871 at Hagley Museum in Wilmington, DE

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The first microcomputer project he worked on was the RCA FRED, or the "Flexible Recreational Educational Device," a computer intended to function as an educational tool for schools. Through it, students would be able to learn important elementary lessons as well as how to utilize this new computing technology. While the educational aspect of the computer was emphasized in promotion of the project, Weisbecker was clear that games would be an essential part of the teaching process.[34] Again, Weisbecker's inherent belief in the capacity of fun and education to coexist was present within the philosophy of designing FRED, and while ultimately FRED itself was never released, the ideas behind it would manifest in later projects.

Ideas for the Studio II began to manifest by the middle of the 1970s. Rather than existing as a standalone product, however, the Studio II was intended to be part of an ongoing evolutionary project. RCA intended consumers to "step up," slowly improving upon the console over time with planned "sequel" projects Studio III and Studio IV.[35] This explains why RCA may have pushed the Studio II out the door despite its glaring design issues: through this methodology, the first step would be to get the console into houses first, then improve upon them later. Unfortunately, this would require RCA to be able to convince consumers that purchasing the Studio II over more polished consoles released contemporaneously would be worth their time and money. It also relied on the idea that the games built into the console would be enough to

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[34] Joseph Weisbecker, *FRED: A Flexible Recreational and Educational Device* July 1972 in M&A 874 Folder 25, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[35] R.O. Winder, *Subject: Meeting August 12 with DSP and Labs*, August 12, 1977 in M&A 875, Folder 18, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

whet appetites until the planned upgrades took place. Ultimately, RCA was unable to persuade consumers, putting an end to RCA's longer game plan.

Not helping the project either was the ambivalence towards it within the company itself. Perhaps nothing spoke louder about attitudes towards the Studio II within the rest of the company than the box art for the console itself. Focusing on a family gathered around in front of the television playing the console, the faces of the family members can be described as befuddled at best and actively irritated at worst. No effort is made on the part of the people to interact with the console itself. It was almost as if the people in the image were staring at an alien technology rather than something that was intended to bring families together as a form of entertainment. Later box artwork would emphasize that the Studio II was something worth enjoying and interacting with, showing an actual family playing with the device. But the fact that RCA allowed this unenthusiastic image to be the art that advertised the console in the first place would suggest that RCA did not take the Studio II seriously as a product.

FIGURE 2: THE ORIGINAL ART FOR THE RCA STUDIO II. LATER ART WOULD MAKE THE FAMILY MORE ENGAGED WITH THE PRODUCT, BUT IT MAY HAVE BEEN A CASE OF TOO LITTLE, TOO LATE. SOURCE: RCA STUDIO II HOME TV PROGRAMMER OWNERS MANUAL FOUND IN M&A 875, FOLDER 10

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No doubt, then, that RCA did not support the Studio II as strongly as it could have. However, the bigger problem may have lay in the misplaced faith that consumers would be willing to embrace an incomplete project. Approaching the Studio II as a work in progress rather than a standalone entertainment device would have made more sense to hobbyists used to constantly fiddling with their computer builds, not consumers expecting a device to work perfectly right out of the box. The Studio II's long-term goals of a slowly evolving machine were ones which resembled how a hobbyist might slowly improve on a custom-built computer. But building and compiling computers took time, requiring specific skill sets and frames of mind that not everybody had. For a device that had yet to properly establish itself among a broader consumer audience, the extra work required to put together a device of yet unproven necessity would have been too much. What was worse, the Studio II came at a time where more immediate forms of video game gratification were already available: arcade games were becoming more sophisticated by this point. Worse yet, the Atari 2600 would be released eight months later, all but guaranteeing the Studio II would be eclipsed. In short, the RCA Studio II's piecemeal approach ensured the device would already be in trouble the moment it was released.

Even if customers did have the patience to wait for improvements to the Studio II, they may not have had the willingness to risk making the alterations necessary to improve it. Electronics companies – especially RCA itself -- at this point had already trained much of the non-hobbyist community that modifying their technology in any way was not only dangerous, but also would invalidate warrantees. The excessive control wielded by manufacturers utilizing warrantees, in fact, was one of the reasons for the passing of the Magnuson-Moss Warranty Act

of 1975, which included in its guarantees that manufacturers could not invalidate a warranty based on modification or usage of aftermarket parts alone.[36] That such an act had to be created, however, is itself evidence of how corporations attempted to assert control over how people could utilize their goods and force consumers to reject repairing or replacing parts themselves. More importantly, however, it trained consumers who were not inclined to tinker with their purchases to expect a complete and fully functioning product right out of the box. To Weisbecker, the Studio II may have seemed like an exciting work in progress, but non-hobbyist consumers would have seen the console as a standalone device, and a poorly conceived one at that.

In the wake of the Studio series' failure, Weisbecker continued to work at RCA. He remained immersed in the world of computers, publishing prodigiously. Through his company Komputer Pastimes, he created games and books aimed at teaching children about computers and programming, hoping to spark the same love of computing he had. He developed an interest in simple magic tricks, integrating that interest into his publishing work as well as his programming work. Sadly, he died relatively young in 1990 at the age of 58, and while his work in games never reached the same heights as some of his contemporaries, he nevertheless made an impact on the computing scene, with the RCA 1802 seeing application in space programs, notably for the Hubble Space Telescope.[37]

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[36] Federal Trade Commission, *Magnuson Moss Warranty-Federal Trade Commission Improvements Act*, https://www.ftc.gov/legal-library/browse/statutes/magnuson-moss-warranty-federal-trade-commission-improvements-act

[37] Afshari, A. "Hubble Space Telescope's Wide Field/Planetary Camera," *Shutterbug* (January 1983). Currently only accessible via Wayback Machine at http://trs-new.jpl.nasa.gov/dspace/bitstream/2014/35164/1/93-0731.pdf

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Why Weisbecker?

If the Studio II was a failure, and RCA's microcomputer division proved incapable of making a noticeable impression in the home computer market, then why is Weisbecker worth considering at all? If we analyze Weisbecker from an economic standpoint, or from a perspective of "big names," then Weisbecker and RCA fade into the background of the history of gaming. However, from a less grandiose perspective, Weisbecker could be considered a success with regards to the community of which he maintained loyalty: hobbyists.

Weisbecker published prodigiously. While his most notable output was the *Popular Electronics* about the Elf, he also published in *Byte* regarding his proprietary programming language. The language, which he called CHIP-8, was designed to be less hardware intensive (and thus, presumably, a cheaper alternative) to programming languages such as BASIC.[38] In this, he was right at home with the myriad of other tinkerers and inventors, all of whom submitted ideas buildable by anybody with a head for electronics, all of whom tended to focus primarily on enhancing entertainment ranging from radio to simple games. These articles are notable given he was promoting his company's products, since he essentially offered extra assistance and advice for free through these publications to those interested in utilizing RCA's technology for their hobbyist activities. The Elf thus represented the purest form of Weisbecker's ambitions: unlike the RCA built COSMAC VIP, the Elf was a purely hobbyist

[38] Joseph Weisbecker, "An Easy Programming System," *Byte* December 1978: 108-122

project. Furthermore, while the microprocessor was patented by RCA and a central component of the Elf, the rest of the computer could be built to the specifications of the end user, with Weisbecker himself providing basic instruction through hobbyist articles. This meant in theory that the microprocessor might be the only part of the Elf that was RCA developed. For a hobbyist with the time and interest, Weisbecker was more than willing to provide the instructions for free what RCA would later sell pre-built in just a few short years. Weisbecker believed in doing whatever he could to increase access to computing technology, going outside what was expected of him as a programmer and engineer to distribute these articles.

He, like many engineers, also maintained a substantial library, following multiple computing publications. Perhaps no publication better espoused Weisbecker's own beliefs, however, than *The People's Computer Company*. *PCC*, as well as its associated nonprofit of the same name, was a group which prioritized the educational and recreational potential of computing. Included in a mission statement of sorts of its second issue was a declaration of the newsletter's purpose to promote "having fun with computers."[39] Based in Menlo Park, California, the PCC was also notable for its socially conscious approach to computers. A strong believer in the democratization of computing technology, the PCC took a position against what they felt was the computing industry's tendency to promote top-down structures while shoring up the heavily corporatized nature of 1970s America. In the same second issue that promoted the use of computers as fun and educational, they also included excerpts from a *Rolling Stones* issue that had been recently published in which the interviewee noted that computers "don't

[39] *People's Computer Company* vol.1(2) Dec. 1972: 2

know shit [sic]." Instead, as the interviewee noted: "Where a few brilliantly stupid computers can wreak havoc, a host of modern computers (and some brilliant ones) serving innumerable, individual purposes can be healthful, can repair havoc, feed life."[40] They also openly encouraged the development and sharing of computer games as part of their overall goals, noting the educational potential of these games as well as seeing them as all-ages entertainment.

In fact, Weisbecker's primary audience when he returned to RCA was first and foremost the hobbyists. He made no secret of this fact, frequently emphasizing in internal RCA documents that low cost was one of the most important aspects of the various RCA microcomputer projects. On the surface, his argument to RCA was that making the microcomputer more accessible would also result in more sales. But his singular focus on reducing the price point of entry into computing represented his one true goal from RCA: utilizing the resources of a major corporation to make the hobbyist computer of his dreams, one which could be easily distributed and enjoyed by others as well as himself. The FRED, and later the COSMAC, were as much personal projects writ large as they were intended market commodities.

Saving costs was essential to hobbyists. Electronics required a lot of preexisting parts, even if the construction and programming of computers was ultimately up to the hobbyists themselves. Magazines were filled with tips on how to create projects while spending the least amount of money possible. This included reporting on places which sold the cheapest components and, as one example in the Amateur Computer Group of New Jersey's newsletter

[40] *People's Computer Company* 1(2): 19

highlights, informing people of potential scammers and bad-faith companies.[41] The ability to create something that was both high functioning and low cost would have been viewed as a great victory for hobbyists, something which allowed them to enjoy themselves without breaking the bank. Weisbecker's heavy focus on price, therefore, could be where his hobbyist tendencies peeked through the most. Rather than emphasizing luxury or ease of use, Weisbecker's cost conscientiousness was focused on providing ease of access to the end user. This was opposed to much of RCA's products, which were preconstructed and heavily discouraged amateur tinkering through utilization of the warranty and warnings about potential health hazards associated with unauthorized modification of their products.

Weisbecker thus, while failing to bring RCA into a leadership position in the home computer market, still managed to succeed within the more modest set of goals he had set for himself. The COSMAC Elf brought hobbyists onto the hardware, and quickly developed its own set of devotees to the point that a 1980 marketing analysis established RCA as second place in the admittedly small hobbyist computer market despite placing nowhere near the top five in any other home computer categories.[42] COSMAC was a cult hit, and Weisbecker got the computer he wanted. By these standards, he was a success, even if he is obscure today. The VIP,

[41] Amateur Computer Group of New Jersey, "Rip-Off!?!," *Amateur Computer Group of New Jersey News* January 1978, M&A 873, Folder 16, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[42] Creative Strategies Inc, *The Market* (Unknown, 1978): 38. Found in Box M&A 875 Folder 4, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

meanwhile, merited its own fan magazine, *VIPER*, which Weisbecker himself followed.[43] The existence of a publication that focused entirely on his life's work, exchanging program ideas and information like so many other publications he subscribed to, would have been a perfect example of the impact he had made on the computing industry.

Fan loyalty, fostered by Weisbecker's willingness to interact and assist other hobbyists, no doubt played a huge part in the larger success of the COSMAC line of microprocessors compared to RCA's attempts to get into the broader personal computer industry. For hobbyists, who valued the flexibility designing and building their own computers afforded them in terms of software, computer layout, and design, the reliability and low cost of the COSMAC would have been attractive. This would also explain why the microprocessor itself, coupled with the designs provided by Weisbecker, would have been more appealing to hobbyists interested in games than the prebuilt Studio II, which imposed a specific layout on people. Even the VIP would have been preferable, given that it was a personal computer which still allowed prodigious amounts of experimentation via programming and expansion slots.

That said, Weisbecker's career trajectory also hints at why veteran electronics corporations such as RCA would not end up dominating the gaming market. By the logic of companies such as RCA, and especially the RCA of the Sarnoff era and beyond, maintaining market dominance required developing projects internally rather than subjecting themselves to licensing agreements. The creation of the David Sarnoff Labs, for instance, was entirely due to

[43] A collection can be found in his archives in Box M&A 874, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

its namesake's desire to maintain dominance in the market through intellectual leadership, owning ideas for others to license rather than buying the ideas of others.[44] For Sarnoff, maintenance of a monopoly over corporate research, particularly for radio, was necessary to ensure research remained focused and well-coordinated among all participants. Corporate dominance, then, was seen as a way of guaranteeing innovation by freeing companies from focusing on corporate gain. [45]

This insistence on a self-reliant research program, however, meant that large corporations expected all ideas to evolve from within rather than taking inspiration from outside the company. Unlike Weisbecker and his hobbyist friends, RCA was unwilling or incapable of exchanging important ideas and technologies which could contribute to improving their own products. This could prove problematic in situations where RCA's internally developed technology proved insufficient for its employee's needs. For example, Weisbecker at one point utilized a Sony television to demonstrate his computing technology. When called out on this act of corporate disloyalty, he revealed that the RCA televisions at the time were incapable of providing the same quality of imagery that the brand he used did, thus necessitating the use of a competitor's product instead.[46] Weisbecker understood inherently that remaining "loyal" to any one company brand made it nearly impossible to properly innovate on technology. In comparison the only other major electronics firm to make any headway in the video game industry, Magnavox, was due to their willingness to license work from outside the company rather than stick to a strict in-house

[44] Margaret Graham, *RCA and the VideoDisc* (Cambridge: Cambridge University Press, 1986): 40-41
[45] Graham, 42
[46] Interview with Jean and Joyce Weisbecker, September 22, 2004

policy – and even then, when Magnavox attempted to develop their own consoles, their own efforts paled in comparison to companies which specialized in play such as Coleco and Atari.

Notably, the David Sarnoff labs themselves were in tension with the main RCA Corporation starting in the 1970s, as more and more engineers developed camaraderie with each other versus solidarity with the company. Margaret Graham's history of the RCA VideoDisc system, a device intended to be RCA's answer to video cassette recorders, notes that the Sarnoff center was increasingly becoming a "corporate counterculture," focusing more on theoretical possibility versus practical improvement for technology.[47] In other words, RCA's Corporate research division had shifted towards a greater focus on exploring new ideas rather than improving on older technology regardless of whether or not those ideas could even be effectively implemented in a consumer environment. Weisbecker's projects in general illustrate these conflicts pointedly, given he was creating computing technology for a corporation that had given up on it before the decade had even started. His intention to forge his own path rather than continue working on the same old projects was a philosophy increasingly encouraged within the Sarnoff labs – and simultaneously at odds with the rest of RCA.

FRED particularly was a project which required straddling a fine line between a serious-minded engineering firm and the whimsical approach to computers Weisbecker preferred. In Weisbecker's own pitch for the project, he emphasized the educational potential of the computer,

[47] Graham, *RCA and the VideoDisc,* 71

describing its classroom applications first before its potential as a home entertainment device.[48] Yet internal communication during the device's development revealed that a great deal of emphasis was placed on FRED's potential as a family entertainment unit rather than on developing programs with specific educational incentives. For example, one suggestion from Weisbecker for the FRED was a light gun peripheral, a choice that would have only found practical application as a tool for play.[49] This seems to imply that the engineers involved in FRED's development believed the best way to sell RCA on the project was to attach it to a more high-minded philosophical goal, which in this case was educational enrichment.[50]

Weisbecker's notes furthermore establish that Weisbecker knew placing emphasis on educational value in computing was a carrot designed to draw people towards computers via the promise of something wholesome or uplifting. In a set of hand-penciled notes Weisbecker comments, regarding consumer computers, that "education is actually a diversion."[51] What he means by this is unclear; given he follows up with a comment about "structured movement towards a desirable perceived goal." However, one possible conclusion is that he recognized that computing technology had to be pitched to people in a specific way that promoted a consumer's

[48] Joseph Weisbecker, The FRED System (Flexible Educational, Recreational Device) in Box M&A 874, Folder 26 found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE
[49] Joseph Weisbecker, "FRED Light Gun Attachment – FRED Note #15" in M&A 874, Folder 25 found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE
[50] Joyce Weisbecker, Joseph's daughter, reinforced this in an interview by noting that the only way you could get RCA to fund a hobbyist computer was to pitch it as a training device. Interview with Joyce Weisbecker, August 18, 2018
[51] Joseph Weisbecker, "Notes, General 1977, Undated," M&A 875, Folder 5, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

intelligence or foresight. Indeed, he apparently regarded educational games as necessary but "boring," suggesting that he viewed them as a necessary evil rather than a worthwhile and appealing product.[52]

Cynical though this philosophy may have been, Weisbecker's personal approach to computers was far more holistic. Gameplay was an integral feature not just of the FRED or the Studio series, but of all his microcomputer work. For Weisbecker, games were not simply a side diversion away from broader educational goals, they were an end unto themselves. For a microprocessor manual otherwise steeped in technical language, for example, Weisbecker wrote that the microprocessor "satisfies a number of applications such as game playing and classroom use."[53] That he listed gameplay first over more "productive" usage suggests how important play was to him. In situations where he was able to write more casually, he would often take a much more jokey, casual approach to how he presented material. His forward for the RCA Microtutor, another COSMAC project developed by Weisbecker based on his work on the FRED, even underlined the last sentence, explicitly echoing the ethos of the People's Computer Company: "<u>There is no law against computers being fun!</u>"[54] Weisbecker's belief in the connections between computing and entertainment were deeply enmeshed to the point that he appeared to be pushing back against specific viewpoints about the role of the computer, ones which evidently felt computers were serious affairs.

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[52] Interview with Joyce Weisbecker, August 18, 2018
[53] Joseph Weisbecker, *Microprocessor Manual OO* in M&A 874, Folder 1 found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE
[54] Joseph Weisbecker, *COSMAC Microtutor Manual* (Somerville: Solid State Technology Center, NJ): 1. M&A 872, Folder 22, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

Chapter 1: "No Law Against Having Fun With Computers:" Joseph Weisbecker and the Philosophy of Hobbyists

While Weisbecker stated his alliance with the goals and aspirations of the PCC, his lifelong career with a major engineering corporation such as RCA was a major point of divergence. Weisbecker would often allude to the importance of keeping his job within RCA in his correspondences. Indeed, despite his philosophical alignment with the PCC, he admitted he could not completely adopt their stances, stating at one point his lack of desire to be a "corporate drop-out" in a letter to the editor, Bob Albrecht.[55] On top of that, despite his otherwise high levels of involvement with hobbyist publications and communities, he acknowledged that some of his ideas were unpublishable due to RCA's demand for exclusivity and corporate secrecy from its inventors, noting that should he allow all his ideas to be presented publicly that RCA would object – and, only half tongue in cheek, added, "So would my wife and kids if I lost my job."[56] For as much as he believed in free access to computers, he had limits in the degree to which he could and would pursue those goals, including adhering to corporate secrecy policies which were antithetical to groups such as the PCC.

Weisbecker would have understood the perils of uncertain career prospects. As a freelance game and toy inventor, he was constantly faced with uncertainty as to whether his ideas would be accepted by toy companies or not. Furthermore, his experiences with DCI demonstrated the perils of establishing small businesses, especially those which showed promise to larger corporations uninterested in the specific needs of its founders. These experiences

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[55] Joseph Weisbecker, "Letter to Bob Albrecht," May 25, 1975, M&A Box 871, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[56] Joseph Weisbecker, "Letter to Bob Albrecht," June 7, 1975, M&A Box 871, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

undeniably influenced his personal decisions to stick to the company line at least via the letter of the law, albeit not the spirit.

Weisbecker's decision to remain a "company man" was absolutely a more reliable way to make a living, and indeed was at the time still the standard career trajectory of most engineers. However, the price he paid for steady work was anonymity and a lack of control over his projects. As seen with the RCA Studio II box art, Weisbecker only had so much say over how his work was presented to a mainstream audience. Within the hobbyist community he could make a name for himself with his publications and his outreach to other hobbyists. But RCA owned the rights to anything he made they felt fell into their purview of production, to the point that Weisbecker had to get permission to sell his freelance game ideas from the RCA patenting division even if the proposed project itself had nothing to do with anything RCA was currently producing.[57] Not only that, but if RCA decided that they no longer desired to participate in a particular industry – as they had already done when they dropped out of the mainframe computer business at the end of the 1960s – Weisbecker's work would simply disappear along with any other projects RCA decided to reject.

His invisibility within the larger RCA corporate machine did have some benefits. Much of the work he did on microcomputing, for example, was done with minimal oversight by RCA corporate. That he was able to get RCA to produce computing machines he could then provide

[57] RCA, "Agreement," December 1952, M&A 871, Folder 18, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE. There are multiple examples in the same folder of Weisbecker's archive of him putting this agreement into practice, but one for, of all things, a card game, illustrates how closely Weisbecker had to adhere to the policy despite said game being obviously out of RCA's normal purview.

to other hobbyists without forcing them to purchase all their materials from RCA speaks volumes about the leeway he was afforded primarily from RCA's indifference to microcomputing. Weisbecker was furthering his own hobbyist interests on RCA's dime; his initial pitch to RCA promoting microprocessors, for example, came with a memo in which he admitted that what he wished to develop was a continuation of work he had already been engaged in at home.[58] By himself, Weisbecker would have lacked the funding and access to materials he needed to get his cheaper computer kits out to a wider audience. With RCA's (perhaps unwitting) assistance, however, he was able to achieve the one goal he had set out for himself.

Weisbecker thus represents a peculiar side effect of the in-shop development houses which dominated tech firms during the 1970s: the ability to utilize his company better than his company proved capable of utilizing him. In that way, Weisbecker also embodies a specific moment in gaming history in which game producers were far less defined by the corporations they worked with. This lack of corporate self-interest in connection with gaming and computers gave Weisbecker freedom he would have lacked had RCA maintained more active interest in the projects he worked on. While he may not have had the structural support he would have liked, he nonetheless benefitted from his connection to the company.

The Limitations of Hobbyist Computing

[58] Joseph Weisbecker, "Activity Report, Aug-Sept-Oct, 1971," M&A 875, Folder 3, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

Chapter 1: "No Law Against Having Fun With Computers:" Joseph Weisbecker and the Philosophy of Hobbyists

Weisbecker's idealism about computers came, however, with a naivety about the feasibility of his beliefs with regards to mainstream consumers. Notably, Weisbecker's belief in the intrinsic joy of computers was based on a conceit that other people would consider programming and gameplay worth the time investment, something which even with his efforts to reduce the price of computing was too much to ask of most consumers. Even during the height of the hobbyist culture, programmers would sell their work to others who did not wish to experiment for themselves or build a new program from scratch, albeit at prices considerably lower than when the software industry went fully corporate. In other words, despite the ethos of open source and the provision of a program's code in total in publications, the potential to profit from hobbyists desiring a pre-built product over the physical labor of copying programs into their own computers remained present. Beyond even programming, the hardware component of hobbyist computing would have remained daunting. For those less mechanically inclined, building a computer went far beyond their actual desire to own one in the home, especially given the enormous base of knowledge required to do so.

Then there was the matter of the financial burden. For all Weisbecker's attempts to lower the price of computing, building and experimenting with computers still demanded a great deal of money, of which only people with the funds to spare or the desire to drive them would be willing to invest. This issue would only become more pronounced later as companies began to sell prebuilt computers and preprogrammed software. While Weisbecker was clearly aware of the financial impact of computing, he also felt the enjoyment of computers outweighed the costs, an attitude which was easier for a middle-aged, white, straight male with a steady job at a

prominent engineering firm than someone in lesser straits. Though he did encourage the idea that learning computing could pay back dividends – an idea best illustrated in his book *Home Computers Can Make You Rich*, which provided numerous ideas on how somebody could use a home computer as a means to make money rather than as an ancillary tool towards other entrepreneurial endeavors[59] – he never seemed to consider broader issues of access which would make the initial investment of time and money difficult to embrace for people in lower class positions.

He also had serious blind spots regarding the role of gender in his hobby of choice. On the one hand, Weisbecker was self-conscious enough to be aware of his own limitations. In one book, as if apologizing in advance for any mistakes he would make in referring to women, he jokingly wrote, "In deference to the fairer sex, it should be noted that any nonsexist terminology is purely unintentional and should be blamed on the typesetter rather than the author."[60] That he acknowledged his own sexism in his work demonstrated that he was at least thinking about the nature of the language he used in his writing and how it related to larger issues of gender representation. On top of that, he began to alternate pronouns in one of his later books between "he" and "she," something which most authors even in the 1980s would not have considered in

[59] Joseph Weisbecker, *Home Computers Can Make You Rich* (New York: Hayden Book Co., 1980). A draft of the book can be found in M&A 870, Folder 9, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE
[60] Weisbecker, *Home Computers Can Make You Rich* (draft), 1

nonfiction writing.[61] Weisbecker was clearly aware that there was a masculine bias in language and attempted to correct himself appropriately.

Professionally, Weisbecker was also adept at navigating masculine egos. A shy, unassuming man, he was nevertheless observant and developed a savvy for dealing with otherwise prickly coworkers. He passed valuable advice in this vein on to his daughter as she entered electrical engineering, doing so in a way that suggested he was clearly aware of the pitfalls awaiting women entering the field. For example, he told her that particularly abrasive or rude coworkers were often just "thin-skinned," looking for an excuse to reject people – and especially women – as lacking a sense of humor and not worth dealing with. By reacting similarly brash rather than offended, he suggested to her that she could make strong allies of these types of people.[62] Weisbecker felt that for a lot of these engineers, however, it was an overall problem with people in general rather than women specifically. Perhaps this was due to his own personal experiences growing up, but his insights on male engineers suggest that he was aware of the impacts of masculinity, but perhaps not the way masculinity lay at their roots.

In many respects, he seemed otherwise oblivious to the existence of gender inequality within engineering or hobbyist computing on a broader scale. While he truly believed that anybody could become interested in computing, he believed so in the same way that hobbyists

[61] This is best demonstrated in his draft for a book he wrote for demonstrating "magic" tricks with a computer. See Joseph Weisbecker, *Pocket Computer Magic Show* (draft), M&A 870, Folder 11, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE
[62] Interview with Joyce Weisbecker, August 18, 2018

frequently did at the time: by never questioning whether the default expected behavior for hobbyists was itself formulated along patriarchal thinking.

As idealistic as this viewpoint was, it was unrealistic in light of the reality that many computer hobbyists had transitioned to that culture from ham radio groups of earlier decades.[63] Unlike computing, however, few attempts were made in ham radio to foster a broadly inclusive community for anybody other than men. Kristen Harin's writing on ham radio cultures noted that many ham radio clubs consciously and deliberately crafted an image of masculine heterosexuality, no doubt to waylay accusations that white collar hobbies such as ham radio could be seen as "effeminate." This lead to women who were also interested in radio being forced to counterbalance their identities as technical operators with their identities as women – with the former identity often being sacrificed to avoid diminishing their sense of femininity. In other words, women could never fully participate as ham radio hobbyists because to do so would require not "being women."[64] In this light, even with the arrival of personal computing during increasing challenge to gender norms in America, computer hobbyists would most likely have suffered from the same problems.

Weisbecker, if he was aware of this gendering of technical hobbies, did not seem to grasp the pervasiveness of it as it related to his own work and life. While women may have been increasing in the computing workplace, their presence was muted in hobbyist circles at best. Most of the people who wrote letters to him were men. Most of his coworkers at the David

[63] Kristen Haring, *Ham Radio's Technical Culture* (Cambridge: MIT Press, 2007, 157.
[64] Haring, *Ham Radio's Technical Culture,* 45-46

Sarnoff Institute were men. The People's Computer Company itself, at one point, lamented a 97% male readership, going so far as to note that other circles of computing did not have nearly the same level of gender imbalance.[65] Weisbecker's main circles were predominantly male, and no evidence suggests that he noticed.

This was not to say that he would have been unfamiliar with the issue. His regular readership of the PCC newsletter would have provided insight into issues regarding gender inequality in computing. The PCC, with its reader base of teachers and educators as well as engineers and programmers, displayed a sophisticated understanding of the trials women faced in computing. Two issues of their publication *People's Computers* focused precisely on this issue, utilizing a letter sent to the magazine by a woman named Annette Ran to initiate a conversation on the subject. A self-described "plain dodo" with an interest in computers, Ran wanted to know whether computers could be made comprehensible even to people with minimal technical skill. She was thus notable in that she was a rare aspiring hobbyist; even the women responding to provide advice in the issue were primarily professionals.[66] The responses are telling on this point: The one male respondent to the first article seemed to feel that the problem was less her being female and more being "a beginner."[67] The other three respondents, all women, show increasingly nuanced understanding of the issue, with the final respondent bringing up the lack of structural support for women altogether. The follow-up article, in which all writers besides Ran herself were male, suggested that the first article had made an impact. Male readers were

[65] People's Computer Company, *People's Computer Company* Vol 5(4): 2.
[66] People's Computer Company, "Women and Computers: A Dialogue," *People's Computers* Vol 5(6): 11-12
[67] Ibid, 11

beginning to think more about the broader cultural obstacles that stood in the way of Ran's personal advancement in computing. Both respondents in the follow-up article were sympathetic, though still clearly wrestling with their lack of sophistication. One respondent, Andrew Clement, fell briefly into a "biological truths" sort of explanation, though he at least encouraged that "yin and yang" (or women and men, in his analysis) should both be aspects of computing – and, to his credit, the idea was presented to him by another woman, not something he came up with entirely on his own.[68] These articles, in conjunction with each other, display both ignorance of the way sexism influenced entry into computer engineering, but also a willingness to listen and integrate new thinking about gender and cultural norms into considering the hobby they enjoyed – something which both Weisbecker's advice to his daughter and self-consciousness about language use mirrors.

Weisbecker thus was representative of a general problem among male hobbyists. The letters in the PCC articles suggest, more than any attempts to deliberately gatekeep women out of computing, that male hobbyists lacked a conscious awareness of broader issues of sexism in computer science, instead flattening the issue to a matter of "beginner" and "expert." Only when pressed on the issue do these hobbyists begin to think deeper on the issue, although to their credit they do in fact think about them. Meanwhile, among the women brought up to answer Ran's questions, one of them readily admits not being involved in hobbyist computing herself, one seems mostly concerned about "application" software, and only the last writer really digs into whether women are encouraged in ways that could get them involved in the hobbyist scene at all.

[68] People's Computer Company, "More on Women and Computers," *People's Computers* Vol 6(1):

These articles, printed in 1977, demonstrated both an increasing awareness about structural obstacles women faced as well as how far both men and women – but especially men -- had to go in terms of grasping the enormity of these problems.

For Weisbecker in particular, this blindness arguably manifests in the unintentional legacy he bequeathed upon his daughter, Joyce. Weisbecker had encouraged both of his daughters to develop an interest in computing right from their childhood. He even wrote children's books about computing which he dedicated to them, although many of them were never published. Weisbecker did not see gender as an impediment towards getting into gaming and computing.

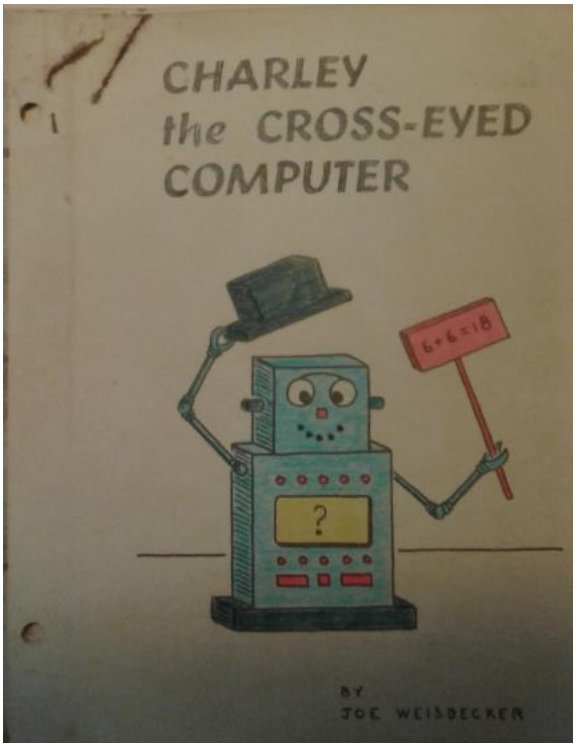

FIGURE 3: CHARLEY THE CROSS-EYED COMPUTER, ONE OF WEISBECKER'S UNPUBLISHED CHILDREN'S BOOKS. JOSEPH WEISBECKER, CHARLEY THE CROSS-EYED COMPUTER, BOX 870, FOLDER 3, FOUND IN JOSEPH A. WEISBECKER PAPERS, DAVID SARNOFF RESEARCH PAPERS, DAVID SARNOFF LIBRARY COLLECTION AT HAGLEY MUSEUM IN WILMINGTON, DE

When the time came to create games that would come with the RCA Studio II, Weisbecker reached out to friends and cohorts. Among them, he suggested to his daughter Joyce, who had taken to computers and engineering the most among the two siblings, that she could submit a couple of games and make some extra money for college. Joyce agreed and developed two

games, a simple math education title and a slot machine.[69] These would be her only real video games, although as a hobbyist –not to mention as one of Weisbecker's progeny -- she continued to maintain an interest in gaming and programming.

Neither of them would anticipate that Joyce would be in any way unusual for her work. Yet years later, as gaming culture began to search for parts of its history that could help move it away from the growing toxic masculinity that would begin to manifest within it, Joyce's quick college projects would establish her as, by current existing historical evidence, the first female video game programmer in the history of the industry. While other female programmers would create more famous titles – *Centipede* and *M.U.L.E.* are two titles with far more notability which were developed by women – Joyce appears to have been the first to have anything published commercially.

For her part, Joyce does not appreciate the title. Her limited involvement in the industry means that the meaning people associated with her does not match her own feelings of connectivity to gaming.[70] More than likely, her father would also not have considered that she would be so unusual within the industry, given that she was just one of many names listed as game contributors in the Studio II's manual. Thus, what feels significant to us in hindsight also reflects the lack of reflection within hobbyist circles about ideology versus social reality: women were just not that common in the hobby, nor in development within the industry. Weisbecker helped his daughter become a unique figure in the history of gaming entirely on accident.

[69] Interview with Joyce Weisbecker, August 18, 2018
[70] Interview with Joyce Weisbecker

Chapter 1: "No Law Against Having Fun With Computers:" Joseph Weisbecker and the Philosophy of Hobbyists

In short, Weisbecker's viewpoints may have been technically welcoming to all, but were also enmeshed in a tunnel view which placed greater faith in peoples' time, patience, technical skill and finances than reality may have warranted. In turn, this meant that his belief in the power of fun in computing had a limited audience to those people who had similar socioeconomic and intellectual resources. To compound that, Weisbecker lacked interest in teaching people directly, preferring instead to allow his writings to walk people through. This was reflected in his own job evaluations within RCA, which noted a "lack of willingness to technically direct and train subordinates."[71] Weisbecker had a desire to enlighten that dwarfed his interest to tutor directly, and this lack of direct advocacy may have contributed much to his overall muted presence in the history of computing.

As a result, his belief in a communal sharing of ideas and entertainment had a limited capacity to spread. In contrast, there was no shortage of individuals entering the computing and gaming industries whose self-interests and desire to profit eclipsed any sense of civic or social obligation – and such individuals were much more willing to fight tooth and nail for those self-interests. Weisbecker's idealistic approach to computing thus faded into the background as the computing industry began to be embroiled in legal battles to determine who held the right to define how commercial distribution of software worked, and as power in the industry gradually shifted towards corporate-controlled entities valuing profit over consumer rights.

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[71] "Engineer's Performance Review," M&A 870, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

Chapter 1: "No Law Against Having Fun With Computers:" Joseph Weisbecker and the Philosophy of Hobbyists

Ten years after Weisbecker's death, his family received a letter searching for the inventor of the Think-a-Dot. The writer was a member of a small fanclub which was dedicated to the different computer-based toys E.S.R. had put out, which included the Think-a-Dot. The letter writer noted that Weisbecker's name had been tracked down after somebody had located the patent for the game and was hoping to ask questions of the game's inventor and perhaps even have him join the group.[72] Though Weisbecker's passing had escaped the attention of mainstream audiences, his work still attracted people with an interest in the obscure and in the ideas presented by his inventions, even those marketed towards children.

In this quiet, personal way, Weisbecker's legacy lives beyond him. Within RCA, he was a notable but underappreciated figure whose work was subsumed by an increasingly financially irrelevant corporation. Without the existence of the archive, Weisbecker's work and ideas may have disappeared almost entirely, with only a few obscure books and articles to hint at the man and his work.

But Weisbecker's life outside of RCA connected him to many different people, all of whom appreciated the intricacies of his work in computers and games. Despite the Studio II's failure as a console in the growing game market, retro enthusiasts have nevertheless found joys within the simplistic, somewhat dated machine, to the point of emulating and creating new games utilizing the CHIP-8 programming language it specialized in.[73] In that sense, Weisbecker

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[72] Jim McArdle, "Subject: Your Think-A-Dot Invention," April 16, 2000, M&A 871, Folder 6, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[73] Such finds are scattered over the internet as one might expect, but a large collection of these homebrew attempts can be found at https://johnearnest.github.io/chip8Archive/.

even posthumously continues to represent a philosophy of video games which embraces the communal enjoyment and development of computers. By the 1980s, however, this attitude would become replaced by a compartmentalized, individualistic approach to both software and video games -- one which would actively dissuade the collaborative spirit of software and computer development that Weisbecker and the hobbyist scene had embraced.

Chapter 2: "Can't Sit Around and Wait for G.D. Lawyers:" Patent Law, Copyright, and the Impact of Intellectual Property Beliefs on the Game Industry

Traditional histories in the "great man" fold tend to focus on concrete material or financial contributions to the growth of industries. They have thus fallen out of favor in academic historical research as they inherently bias readers to believe that individuals alone can birth major innovations wholesale from nothing, which historians understand is rarely if ever the case. Rather, innovations are built upon from the contributions of many, sometimes simultaneous discoveries.

However, there is some unfortunate truth in the adage that it takes many people to build up something great, but only one to ruin it. An individual can be credited for a major innovation – rightfully so – but may be possessed of a personality or drive which have far more ephemerally destructive effects. Their identity as a major figure may have come at the expense of goodwill from the communities they emerged from as they fought tooth and nail for recognition. Or they may introduce a concept or language into a community which, once presented, slowly encourages other members of the community to align with or oppose it, creating fractures.

Take, for example, the story of Alexander Graham Bell. For many people, he is known simply as the inventor of the telephone, and perhaps by the apocryphal story of his first words to his assistant through the device. As Christopher Beauchamp has written, however, the real legacy of Bell for many involved in invention and innovation was not his phone, but the patents

attached to it. The zealous acquisition and protection of patents allowed Bell and his American Bell Telephone Company to essentially monopolize the business of telephony for over a century after the phone was invented. Meanwhile, the court battles that contested the dominance of idea ownership by the company were among the most contentious of the latter half of the Nineteenth century and beyond. [74]

Similar battles plagued the early years of software and video games alike. No one company would command control of the industry in the same way Bell did, but the myriad of court cases over patents and copyright inevitably set the tone for how the industry itself would develop over time. These suits would not only attempt to control who was allowed to own ideas and profit off them, but also how potential consumers would be allowed to engage with these products. In the end, the desire for control over ideas led to companies in the game industry not only becoming intense legal rivals with each other, but with their own customer base.

This chapter will focus on two figures which have been lauded for their contributions: Ralph Baer, inventor of the television game console, and Bill Gates, founder of Microsoft and developer of the BASIC programming language which would eventually lead to the development of one of the most ubiquitous operating systems in the world, Microsoft Windows. In both cases, their public presentations as innovators and creators obscure longer records of contentious legal battles and interactions with people attempting to utilize or build upon their products without paying appropriate dues. These views and actions resulted in cultural shifts which

[74] See Christopher Beauchamp, *Invented By Law: Alexander Graham Bell and the Patent that Changed America* (Cambridge: Harvard University Press, 2015).

arguably had far greater impacts on these new industries than any of their inventions. For in their efforts to secure places for themselves historically and financially, they introduced seeds of ideas which would eventually grow and blossom, obscuring and cutting off the alternate possibilities presented by hobbyists for how the industry could develop.

The first section of this chapter will analyze the various lawsuits leveled against early game entrepreneurs and experimenters by Baer et. Al as they debated who, essentially, owned the concept of video games. In the process, these legal battles over patent and royalties would drastically shape the form the gaming industry, particularly console gaming, would take in years to come. The second section will utilize Bill Gates's open letter to the Homebrew Computer Club to examine increasing anxieties faced by software and game companies about the challenges in protecting a product entirely ephemeral in form, resulting in an expanding definition of piracy which began to place legal restrictions on previously normal hobbyist activities. In both cases, the primary question is thus: how did the introduction and enforcement of the concept of owning ideas alter the gaming industry, if not the entire software industry? And in the process of reshaping games and software towards individual ownership and legally enforced recognition of intellectual property, what was lost in the process?

This chapter, as a disclaimer, is not intended to litigate whether either of the major figures involved deserved credit. Regardless of their actions, both figures provided major contributions to the history of gaming and computing both. Baer's Brown Box introduced a whole new type of electronic household device to the wider public, and Bill Gates' work with Microsoft would go on to help integrate personal computing into the mainstream population.

However, this chapter does highlight how this recognition was obtained more through aggressively competitive attitudes rather than through any sort of one-of-a-kind breakthrough. Neither Baer nor Gates can, on closer analysis, lay sole claim over either the origins or the development of the industries they contributed to. Baer in particular was, from a purely business standpoint, a minor player in gaming's history given the Brown Box's exclusive license with a company whose heyday within the game industry was almost entirely constrained to the 1970s. However, they nevertheless achieved recognition through aggressive policing and gatekeeping of their creations, which in turn pushed others in the industry to embrace similar tactics.

Likewise, this chapter is not intended to serve as an intervention in issues of patent and intellectual property law. Rather than focusing on the specifics of each decision or the technical legal aspects, this chapter is an attempt to understand the impact of these legal actions on the longer historical narrative of the video game, and more specifically how people such as Baer and Gates's actions effectively shaped the value system of the game industry into familiar corporate and capitalist frameworks of intercorporate and producer/consumer exchange. It also looks at the parallels between the patent and royalties fights which plagued the history of console gaming during the 1970s and 1980s and the increased utilization of legal actions against computer hobbyists to prevent any copying and, in the process, institutionalize a new concept of "piracy" separate from traditionally exploitative definitions. In short, this chapter focuses on the cultural, rather than legal, impacts of this period of time.

Baer, The Brown Box, and the Battle for Recognition

Chapter 2: "Can't Sit Around And Wait for G.D. Lawyers:" Patent Law, Copyright, and the Impact of Intellectual Property Beliefs on the Game Industry

Video games were the latest big thing in 1974. Magnavox had just introduced a new electronic device, the Magnavox *Odyssey*, which allowed people to play electronic games at home just like the large machines beginning to proliferate in bars such as *Pong*. The device was, like many other electronics, primarily derived from the sort of electrical engineering knowledge that allowed amateurs to create their own radios and oscilloscopes. A television game device could thus present an interesting and unique new project for an individual willing to invest the time and effort into its construction. Joseph Weisbecker, RCA engineer, enthusiastic hobbyist and inventor, developed his own idea for a kit capable of producing a device to play a game he called *Space War* on television sets. Having recently established contact with the editor of the magazine *Popular Electronics*, Arthur "Art" Salsberg, Weisbecker proposed to develop an article on how to create a game device in addition to other potential articles, a notion to which Salsberg expressed interest.[75] The magazine, which focused primarily on electronics and projects for home electronics hobbyists, would later introduce personal computing to many readers in the form of the Altair,[76] but that was still over a year away. In the meantime, its interest in a wide variety of inventions and kits made it an ideal collaborator with the developer of the 1802 RCA COSMOS microprocessor. Having agreed to the article, Salsberg identified a manufacturer called the Southwest Technical Products Corporation interested in helping develop

[75] Arthur Salsberg, Letter to Joseph Weisbecker, December 19. 1973, M&A 871, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[76] *Popular Electronics* January 1975

kits based on the article, with royalties for each kit sold to be sent to Weisbecker.[77] Aside from addressing FCC requirements about specific types of oscillator circuits, things seemed to be moving smoothly.[78]

But on April 17, 1974, Weisbecker received troubling news from Salsberg: a simple note, giving Weisbecker a heads up that the legal department for the magazine was investigating a new wrinkle to the plan. Attached to the letter was a newspaper article from the *Wall Street Journal*. The article was short, but the headline was straightforward: "Magnavox Sues Firms Making Video Games, Charges Infringement."[79] Suddenly, what had seemed a project like any other published in the magazine had become a point of legal anxiety, one which would result in the project's publication being delayed for an entire two years as the magazine and the company contributing resources to the kit scrambled to work with Magnavox and avoid potential litigation themselves. As a result, the loyal tinkerers of *Popular Electronics* were not given the opportunity to make their own home video game until April of 1976.[80]

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[77] Arthur Salsberg, Letter to Joseph Weisbecker, January 20, 1974, M&A 871, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[78] Arthur Salsberg, Letter to Joseph Weisbecker, March 21, 1974, M&A 871, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[79] Memo from Art Salsberg to Joseph Weisbecker. Includes an article from Wall Street Journal, "Magnavox Sues Firm Making Video Games, Charges Infringement", *Wall Street Journal* April 17, 1974, 37

[80] Joseph Weisbecker, "Build Space-War Game," *Popular Electronics* April 1976, 41-45. Note that the plan for this was published alongside another kit, called "Pongtronics," for people more interested in their own Pong game.

Chapter 2: "Can't Sit Around And Wait for G.D. Lawyers:" Patent Law, Copyright, and the Impact of Intellectual Property Beliefs on the Game Industry

Weisbecker's carefree attitude towards developing his idea indicates that potential patent infringement problems did not even occur to him at the time.[81] Salsberg himself described Magnavox as "lawsuit happy," suggesting that these precautionary actions were outside the norm for the magazine.[82] That such a major publication blinked in the face of Magnavox's legal actions demonstrates how much was at stake. Despite little differentiating Weisbecker's console from any other electronics project published in the magazine, the need for specific components plus Magnavox's overbearing reinforcement of their patent forced the magazine to handle Weisbecker's article with great delicacy. Not only that, but the company who had offered to sell kits related to the project were themselves forced to pay royalties to Magnavox as well as Weisbecker, and the final published version of the article still required legal notes informing readers about the rightful owners of the patent.[83] In short, something was unique about these lawsuits, something which forced even hobbyists to tread carefully.

The Magnavox *Odyssey*, although significant as the first home video game machine, was a product of limited shelf life. Since its games were built into the machine, there was no way to create an ongoing selection of software which could keep long-time owners of the device interested in it. Magnavox's follow-up console, the *Odyssey II*, was much less successful,

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[81] Joseph Weisbecker, Letter to Arthur Salsberg, Jan. 1 1974, M&A 871, Folder 1, found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE Not only does he casually note that he writes up the schematic during some downtime, but also muses about whether writing any more would be worth it on a financial standpoint.

[82] Arthur Salsberg, Letter to Joseph Weisbecker, October 31, 1974, M&A 871, Folder 2 found in Joseph A. Weisbecker Papers, David Sarnoff Research Papers, David Sarnoff Library Collection at Hagley Museum in Wilmington, DE

[83] *Popular Electronics,* "Build Space War Game," April 1976, 45

eventually falling behind other companies such as Coleco, Atari and Mattel. Once the video game market crashed in 1983, Magnavox disappeared from the American video game industry altogether, and while the Odyssey II continued to sell well enough in Europe and Brazil, Magnavox's involvement in video game production had ended.[84]

Yet Magnavox continued to make its presence known throughout the 1970s up through the 1990s regardless of people wanted them to or not. Magnavox's power was not commercial, however, but legal: as the primary licensees of the patent for game consoles, Magnavox collected royalties from anybody producing a console or console game for the entirety of the patent's validity, spreading the course of thirty years. Those companies which attempted to sidestep these royalties legally or otherwise would soon find themselves on the receiving end of a lawsuit. In this way, despite minimal contribution to the overall library of video games, Magnavox would be an outsized figure shadowing the development of the industry.

The driving force behind Magnavox's legal battles was the company that originally licensed the right to produce the Odyssey to them, Sanders Associates. Within Sanders Associates, one figure spearheaded the fight to guarantee financial recognition for game consoles for Magnavox: Ralph Baer, a man commonly characterized as the "father of video games" and lead inventor of the original Brown Box which would later evolve into the *Odyssey*. Like Weisbecker, Baer was a lifelong innovator, continuing to invent new toy and device ideas most of his life. He was also, however, a man who took full advantage of patent law to protect his

[84] A fanpage documents this here: *The Odyssey² Homepage!* https://odyssey2.info/db/regions/brazil and https://odyssey2.info/db/regions/europe

legacy, embodying one of the biggest legal headaches for most of the console game industry's early years. Baer would continue to pressure Magnavox and Sanders both to hold anybody entering the video games market to the patent, requiring royalties from the biggest corporations to the smallest start-ups.

Magnavox and Sanders's lawsuits were an early warning sign of a larger issue that would begin to haunt software and video games alike: a process of claiming intellectual ownership over ideas that were either previously widely disseminated, broad enough to incorporate any given number of products, or both. The television game patent, ostensibly existing to protect the rights of its inventor, was wielded as a blunt object against anybody attempting to create or innovate in the field. Assigned to a larger firm like Sanders, licensed to an even larger corporation such as Magnavox, the financial power behind enforcing the patent ensured that developing video games would be a pricey affair for developers for years to come, whether they paid royalties or not. This would set the tone for the home game industry: protective, defensive, and profit-oriented to compensate for the loss of profit from paying for licenses.

The precise starting point for the invention of the console game has long been in dispute. One commonly cited starting point was *Tennis for Two*, created in 1958 by American nuclear physicist William Higinbotham as an amusing demonstration of a computer's ability to calculate trajectories with wind resistance, has been a commonly cited starting point, especially given that it too was a game based around tennis. Given that it was meant as a demonstration of a preexisting device rather than unveiling an entirely new concept, however, the game was never

patented. Higinbotham, more noted for his work on nuclear antiproliferation, later explained that had he patented it, the game would have belonged to the government due to the nature of his employment.[85] Nevertheless, the existence of *Tennis for Two* provided a spark of inspiration for those people who felt the idea of playing games with electronics had merit all on its own.

An important thing to recognize is that despite modern gaming's heavy reliance on microcomputer technology and language, all the earliest commercially available games were feats of electrical engineering rather than computer science. Many of these early video games, rather than working via programming languages, were instead constructed purely via the same sort of technology found in television sets and radios of the day, such as vacuum tubes and wiring. Both of Atari's earliest arcade games, *Computer Wars* and *Pong*, were created in this way.[86] *Computer Wars* was especially noteworthy as an electrical interpretation of the game *Spacewar*, a computer game developed by MIT hackers which is also considered a starting point for the modern video game.[87] These material realities, which might seem just like technological curiosities to the layman, become essential when considering the legal battles that would arise as a result of them, and why the rulings would be so contentious.

Baer's "brown box" – the device that would later become the Magnavox *Odyssey* – was also an electrical device rather than a computer. Allegedly conceived of by Baer "some time"

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[85] Heather Chaplin and Aaron Ruby, *Smartbomb* (Chapel Hill: Algonquin Books of Chapel Hill, 2005): 34-36

[86] Al Alcorn, who helped design the schematic for the original *Pong* arcade game, has spoken of this in several histories, including at https://archive.computerhistory.org/resources/access/text/2012/09/102658257-05-01-acc.pdf.

[87] The Smithsonian spoke with the creators as part of their series speaking to prominent figures in video game history. Mod. Christopher Weaver, *Innovative Lives: Pioneers of 'Spacewar!'* (Panel, Smithsonian Museum of American History, Washington DC, Nov. 30, 2018)

prior to its development,[88] the plans were drafted, refined and implemented in a period of time from October 12, 1967 through January 1968.[89] At the time he and his crew began conceptualizing and designing the device, microcomputers had yet to come into existence, let alone the sort of programmable cartridges which would eventually become the standard for console games. Instead, the Brown Box's games were created through complex circuitry on the device's main board itself.

The device started development unofficially.[90] The firm had no prior history in amusements, instead primarily functioning as a defense contractor. Baer himself at the time was Sanders's Chief Engineer for Equipment Design but felt that working on such a device would do little to hurt Sanders's overhead given the company's labor costs for their military technology work already totaled in the millions.[91] The Brown Box was a side project so outside his normal purview that Baer's initial disclosure statement for the device – the actual proposal he wrote to communicate exactly what the project was – initially dilutes its purpose as a leisure device. His initial description of the device as "low-cost data entry devices which can be used by an operator to communicate with a monochrome or color TV set of standard, commercial, unmodified type,"[92] which by his own admission was primarily military jargon framed by his work for a defense company, suggested a fear that his project would be rejected for its irrelevance .[93] In

[88] Patent Disclosure Sheet, February 2, 1968, 3, Box 6, Folder 32, found in Ralph Baer Collection in National Museum of American History
[89] Patent Disclosure Form, 1
[90] Ralph Baer, *Videogames: In the Beginning* (Springfield: Rolenta Press, 2005): 27
[91] Baer, *Videogames: In the Beginning*: 18
[92] Baer, *Videogames: in the Beginning,* 25
[93] Baer, *Videogames: In the Beginning*: 27

that sense, much like Weisbecker, Baer saw the potential of the technology he designed in the development of amusements, creating such inventions independently of his company's interest while simultaneously taking advantage of the resources afforded to him by the company that he might have lacked otherwise, such as staff and materials. It also illustrates how both Weisbecker and Baer knew that the best way to propose such projects was to tie them to a rhetoric of productivity rather than play, at least at first.

Unlike Weisbecker, however, Baer did not feel obliged to share the schematics of his invention freely among hobbyists. He kept the project internal, filing for a patent within the company and developing it with no communication about his ideas to anybody outside of the company.[94] However, given that the Brown Box was outside the standard purview of defense projects that Sanders Associates specialized in, Baer realized he would need to find a company that actively specialized in home electronics who could manufacture the device. To that end, he began shopping around for potential distributors he could license the device to.[95] The process brought him no end of frustration, especially given that two potential licensees, Magnavox and Atari, appeared to be dragging their feet. In internal correspondence, Baer noted that he "can't sit around and wait for g.d. lawyers,"[96] showing his clear impatience with how slow companies were to agree to the license. Perhaps more intriguing, however, is a note at the end that Magnavox's slow pursuit of sublicensees is a handicap in his pursuit of bids for the project, in

[94] Baer, Patent Disclosure Sheet
[95] Baer, *Videogames: In the Beginning,* 56
[96] Ralph Baer, Memo to R.C. Sanders, Jan. 24 1974: 3, found in Ralph Baer Collection Box 15, Folder 2 in Smithsonian National Museum of American History in Washington D.C.

which he comments that he "can't show my colors" until the process was done – a peculiar turn of phrase, suggesting that he was putting on a softer personality while he was selling his idea.[97]

But show his colors he did. Not long after the Brown Box was licensed to Magnavox, he sent a letter advising Sanders to encourage Magnavox to aggressively enforce the patent they had licensed and pursue sublicensees. Worrying that Magnavox's defensive approach towards developing and protecting his invention would result in an onslaught of copycats and a weakening of authority, Baer noted that it would "be better for us to precipitate this action than to see additional companies added to the list of those they were suing."[98] Baer was especially concerned that this tactic of reaction versus action would cause problems with companies Sanders had previously courted for licensing, such as RCA and Zenith. Baer feared that waiting too long to get people on board could result in a situation where "Magnavox will NOT be able to sue either [RCA or Zenith], and they will sally forth unhampered."[99] Whether Baer's fears on this front were founded or not – and, to be fair to Baer, RCA had in fact been working on the FRED and experimented with arcade games at this point, albeit mostly through the interests of Weisbecker's team than capitalizing on the Brown Box[100] - Baer clearly expected that the mere introduction of the concept to other companies would result in what he felt was theft of his idea. Thus, it only made sense that he needed to force the issue before it got out of hand.

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[97] Ibid, 4

[98] Memo to L. Etlinger and H. Chapman, Dec. 4 1975 found in Ralph Baer Collection in National Museum of American History

[99] Ralph Baer, Letter to L. Etlinger and H. Campman, Dec. 4, 1975, found in Ralph Baer Collection Box 16, Folder 5 at Smithsonian National Museum of American History in Washington D.C.

[100] See Chapter 1 for more on this.

Chapter 2: "Can't Sit Around And Wait for G.D. Lawyers:" Patent Law, Copyright, and the Impact of Intellectual Property Beliefs on the Game Industry

The glacial pace of corporate protection of interests was a common problem. As seen in the previous chapter, RCA's failure to move quickly or decisively on Weisbecker's work cost them potential leading positions in the microcomputing and gaming industries, something Weisbecker himself had been perpetually frustrated about. If Sanders Associates wanted to ensure dominance in this potential new form of entertainment, they would need to put pressure on Magnavox to do their part in securing their financial and intellectual properties, lest they see potential and money wasted in ways similar to how RCA had lost out on leading the 8 bit microcomputing industry.[101] Baer, ever perceptive about the grand potential of his creations, and combined with the lack of patience he had demonstrated previously with regards to legal matters, keenly felt the necessity to work quickly to guarantee Sanders Associates' ability to profit off the Brown Box. He thus promoted an aggressively proactive approach to get other companies in line with the licensing. Any companies which he had approached but had not taken the offer were now potential patent infringers in Baer's eyes, and failure to prevent them from capitalizing on their awareness of the device's existence would cost Sanders greatly.

Throughout most of the first twenty years of console gaming, any company which did not acquiesce immediately and sign into a licensing agreement with Magnavox (and, subsequently, Sanders Associates) were subject to legal action. More significantly, all these suits were successful, either in forcing companies to settle and submit to royalty agreements or through court rulings in their favor. Thus, despite Magnavox's relatively small role in the gaming

[101] Interview with Jean and Joyce Weisbecker

industry on the surface, Magnavox and Sanders continued to exist as dominating figures, profiting from nearly every company entering the console gaming business. Even Atari, the company which first helped video games to take off via their arcade machines, knew better than to push the issue, signing into a royalty agreement even before the first legal ruling was made.[102]

Why was Magnavox and Sanders able to successfully sue so many different corporations? The answer lies in one very specific aspect of the patent. This aspect, unlike the physical and technical schematics of the rest of the patent, is distinctive for the broad swath of cases it can apply to – and indeed, the patent could be said to cover every video game both past and present. To quote Baer himself (written in all-caps in the original):

> "THE LAWSUITS WERE MAINLY ABOUT INFRINGING ON THOSE CLAIMS IN OUR PATENTS THAT DEALT WITH THE INTERACTION BETWEEN MACHINE-CONTROLLED AND MANUALLY CONTROLLED SYMBOLS ON SCREEN. IF THERE WAS A CHANGE IN THE PATH, DIRECTION OR VELOCITY OF THE MACHINE CONTROLLED SYMBOL IMMEDIATELY AFTER "CONTACTING" – i.e. COMING INTO COINCIDENCE WITH ONE OF THE MANUALLY CONTROLLED SYMBOLS ON SCREEN, THEN THE GAME EXHIBITING THESE FUNCTIONS INFRINGED."[103]

In short, if an object controlled by a game hit an object controlled by the player and changed behavior, and the game was made by a company that was not paying him royalties, it was infringing on his patent. The actual technical causes of the interaction were irrelevant.

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[102] The full text of the agreement can be found in Ralph Baer Collection Box 37, Folder 2, located at Smithsonian National Museum of American History in Washington D.C.

[103] Ralph Baer, "Video Game History: Getting Things Straight," 2 https://www.ipmall.info/sites/default/files/hosted_resources/Activision_Readings/RHB_getting_things_straight.pdf

His accounting of this finding is muddy, however. Even in this description, Baer hints that the actionable aspects should have been mechanical, with his summation of the interaction described utilizing familiar engineering terms such as "coincidence" and manual versus machine control Furthermore, Baer himself notes that this interaction applied to "just about every video game on the market during the years of 1972 through 1976."[104] This timeline primarily includes games that were developed in the pre-microprocessor period for video games, rather than every video game in existence. Framed this way, one would assume that Sanders Associates could have been far less aggressive once gaming consoles relied more on microcomputing technology and programming code, thus no longer infringing on the mechanical elements. Baer, however, seemed to see little relevance to the distinction, claiming "all of these arguments had absolutely nothing to do with the price of tea in China."[105] Whether or not the coincidences on screen occurred via analog or digital technology was irrelevant, and only brought up to discredit his rightful place as the original inventor.

Legal precedent was on his side, and all entirely due to one trial: *Magnavox vs. Chicago Dynamic Industries*. The plaintiff, Chicago Dynamic Industries, had been a long-running presence in the coin-operated industry. When *Pong* and the *Odyssey* came out, they were only one among numerous different groups attempting to create their own copy of the game, as *TV Ping-Pong.*[106] Magnavox would come to sue these other companies as well, which included

[104] Ibid
[105] Baer, *Setting the Record Straight*, 3
[106] William K. Ford, "Copy Game for High Score: The First Videogame Lawsuit, 20 J Intell. Prop L. 1." (2012), UIC Law Open Access Repository: 36

coin-op luminaries such as Midway, itself later a major player in arcade games. However, it would be the suit against Chicago Dynamics specifically that would define the results of the next thirty plus years of lawsuits. The actual ruling, as decided by Judge John F. Grady in favor of Magnavox, read as such:

> "I do not regard the circuitry of the '507 patent as containing anything which is novel or patentable. I believe that the novelty and patentability reside [sic] entirely in this feature of the player-controlled hitting symbol, which coincides with a hit symbol and causes a distinct change of direction in the motion of the hit symbol, whether that change in motion be from a moving position or from a stopped position of the hit symbol."[107]

Grady felt the actual hardware of the Brown Box was unpatentable due to utilizing circuitry that was present in pretty much any other analog electric machine of the time, such as radios or televisions. But he did find the actual interaction on screen to be a new creation, and thus ruled that it was this that was worth favoring the plaintiff for. This results in a peculiar ruling in which nothing about the device itself was considered worthy of protection despite the fact the device did something new utilizing these unoriginal designs.

Furthermore, Judge Grady did not find any reason to create a distinction between analog and digital methods of attaining this mechanic, stating that he found the two methods "interchangeable largely."[108] This could thusly be interpreted as meaning that even if the means of achieving what the console did was accomplished through, say, a microprocessor, the infringing part was what occurred on the screen, not what made it do that.

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[107] Magnavox Company v. Chicago Dynamic Industries, 201 U.S.P.Q. 25 (N.D. Ill. 1977).
[108] ibid

Chapter 2: "Can't Sit Around And Wait for G.D. Lawyers:" Patent Law, Copyright, and the Impact of Intellectual Property Beliefs on the Game Industry

By establishing the on-screen visual result of his machine's interactions as the only original part of the invention, Grady had essentially handed "video games" as a concept over to Magnavox and Sanders wholesale. The ruling gave the companies an airtight argument that so long as what occurred on screen was similar or identical to what they had accomplished with their technology, any company that made any video games regardless of how they achieved those on-screen effects were infringements on the original patent. To put it into perspective, this would have been the electronic equivalent of allowing somebody to extract royalties from anybody who utilized a long object to cause another object to react to it – something which could range anywhere from playing a game of baseball to a janitor sweeping up debris. Such an overly broad patent meant that, in essence, Sanders could sue anybody whose game's graphics and gameplay fit that precise definition, whether that be a ping pong video game like on the original Odyssey or a sword hitting an enemy, or even a ship firing a shot.

To illustrate how broadly this could apply, look at *Magnavox vs. Sega.* A case which took place in the late 1980s and settled out of court, documentation of the case nevertheless exists thanks to Bernard Lechner of RCA, who held onto his records despite a request to destroy them after settlement. The court documents included a list of games which Magnavox argued infringed on this patent. This ranged from sports games to action games.[109] Included as well was the role-playing game *Ys*, developed by the Japanese company Nihon Falcom, whose battle system involved running the player sprite – a digitally drawn image which represented the player

[109] Leydig, Voit and Mayer, "Re: Magnavox vs. Sega:" 6-12, Box 1191, Folder 23, found in Bernard J. Lechner Papers in David Sarnoff Collection at Hagley Museum in Wilmington, DE

- into an enemy at the right angle to cause damage. This process would often cause an enemy sprite ("machine-controlled object") to change velocity or direction (by being pushed away from the player controlled object).[110] *Ys*, a title which came out well after the period of time Baer described in his account of the patent's main period of relevance and began life as a computer game for Japanese computers, still was considered a violation of the patent not because of the mechanical or electrical elements which put the game together, but rather due to the processes being displayed on screen required for the game to function.

This broadly applicable finding, in addition to the behavior Salsberg had described as being "lawsuit happy," put home television games into a position most hobbyists had not dealt with before. Whereas most home kits were able to be sold without major legal concerns, hobbyist retailers who wanted to distribute a video game kit would have to ensure that they would not face any serious legal repercussions for doing so. This was the reality which Weisbecker and *Popular Electronics* had to contend with, why their project idea would end up published so much later than originally intended, and why even when it was published, the magazine was required to add a note attributing video games to Magnavox and Sanders.

The companies themselves, of course, are the most obvious instigators of these legal actions. Certainly, Magnavox was not reluctant to follow through on suggestions to pursue royalties. Furthermore, Magnavox more than likely "shopped for courts," a process which involved looking for friendly courts which would be more likely to rule in their favor. The

[110] Nihon Falcom, *Chronicles of Ys*

Second Circuit particularly had a reputation for ruling in favor of patent holders.[111] Magnavox thus clearly took advantage of their weight as a corporation to ensure legal proceedings worked in their favor. Sanders, likewise, encouraged these actions, seeing as they were the prime recipients of all royalties accrued from the Brown Box even though they were not typically in the habit of developing amusements.

However, some consideration must be given to the man at the center of these cases: the Brown Box's chief inventor, Baer. As stated previously, Baer made it an immediate point to begin legal proceedings against different companies the moment his invention had a legal licensor. Regardless of how standard such aggressive patent practices were in the industry, Baer nevertheless encouraged and promoted these legal battles to a degree which, by the account of others in the industry, made him stand out distinctly as central to these legal headaches – and the fact that he continued to encourage such things even after he no longer worked for Sanders only emphasizes this point. For Baer, ensuring other companies bent the knee appropriately and recognized his position as the owner of the original patent for "TV Games" was crucial. His archive shows careful following of video game related news, paying attention to any companies who might try to enter the market that he was not yet aware of and initiating legal action as soon as possible upon finding infringers regardless of size of company or country of origin. One item in his archive highlights this mentality: an article about the rise in popularity of arcade games in Japan, which made note of the increasing problem of children skipping school to play games.

[111] Ford, "Copy Game for High Score," 37

Rather than express any concern about a potential social problem arising around his patent, Baer attached a note to the article about whether they had already tapped Taito, a company mentioned in the article, for royalties.[112] In his mind, it was a bigger issue that Magnavox and Sanders were not receiving proper recognition for their invention than it was for kids to display signs of gaming addiction.

Baer thus saw the patent system as an important method of financial self-protection. Indeed, his "sage advice" to new inventors, written years later, primarily focused on teaching them the importance of maintaining a document trail so that, in his words, "when you are on the witness stand trying to convince the judge that it was really you who had the great idea, proving who-did-what is a slam dunk!"[113] Notably in this statement, appearing in court regarding an invention was a matter of "when," not "if." To Baer, he was simply working in his best interests to prevent others from profiting off the ideas he had secured in his name. The patent system was designed to protect inventors such as him, and thus he felt no conflict in utilizing it to maximum benefit.

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[112] Ralph Baer, Note to Lou, clipped to article "Japan Invaded," *Play Meter* (August 1979): 35, Box 16, Folder 1, found in Ralph Baer Collection in Smithsonian National Museum of American History in Washington DC. As a side note, Baer makes a slightly racist joke comment of "Ah So!" in the margins directly next to a section about addiction in children, emphasizing he saw the problem purely as evidence of a company profiting without providing credit rather than as a potential social issue.

[113] Ralph Baer, "Sage Advice to the New Inventor," https://ipmall.law.unh.edu/sites/default/files/hosted_resources/Activision_Readings/SageAdvice_to_newInventor.pdf

That said, financial gain by itself could not have been the sole reason for Baer's approach. Sanders did not pay its employees royalties accrued from patents.[114] The company's policy was that all royalties went to "the shop," meaning that company alone profited from the patents filed on its behalf. Bonuses would be paid to the employees, but no direct financial gain would be garnered from these lawsuits and payments directly.[115] Thus at the time, Baer's financial motivation at most would have involved either improving his status within Sanders Associates and increasing his pay that way or the unlikely possibility that Sanders would change its approach towards recognition of inventors.

Indeed, Sanders's system did change – but not through decisions made by Sanders Associates itself. Rather, change occurred when Sanders Associates was acquired by Lockheed Martin in the 1980s. This created a new source of conflict: at the time of Lockheed's acquisition of Sanders, they had enacted a new policy which paid employees a percentage of the royalties from each patent. They had ruled, however, that any patent filed prior to enactment of this policy was exempt, including all patents filed by Sanders before its acquisition. For Baer and company, this was an especially sore point as Sanders – and, by extension, Lockheed – was about to secure an incredible settlement in damages from both Activision and Nintendo.[116] However, this situation was far more bitter for the inventors who worked under Baer towards the

[114] J.G. Twomey, Letter to William Rush, December 6, 1988, found in Ralph Baer Collection Box 18, Folder 6, located at Smithsonian National Museum of American History in Washington DC
[115] C.H.S. Howe, Letter to J.R. Kreick, September 28, 1988, Ralph Baer Collection Box 18, Folder 6, located at Smithsonian National Museum of American History in Washington DC
[116] Ibid

project – particularly for William Rusch, the author of the '507 portion of the patent which would prove to be so pivotal in Sanders's and Magnavox's legal victories regarding television games. Frustrated with the new policy representing a lack of fairness, Rusch began to pursue what he was owed through legal means.[117]

Rusch, more so than Baer's other co-inventor Bill Harrison, complicates the image of Baer as being the primary architect of the invention of video games. On the one hand, Baer acknowledges Rusch's genius in the design of the Brown Box's circuitry, noting that his designs were essential in addressing certain flaws in the initial design.[118] However, Baer also makes a point of bringing up Rusch's shortcomings as an employee, referring constantly to his temper and his unwillingness to be directed. His folder on the legal actions Rusch pursued also included Rusch's old employee assessment reports, as if to make a point that Rusch's behavior worked against his demand for recognition.[119]

Beyond just Rusch's lack of respect for his bosses, he also presented a possible danger to Baer's status as the Father of Video Games. While Baer clearly agreed with Rusch's assertion of the right to receive compensation to the patents - he had himself initiated discussion about "fairness" two years before Rusch began writing his own letters[120] - correspondence between lawyers involved in the situation reveal that Baer kept information from Rusch about how much

[117] The details of this are covered over multiple letters collected in Ralph Baer Papers Series Box 18, Folder 6 at the Smithsonian Museum of American History in Washington DC
[118] Baer, *Videogames: In the Beginning,* 47
[119] Ralph Baer Papers Series Box 18, Folder 6 at the Smithsonian Museum of American History in Washington DC
[120] C.H.S. Howe, *W. Rusch/R. Baer – Inventors Rights to TV Game Patents*, Sept. 28, 1988 in Ralph Baer Papers Box 18 Folder 6, Smithsonian Museum of American History in Washington DC

he had benefited from the game machine patent. Specifically, the letters noted that while royalties were never shared with the inventors, they had been provided special incentive bonuses. The sum paid to Baer was almost three times the amount paid to Rusch -- a point which Sanders' legal advisors noted would be "a BIG PROBLEM" should Rusch ever find out.[121] Another letter six months later, furthermore, specifically identifies Rusch as the "inventive genius" and Baer as the "entrepreneur," making the discrepancy in the bonuses paid to the two appear even more egregious even as they continued to advise keeping it a secret from Rusch.[122] The possibility of Rusch's contribution being recognized for its centrality, plus his lack of respect, may have posed threats to Baer's own construction of self.

In fact, recognition may have been more important than anything else to Baer. From the beginning, Baer made sure to recount his story in such a way as to craft a specific image of who and what he was. Part of this image included integration of his experiences as a Holocaust survivor to illustrate his familiarity with the possibility of losing everything unfairly due to horrifying acts of injustice. According to one newspaper article, Baer had been kicked out of school in 1936 during the rise of Nazi Germany, "and out of the country two years later," losing his father and siblings in the process. He tended to present his story as a rags-to-riches sort, learning engineering through a home correspondence course in repairing radios and getting an engineering degree through the GI Bill.[123] That he would incorporate this heavily into his

[121] Ibid
[122] C.H.S. Howe, *Subject: Video Game Inventors*, April 18, 1989 in Ralph Baer Papers Box 18, Folder 6 at the Smithsonian Museum of American History in Washington D.C.
[123] "Inventor of TV Games Has Affected Millions" Series 5 Folder 6.

narrative about his success shows that he recognized how such a story would resonate among those reading about his accomplishments.

Working in an environment which downplayed his contribution as an individual inventor in favor of corporate authorship most likely contributed a great deal to Baer's struggles to maintain control over his inventions. Most companies which funded their own research insisted on claiming full intellectual control over the inventions of their employees from the beginning of the twentieth century onwards, resulting in a negation of inventors' authorship.[124] Baer by necessity worked within the constraints of Sanders's system, but kept copious receipts and maintained legal relevancy of the invention he helped create, long enough so that when the opportunity potentially presented itself, he could come forward with all the documentation necessary to prove his authorship. In that sense, the legal battles he fought were as important to him personally as to his corporation, as speaking at the stand would create legal evidence of his claim to the creation of video games. That the process would necessarily require alienating himself from all other innovators attempting to utilize technology like his for their own artistic and entrepreneurial endeavors was a sacrifice he was willing to make.

Finally, there is evidence that Baer was inspired in his approach by the nature of the toy industry itself, or at least how he perceived it to function. An article included in his archive discusses the cutthroat business of toys, which quotes an executive as stating, "Ethics do exist in

[124] For more on this process, see Catherine Fisk, *Working Knowledge: Employee Innovation and the Rise of Corporate Intellectual Property, 1800-1930* (Chapel Hill: University of North Carolina Press, 2009)

the business… but not a hell of a lot."[125] The article suggested that the sniping of patents and theft of ideas was endemic in the industry. Faced with the possibility of poached ideas and denied credit, Baer chose self-protection first, patenting everything as soon as he could. This was in stark contrast to Weisbecker, who developed toys but clearly aligned more with hobbyist computer circles and their approach of sharing information freely.

On the surface, this may have seemed like a simple survival tactic in the system he worked in. The necessity of his tactics, however, becomes less certain when placing him next to Weisbecker. Weisbecker followed a similar path in many respects, being both an inventor of games and an employee at a company that commanded authorship of its inventors' creations. However, Weisbecker created a stark line between the inventions he developed for RCA and his other games and books, meaning that he was able to function both as an independent inventor and as a company employee. Furthermore, once his main invention, the RCA 1800 CMOS Microprocessor, was in production, Weisbecker chose to reach out to those interested in utilizing his invention via the publication of his article about building the Elf. This is all from an employee of a company that had been so insistent on the necessity of licensing fees for their technology.

Perhaps the best way to sum up what separated Weisbecker's approach from Baer's is how they viewed fellow travelers. Weisbecker, enmeshed in the hobbyist scene and with a

[125] "The Rules of the Game," *Boston* (Unknown) 107, Box 39, Folder 10, in Ralph Baer Papers at the Smithsonian Musuem of American History in Washington D.C.

strong belief in the proliferation of computing technology, saw fellow tinkerers and inventors as comrades and collaborators. Baer, who developed professionally in the secretive defense and toy industries, seemed in contrast to view everybody else as competition. Except for those people who helped him develop his inventions, Baer does not show evidence of mingling or interacting cordially with other amusement inventors – and, as Rusch's case illustrates, even his respect for those assistants had limits. Baer's claim to authority in video games was dependent on maintaining control of the narrative and on the primacy of the patent. Any concessions made to others who had been working on similar inventions would have been a concession that others may have deserved credit.

Baer's work late in his life reflects this mindset. He was very careful in curating his own legacy, especially as historians began to take a closer look at the history of video games. He actively reached out to researchers, presenting himself as a kindly but unfairly underappreciated inventor who had to fight tooth and nail for the recognition he deserved as the one true inventor of the console video game. He worked closely with the Smithsonian Museum to provide them a comprehensive archive, carefully ensuring his story was framed as that of a curious and playful inventor rather than a zealous legal opponent.[126] This is most pointed in the museum's presentation of the Brown Box itself; the version as seen in the main museum is a spotless

[126] Smithsonian Museum of American History, *Inventing in America*. The exhibit also features Baer's desk, clearly to emphasize his role as inventor.

recreation, whereas the real device in the archives is liberally covered with court stickers, highlighting a long life of legal conflict.

FIGURE 4 THE ORIGINAL BROWN BOX, AS SEEN IN THE SMITHSONIAN ARTIFACT ARCHIVE. NOTE THE MANY LEGAL STICKERS ON IT.

Letters within his archive also highlight how important legacy was to him. While he was generally cordial to anybody who wrote to him, some letters illustrate his irritation at anybody who attempted to put other figures before him regarding invention of the game console. One exchange between him and an amateur web historian saw him take umbrage at the suggestion that Higinbotham's *Tennis for Two* gave him the title of first video game inventor. He dismisses "Tennis for Two" as a lab experiment, noting Higinbotham's own dismissal of the project in

terms of its importance to his legacy, while simultaneously creating stark differences between *Tennis for Two* and his TV version of Tennis.[127] Baer's response to the mere suggestion that it be counted as the earliest video game fell into a familiar pattern in which Baer would dismiss any sort of prior art in relation to his own creation. Even if something could be considered a step towards the creation of the Brown Box – the most pointed example being the 1947 patent for a cathode-ray tube "amusement device" which came up frequently during litigation[128] - Baer would insist there was just enough difference to justify dismissing it as evidence anybody invented games before he did. He felt so strongly about this that early in his history of the origin of video games, an entire eight pages are spent arguing the case for why he was the one true originator, interspersed with scans of his schematics for the device.[129] His refusal to consider simultaneous development of gaming technology independent of his invention, even if as a form of self-preservation cultivated by years of lawsuits, was just one more illustration of his prioritization of his own legacy over his relationship to others.

This approach did not go unnoticed by his contemporaries, and clearly it rankled. A letter in Baer's archive from Steve Bristow, one of Atari's main engineers in the 1970s and early 1980s, accuses Baer of negating the work of Atari's employees in multiple cases.[130] Among these is the case of the handheld game *Simon*, which Baer had based on an Atari coin-op game

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[127] Letters between Ralph Baer and Úmmagumma in Ralph Baer Papers Box 41, Folder 13 located at Smithsonian Museum of American History in Washington, D.C.
[128] Thomas T. Goldsmith and Mann Estle Ray, *Cathode-Ray Tube Amusement Device* (USA, 1947). This device is noteworthy based on personal conversation with Justin Barber at the Lemelson Center, who at the time was looking into evidence that Baer may have gotten his own idea from this very patent.
[129] Baer, *Videogames: In the Beginning*, 5-17
[130] Steve Bristow, "Subject: Simon" E-Mail to Ralph Baer, June 3. 2006, Box 41, Folder 3

called *Touch Me*. Believing the game could be improved with sounds and colors, Baer made the modifications himself, patented the game as *Simon*, and claimed ownership of the gameplay concept despite *Touch Me* clearly having created the concept.[131] Only when pressed did Baer acknowledge that there had been a prior example of *Simon*'s gameplay, but he still profited off patenting his version. Arguably worse was Bristow's accusation of Baer patenting the concept of a light gun after seeing the Atari coin-op game *Qwak*, an obscure duck hunting game released in 1974 but which sold few copies to arcades.[132] A light gun was a gaming device which registered "shots" via detecting light flashed by the device onto a screen. Assuming Bristow's claim was correct, Atari had in fact been the original inventors of a light gun, but due to their somewhat loose approach towards patents at the time and the lack of success for the game, the device used for the game had not been protected. By filing a patent for a light gun, Baer had thus claimed the idea for the device as his own without acknowledging the original creators. Despite Baer's own accusation that *Pong* had originated from Nolan Bushnell seeing the Brown Box and stealing the idea, he clearly was not above doing the same thing to Atari. At the very least, Bristow's accusations highlighted how the concept of prior art was, to Baer, irrelevant next to who ultimately filed the patent, and Atari's inaction was his gain. Bristow, however, clearly still held Baer's actions against him over twenty years later, especially given how it contradicted Baer's own image as a jovial "father" figure encouraging young inventors.

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[131] Smithsonian, "Simon Electronic Game, 1978," https://americanhistory.si.edu/collections/search/object/nmah_1302005.
[132] Ibid.

Chapter 2: "Can't Sit Around And Wait for G.D. Lawyers:" Patent Law, Copyright, and the Impact of Intellectual Property Beliefs on the Game Industry

The full extent of the legal consequences of *Magnavox vs. Chicago Dynamics* may never fully be grasped. While *Magnavox vs. Activision* and *Nintendo vs. Magnavox* are two of the biggest lawsuits on record, scattered documents across different archives reveal many others which may have disappeared from public record due to settlement before a verdict was rendered, much like what should have happened to *Magnavox vs. Sega.* Sega was one of the bigger targets too – one can only guess how many smaller suits took place, how many settlements, how many companies immediately complied with royalties demands.

Could the industry have developed differently without such a confrontational culture introduced so early into its existence? There is no way to confirm one way or the other. On the one hand, the approach Sanders et al took towards protecting their patents was simply part of the culture of corporate engineering firms. Furthermore, as the industry began to show signs of becoming highly lucrative, the potential for legal conflict would more than likely have increased by itself. On the other hand, Atari in its early years had an attitude regarding copycats of confident disregard, believing that they could simply "outproduce" companies cashing in through bootleg versions of their games.[133] On top of that, many of the video game innovators who were dragged into the Magnavox suits did so with a sense of reluctance and irritation. The creators of the original *Space Wars*, for example, made a somewhat wry comment about their own experiences with Magnavox during oral histories with the Smithsonian Lemelson Center, commenting that their patenting of a "computer instruction" and subsequent forcing of other

[133] William Ford, *Copy Game for High Score,* 16

companies to get a license to use it was "ridiculous."[134] Joseph Weisbecker's daughter noted with some bitterness that the ruling Grady made in *Magnavox vs. Chicago Dynamic Industries* was "too early," feeling that a better understanding of the screen interaction and all the possible ways to achieve it should have been attained before deciding it was patentable.[135] Clearly, Sanders and Magnavox's legal pursuits at the very least created a sense of anxiety and paranoia within the early industry by leaving anybody and everybody who worked in the industry vulnerable to unwelcome legal disruption in their lives.

Within the same three-year period as the initiation of *Magnavox v. Chicago Dynamics*, a similar shift was occurring about intellectual property within the software realm, both in and out of the courts. While the debate about distribution and sharing of code had certainly existed in the earlier days of computing, they first became a major point of contention with the publishing of a certain letter by the newsletter of a group known as the Homebrew Computer Club. Written by an ambitious entrepreneur by the name of Bill Gates, the letter would serve as a lightning rod for discussion about the distribution of software – and, more specifically, what was and was not illegal.

While a letter may not have the same legal impact that Baer's lawsuits had, Gates's letter nevertheless had a major impact on the computer game industry. To establish how this letter

[134] Mod. Christopher Weaver, *Innovative Lives: Pioneers of 'Spacewar!'* (Panel, Smithsonian Museum of American History, Washington DC, Nov. 30, 2018)
[135] From interview with Joyce Weisbecker, August 18, 2018

could equate Baer's actions, particularly on the computer game industry, some consideration must be given to what 1970s computer gaming culture entailed. The video games of the hobbyist world, like many of its programming projects, were at once both competitive and collaborative. Players were both consumers and producers, playing the games of others and creating their own at the same time. An early issue of *Byte* magazine had a letter writer expressing interest in reaching out to fellow programmers interested in developing chess programs for their respective computers.[136] Hobbyists thus could compare notes with each other, figuring out what worked and what did not, and over time optimize their own works. In this respect, gaming was far more collaborative between players.

There was also far less of a commercial intent behind these games. While hobbyists could purchase other peoples' pre-compiled game programs on tapes, many hobbyists would submit their codes to different hobbyist magazines without any expectation of financial reciprocation aside from whatever the magazines themselves may pay for the articles. In providing this code, these hobbyists were providing the opportunity for other hobbyists to play their games without paying a cent to the code writer. All these games required was a little bit of time dedicated towards entering the code in themselves.

As indicated by this philosophy of free code distribution and idea sharing, copying was not considered an ethical violation so long as attribution was given to the original creator. This included preexisting media properties, with hobbyists freely basing games on copyrighted

[136] Dan Clarke, "Bit Collecting," *BYTE* December 1975: 102

material to an extent which would be unheard of today without paying royalties. The television show *Star Trek* is a prominent example, with fans developing and converting games for multiple computers. Even the COSMAC VIP, the computer Weisbecker helped design, had people developing tapes for it, as one letter sent to the *VIPER* newsletter attests.[137] The phenomenon of developing games based around *Star Trek* was great enough that the May/June 1977 issue of *Personal Computing* expressing an interest in documenting the *Star Trek* game making scene specifically.[138] Later years would see commercially developed and distributed *Star Trek* games, but in these early years people would have to develop their own, sharing ideas. As a form of fan engagement, profit would have been secondary to sharing and spreading the phenomenon.

Likewise, if a specific game struck somebody's fancy, say from the arcades, then that person could make a homebrew, self-coded version of the game without worrying about repercussions. The newsletter *VIPER* had, for example, printed at least two COSMAC-compatible versions of the arcade game *Lunar Lander* with apparently no repercussions.[139] In short, the early days of computer-based gaming was open territory, with no rules dictating what was and was not allowed to be distributed.

In some cases, coders would see a completed game and attempt to rework it to function in the coding languages of other computers. At the time, a universally standard programming

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[137] *VIPER* 2(7) Feb 1980 page 5, found in Joseph Weisbecker Collection M&A Box 74, Folder "Serials, VIPER." By the author's own admission, the product was "crude." Whether or not the product was intended to be sold or was created for personal consumption, however, is unclear.
[138] "Welcome Star Trekker," *Personal Computing*, May/June, 1977 p. 11
[139] *VIPER* 2(4) Oct 1979 p. 12 found in Joseph Weisbecker Collection M&A Box 74, Folder "Serials, VIPER." In this case, it was a version with color and sound effects according to the author.

language had yet to exist, making retranslating games a matter of necessity for anybody interested in a specific game but who either lacked knowledge of the game's original programming language or chose not to utilize it. For example, somebody might take a game written in BASIC – a popular language at the time – and reprogram it to function utilizing CHIP-8, the programming language Weisbecker devised and intended to function with the COSMAC. Some programmers even reveled in the challenge of taking games and reverse engineering them, then presenting their efforts to other programmers.

The extra amount of work aside, this act of retranslation and republishing highlights the flexibility of the hobbyist era of gaming. Today, game players with an interest in a game title either must hope that they own the right gaming platform or digital distribution service for a game, or else risk the potential problems that could come either with emulating hardware or illegally downloading it. But for hobbyists of the 1970s, the ability to play a game on a platform different than that it was originally intended for simply required a mind for programming or the patience to wait for somebody else to publish their own code. Admittedly, this was a far more practical system in the era of simplistic, symbolic graphics and text-heavy games, but the legality of their actions at the time was much looser and more accepting.

In many respects, the culture of coding was not far removed from the culture of other hobbyist activities. Much as magazines such as *Popular Electronics* encouraged the construction of devices which could be found on the market, computer hobbyist magazines encouraged the development of software to address various needs and interests of their readers. Yet much like hobbyist electronics, hobbyist coding represented a level of independence and cooperation which

fit poorly into a producer-consumer relationship. Furthermore, unlike hobbyist electronics, hobbyists were not restricted as much by the cost of materials. As soon as a computer hobbyist had a machine running, everything else fell into the ephemeral realm of software, something with no physical form. As microcomputing expanded access to such programs, people with financial stakes in the growing industry would begin to push back – and Bill Gates would come to represent the beginning of this shift.

Gates, at the time known mostly as the creator of a form of programming language called BASIC which was catching on within hobbyist commercials, sent the letter to the Homebrew Computer Club which essentially accused hobbyists of theft. Frustrated with what he felt was a rash of unpaid copies of BASIC being utilized by Altair users, Gates lashed out at the users, claiming that these unauthorized copies were stealing from him personally rather than from corporations. He compared the writing of code to the writing of books or music, wondering why he should not receive the same royalties for writing software that authors or musicians did for their works.[140]

For an outsider, the impact of the open letter to the Homebrew Computer Club from Bill Gates can be difficult to explain. A good way to envision it is to imagine a knitting group. In that group, people constantly exchange patterns they have found, or share tips on the cheapest places to buy yarn, or even sell or give away smaller projects to those who might be interested.

[140] Bill Gates, "An Open Letter to Hobbyists," *Homebrew Computer Club Newsletter* Volume 2:1, January 31, 1976.

Chapter 2: "Can't Sit Around And Wait for G.D. Lawyers:" Patent Law, Copyright, and the Impact of Intellectual Property Beliefs on the Game Industry

The community would be one largely based upon mutual interest in knitting, where the primary benefit of the group is to be among others who share a similar passion for knitwork. Then one day, one of the publishers of a magazine regularly shared among knitters sends a letter to one of the larger groups accusing knitters of stealing their work, requesting that individuals instead pay for each copy of the magazine instead of sharing it for free among others.[141]

What sort of impact would such a letter have? For a community largely used to the concept of sharing, the initial response to the letter might be similar in tone to the responses Gates received for his own letter, ranging from outright mockery to dismissal to agreement with the general concept of the letter, if not of the tone it was written it. However, if the knitters followed a similar pathway to computer hobbyists, then within ten years knitting companies and publications would be openly decrying anybody who shared patterns rather than purchasing them, advising people who could not afford knitting patterns simply to not buy them rather than "pirate" them. In short, what had once been a community of people motivated primarily by shared interests would eventually become individuals focused primarily on maximizing profits while simultaneously accusing those groups which still engaged in the activities they used to as selfish criminals.

Similarly, immediate responses were varied. One response, from a man named Bob Wallace of New World Computer Services Inc., agreed primarily with regards to the

[141] And in further evidence that reality is stranger than fiction, a computer hobbyist magazine in fact attempted to do exactly this. See the next chapter for further details.

development of major systems software such as the like of what Gates was developing. However, he also noted the unique issues facing software:

> "The problems of developing and distributing software are unique. It's a little like writing a book, except that you don't save much copying a book instead of buying it; a little like a play or movie, except many people benefit when a play is performed and only the user benefits when software is "performed" (curiously, copyright law is being interpreted so that implementing a system based on someone else's copyrighted manual is like performing a play copyrighted by the playwright); but software is it's [sic] own kind of information, and everyone – programmers, manufacturers, hobbyists, stores, magazines, and clubs – needs to get involved in deciding how to handle the situation."[142]

In Wallace's case, he agrees on the importance of financial compensation equal to the manpower dedicated to software. However, his response also suggests that he saw equal importance in keeping everybody at the table on the subject regardless of whether they actively worked in the industry or simply dabbled as hobbyists. His response thus presents a more measured response to Gates's accusations, one which still attempts to place all participants in the computing market in equal regard.

Some responses were more critical, commonly phrasing their responses in terms of whether the software Gates had developed was worth insulting the entire hobbyist base. The most notable response of this sort came once again from the People's Computer Company, and most specifically Jim Warren, editor of the magazine *Dr. Dobbs Journal of Computer Calisthenics and Orthodontia.* His response to the accusation, simply, was as follows: "There is a viable alternative to the problems raised by Bill Gates in his irate letter to computer hobbyists concerning "ripping off" software. When software is free, or so inexpensive that it's easier to pay

[142] See *Mark-8 Micro Newsletters* April 8, 1976, 1990.3165.04, Smithsonian Museum of American History.

for it than to duplicate it, then it won't be 'stolen'."[143] He then goes on to note that a similar system, TinyBASIC, could either be bought or reconstructed from source code without complaint on either side. The hobbyist ethos of cheap, communal software so espoused by Weisbecker and the PCC was once again in effect, with Warren firmly supporting the right for people to buy, copy, or recreate software as so fit their needs. For Warren, the answer to the problem of intellectual property theft was not to restrict access, but to increase it.

Regardless of whether hobbyists initially agreed with Gates's exasperated letter to their community or not, the letter introduced the language of corporate commodification to hobbyist circles. Occurring as this did within a three year span, sandwiched between the start of Magnavox's legal crusade and the ruling of the Chicago Dynamic Industries case, game players and computer hobbyists were being rapidly exposed to the financial potential of the software they wrote and the computers they created, but at the expense of the sort of community trust which hobbyist groups require in order to remain cohesive. The question for many hobbyists-turned-small business owners was not "what can I get out of this personally," it was "what do others owe me for the work I am doing."

Warren's position, thus, would prove in the long run to be a minority viewpoint. Increasingly, and especially in light of a ruling which greatly increased the difficulty of patenting code,[144] software companies began relying upon the copyright system as a method of financially

[143] Ibid
[144] U.S. Supreme Court, Parker vs. Flook, 437 U.S. 584 (1978), https://supreme.justia.com/cases/federal/us/437/584/.

protecting their products. Focused as it was on expression of ideas rather than the idea itself, the need to safeguard themselves from copycats and pirates suddenly became much more of a pressing matter for software companies. Perhaps this was why software companies became increasingly intolerant of anything that so much as resembled an infringement of copyright, with an increasing number of lawsuits against perceived violations. Case by case began to create stronger structures which would protect the rights of corporations to prevent others from profiting off their work, starting with Apple's lawsuit against Franklin Computer Corp establishing what a software copyright entailed and built upon by various cases within the following years.[145] Even Atari started enforcing protections on their ideas, with one such case creating protections against "archival copying," a ruling which would plague preservationists as it effectively made distributing copies of emulated software, or ROMS, illegal.[146]

Given all this, Bill Gates's letter is understandable as similarly asserting his right to protect his company's work from copycats. His specific targeting of hobbyists, however, signaled a shift towards a broader no-tolerance policy. Most of the cases which made it to court were specifically against other companies aiming to profit off copywritten material. Gates's letter, however, opened the possibility of extending legal actions towards the very user base

[145] Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240 (3d Cir. 1983), https://law.justia.com/cases/federal/appellate-courts/F2/714/1240/198911/. This forbade the construction of hardware clones of computers by third parties.

[146] Atari v. JS&A (C) N.D. Ill. (1983), https://www.casemine.com/judgement/us/5914c369add7b049347c638d. In this case, the archival purpose involved a device which was intended to protect against accidental physical dangers, which the court ruled was no different than accidentally shredding a book somebody bought. This has been heavily contested by preservationists especially in the cases of games whose parent company no longer exists, or which can no longer be played by current computers.

software was angled towards. In suggesting that hobbyists were the primary reasons for loss of revenue through their distribution of his software, Gates erected a wall between the programmer and the user in a way none of the cases in court had previously done. He had, in essence, created a new battlefield where no one, regardless of age, race, class or gender, could utilize a program created by someone unless they paid that someone directly for it.

If the Magnavox lawsuits and the oversaturation of the console and arcade game markets with poor clones represented the legal woes on the console side of the gaming world, the copyright of code was the primary focus of home computer games. When Bill Gates sent his open letter to the Homebrew Computer Club asserting ownership over his software and decrying copying of his work without appropriate financial compensation, it signaled a shift in the programming world writ large away from the communal sharing of code. Though the process would not be immediate, thinking such as Gates's would soon become the dominant paradigm as software companies attempted to assert financial control over their work. This would soon encompass not just productivity software and operating systems, but video games as well.

This was especially problematic given the nature of code. Confusion over the ownership rights of software lay largely in the fluid nature of software's existence. Media piracy was hardly a new phenomenon, and definitions of what did or did not count as intellectual property was a common debate. However, most forms of media were created as unique products, and any attempts at recreating or repurposing them were clear examples of illegal copying and distributing. Unlike other forms of media, however, software could not only be replicated by a

user, but programmed in a completely different way to achieve the same effects. The ideas could be the same, but the internal workings could be completely different. As seen previously, this was common practice among hobbyists who wanted to recreate a promising project that suited their own programming and computational desires.

None of this happened overnight. The evolution of the discussion would take place over several years as hobbyists attempted to understand precisely what this concept of “piracy” actually was.

By the beginning of the 1980s, this philosophy would start to change. As companies began to develop software to sell to personal computer users, and as the video game industry began to experience problems with low-quality clones of existing games flooding the market, the previous era of free exchange of ideas began to break down in favor of a harsher, more rigidly defined view of how software should be distributed.

Chapter 3: The High Cs (++) of Software: The Evolution of Software Piracy and the Split Between Game Producers and Consumers

The February 1982 of *Compute!* Magazine had lucked into a unique interview: they got the opportunity to talk to a real-life, bona fide software pirate. With tongue firmly in cheek, the interview was done with a stereotypical pirate cant to the writing, with plenty of "ayes" and "mateys" and a set-up made to seem like the interviewer, David Thornburg, was currently meeting his interviewee in a hidden pirate cove overlooking San Francisco Bay. Speaking with a man identified only as "Long John," Thornburg managed to procure a real inside scoop on the insidious crime of software piracy, a problem which had become increasingly prevalent.[147]

Except Thornburg was soon confused. Long John's act of piracy was not stealing a game's exact programming and selling it illicitly for his own gain. Rather, the pirate had seen the game *Tooth Fairy* by Ajax Computers in arcades and, after having played the game, decided to reverse engineer the game to play on his home computer. He recreated the game from scratch, even going so far as to improve parts he felt needed improving. As the game itself was built to run on Ajax's own home computer line, computer dealers began to use it to advertise the power of Ajax computers due to the high quality of the program Yet despite Long John's work directly benefiting the original developer of the game through computer sales, Ajax chose to accuse the "pirate" of copyright infringement and piracy rather than license his work and compensate him

[147] David D. Thornburg, "On Piracy…" *Compute!* February 1982, 16-18

for the aid he had provided. Instead of acquiring a functional, completed version of the game, Ajax decided that creating their own from scratch – a process which, by Long John's assessment, would take another six months – was preferable to acknowledging Long John's efforts as legitimate. Finally, as if to add insult to injury, Ajax had chosen to target him, a single individual, over another larger company, Giant Toys, with better legal resources that was producing an unauthorized handheld version of the game, since "Ajax only has a few attorneys, and they can't sue everyone at once."[148] Long John's sole crime, in short, was daring to recreate their game without the company's permission and without the legal resources to fight back.

Truly, Long John's story was a compelling one – but also completely fictional. There was no *Tooth Fairy* game, no Ajax Computers angrily coming down on a hobbyist making his own version of their game for their own computers, no Giant Toys providing a counterexample of a large conglomerate with its own unlicensed version of the game being ignored legally in favor of a single man.[149] Rather, Thornburg's story reflected the complex issues surrounding the way piracy was becoming understood in the software industry, something he would explain a few issues later in response to game designer Chris Crawford's objection to what he felt was an argument that "effort confers license:"

> "I guess that the use of words like piracy, stealing, etc. to describe activities which, in the area of hardware, are called 'patentable differences,' really bothers me. Simplistic slogans regarding thievery and piracy bother me when they are applied to issues as complex as those I described."[150]

[148] Thornburg, "On Piracy…" 18
[149] The details in the article are fictional. However, its reference to a company whose name starts with "A" that produced both computer and arcade games suggests that this was a thinly veiled takedown of Atari Computers.
[150] David Thornburg, "Piracy Revisited…" *Compute!* June 1982, 14

The problem was not, to Thornburg, clear-cut examples of theft. Rather, the problem to Thornburg was the utilization of accusations of theft to eliminate the ability for people to recreate, innovate, and improve upon existing products. By defining any act of recreation or modification as an illicit act, Thornburg feared that hobbyists would find themselves the targets of legal action simply for doing what hobbyists had been doing from the very start of the industry.

This story, as well as the subsequent response, is but one part of the confused, messy story of the shifting boundaries of acceptable behavior regarding intellectual property in the computer industry. Everybody, from developers to magazine writers to hobbyists, had an opinion about the topic, but very few had a good sense of where the lines should lie between legal and illegal usage of software. In fact, the only group which had a clear sense of what constituted infringement were the emerging computer companies and corporations themselves – and that answer was anything that went beyond a narrow vision of buying and using software exactly as it was out of the box. To that end, corporations took to the courts to create sharp boundaries on acceptable use of software, aiming to prevent individuals from profiting off their products. What they could not accomplish in the courts they attempted through the code, ingraining anti-piracy policies into the very programs they sold in an attempt to dissuade hacking of any sort. In this process of redefining how consumers were allowed to play games and run programs, many activities which had previously been approved of in hobbyist circles were caught in the crossfire, to the extent that companies attempted to dictate even how legally

obtained copies of games could be utilized. The fear of lost money through software copying eclipsed the spirit of comradery which had birthed the computer hobbyist community, replacing the rights of the workers with the rights of the corporation.

Yet legal barriers rarely halt illegal activities altogether. Anti-piracy laws were no exception. Despite efforts on the part of software producers to prevent copying of their products, hobbyists continued to conduct the same activities they did prior to the enacting of these laws. In fact, far from deterring some people, some hobbyists found an entirely new hobby thanks to these laws: cracking security protocols. To these hobbyists, anti-piracy measures were a challenge. As a result, a new battle developed between hobbyists and corporations, one which would continue well into the modern era.

This chapter examines the growing, confused conflict over piracy that emerged in the 1980s in all its glory. It highlights the development of the two sides of the copyright war: on one side, hobbyists whose dedication to the hobbyist ethos required that they willingly risk legal repercussions to continue playing with games the way they used to, eventually coming to embrace their new label of "pirate." On the opposite side were companies and corporations also composed of former hobbyists who chose to embrace the lucrative potential of selling their products, shifting the culture of gaming from one of collaboration to one of conflicting interests. Caught in the middle were people whose own beliefs on the topic were complex and confused, attempting to understand exactly what they were and were not allowed to do with their computers, and who lacked the intense ideological stakes held by hobbyists or corporations – and

thus, through this distance from the battle over intellectual property, arguably became the biggest victims in the ongoing battle.

Piracy and the Computer

Piracy, in the sense of bootlegs or copying of intellectual material, did not emerge spontaneously from the 1980s. From the invention of the printing press onwards, individuals or groups were continuously attempting to define what rights to ownership creators had over their creations. As technology shifted and media became more ephemeral in nature, the conflicts over the ownership of ideas only deepened and became more complicated.

Among the earliest types of media to really contend with the complexities of what constituted intellectual piracy was music. Alex Sayf Cummings, in his book *Democracy of Sound*, writes that even before the advent of recording technology, the comparative simplicity of sheet music made it far easier to reproduce and replicate than other forms of print culture such as novels. Subsequently, would-be "pirates" found it easier to create bootleg copies of these pieces, subsequently denying financial compensation to the original composer.[151] The advent of the recording cylinder and, later, the record, only complicated this situation by shifting music from purely analog recreations via sheet music to mechanical reproductions. The ephemerality of

[151] Alex Sayf Cummings, *Democracy of Sound: Music Piracy and the Remaking of American Copyright in the Twentieth Century* (Oxford: Oxford University Press, 2013): 11

reproducing sound posed all sorts of complicated questions: who owned the recording, the person who performed or the person who created the recording? If a recording should be recorded by someone else, then who really owned that recording? And so on and so forth.

The introduction of computers into mainstream life introduced new tools which, while capable of inspiring great creativity, also intensified conflicts over the ownership of intellectual property. Music, especially, frequently found itself at the center of legal battles manifesting around computing technology. As computers became more and more capable of converting anything into data, the capacity to shift that data around and create new things has forced people to confront concepts of "fair use" rules.

For music, the advent of the computer added new wrinkles to the long history of music piracy. One new complication was the onset and evolution of "sampling," or removing parts from preexisting songs and mixing them together into new music. This technique has been a staple of hip hop music, particularly in the late 1980s as computing technology became more ubiquitous. But because such usage of recordings was frequently unauthorized, sampling found itself at the center of many legal fights over the years, culminating in Gilbert O' Sullivan's lawsuit against the rapper Biz Markie for unauthorized usage of his song *Alone Again* which resulted in increased crackdown on artists ranging from Public Enemy to the Beastie Boys.[152]

Software, however, provided even bigger problems when attempting to untangle the complex web of attributions, royalties, and authorship. Music recordings, while ephemeral,

[152] See *Grand Upright Music v. Warner Bros. Records, Inc.,* 780 F. Supp. 182 (S.D.N.Y. 1991)

nevertheless consist of parts which, regardless of how they are rearranged or pitch-shifted, must be actively recorded or created by an individual. Once this recording exists, its baseline state of existence cannot be altered, which is what made legal prosecution of sampling relatively easy – just locate the sample, demonstrate that it matches a precise point in a song, and there is the evidence for infringement whether one considers it illegal or not. Software, however, allowed a whole new level of alteration. The exact same looking program, for example, could be created from an entirely different code base. Alternatively, a few minor alterations to a preexisting program could result in an improved or vastly different result. In other words, the malleability of the language of code complicates issues of attribution due to the immense breadth of potential results.

This conflict existed in gaming from the start of the industry, even before games were created via code. The game *Pong*, which is often pinpointed as the first true arcade game hit, was designed almost entirely utilizing electrical gating logic. Even this, however, was a point of controversy, given its similarity in gameplay to the ping pong game included in Ralph Baer's Brown Box and, later, the Magnavox *Odyssey*. Baer claimed that Nolan Bushnell, the found of Atari, was directly inspired by the Magnavox *Odyssey*, and had stolen the idea from that. But in terms of actual construction, Al Alcorn was the one who developed the engineering logic for Atari's specific arcade version of the game, and he had no prior experience with video games at

all.[153] More than likely, this was why Baer had been so insistent that the patent he was awarded copyrighted the resulting screen interaction rather than the internal workings of the device. After all, if someone with no experience with games could recreate that interaction as a "training exercise" (as Bushnell had claimed it to be to Alcorn at the time), then potentially anybody could, and did. The messy nature of invention rarely has a single natural origin point, and the story of *Pong* is perhaps one of the best examples before programming languages for games ever existed.

When coding did become a primary method of developing games, replication only became easier – if someone could type characters into a computer, they could learn to create a program, original or otherwise. Not only that, but the reproduction and altering of code had been actively encouraged by computer enthusiasts in the earliest days of personal computing. Many computing magazines, in the days of simpler programming languages, would publish programs submitted by their readers which could be copied and utilized by readers. For more niche hobbyist computers, such programs were a matter of necessity due to the lack of a standardized programming language or operating system. However, just as frequently users would provide code for games and software they created which users could input for themselves. In providing the code in its entirety, submitters were basically giving those who copied it the right to utilize and modify it as they saw fit. In one letter for *Peek(65)*, a fan magazine for users of computers

[153] For more information on Al Alcorn and his relationship with Atari and the development of *Pong,* see Allan E. Alcorn, *Allan E. Alcorn* by Christopher Weaver, conducted at Computer History Museum on March 16, 2018, transcript, Lemelson Center for the Study of Invention and Innovation

produced by a computer company named Ohio Scientific Instruments, a reader even offered to sell physical discs of a patch for a program created by a different reader under the understanding that, in publishing the code in the magazine, it was in the public domain.[154] This environment of free exchange of ideas and advice meant that for corporations pursuing intellectual property rights to their software and relying on the courts to enforce their claims, they would have to expect a fight from the very population that enabled and promoted the existence of the computing industry in the first place.

Among software, the comparative simplicity of games as a product meant that the video game was among the most popular targets for pirates. A Canadian computing magazine noted regarding this phenomenon that games tended to require far less documentation and updating than productivity-related software. This made them far less troublesome to use if a user has anything less than a "complete package."[155] In other words, because games did not require extensive manuals or tutorial programs to teach a user how to utilize them, a pirated copy which may come without any of these materials would be easier to engage with.

On a wider cultural scale, however, games were beginning to be defined primarily as children's pursuits, which may also have contributed to a general cultural devaluation. For many companies, the general understanding was that business software was the real money-maker in computing, such that aligning too closely with games could make a computer less attractive to companies. Some computer companies thus began to distance themselves from being associated

[154] Letter by Stephen P. Hendrix, *Peek(65)* (March 1982): 22
[155] Ian A. Wright, "Game Piracy: Mastertronic's Answer" in *TPUG* February 1985: 15

with "gaming" computers. A prime example of this was Commodore, a company who had through the Eighties created computers with a sizeable userbase of game players and developers. Yet by the late Eighties, they would begin to promote themselves as a "serious" computer company, declaring that "Commodore's not kid stuff anymore." The direct implication was that Commodore felt its reputation as a gaming computer by "the uninformed" hurt its chances to compete in the business market, and thus were attempting to pivot away from that image.[156] Meanwhile, a book by a couple of Tandy distributors reflecting on the history of the TRS-80, while bringing up games as a product, attempted to downplay their significance to the growth of the computer by suggesting they were of interest only to children and teenagers.[157] In both examples, games were seen as evidence of an "immature" computer, while modern adult computers were meant to be "professional" machines for adults.

Console gaming, meanwhile, went through its own major upheaval, especially in the wake of the 1983 game market crash. As an increasing number of lower-quality clones of preexisting games came to the market, consumers grew disinterested in purchasing consoles and console games. Most histories of the game industry point specifically to the release of the game adaptation of the movie *E.T.* for the Atari as a major turning point for console games. Developed over the course of five weeks by a single designer and developer, the game would prove to be grossly overproduced for the number of copies it sold, especially as word of its poor quality

[156] Charles Taylor, "Commodore's Not Kid Stuff Anymore," *TV Technology* 7(13) (November 1989): 1, found in Commodore Trade Catalog at Hagley Museum in Wilmington, DE
[157] *Priming the Pump: How TRS-80 Enthusiasts Helped Spark the PC Revolution,* 242-244

emerged.[158] The excess copies would eventually be buried in a New Mexico landfill, a story that would have seemed apocryphal had the actual location not been discovered in 2014.[159] This moment would spell the eventual downfall of Atari's home console division, although its computer and arcade divisions would continue to function for years afterwards.

Console games eventually recovered as an industry, but not without sacrificing their image as an all-ages entertainment venue in the process. Nintendo, the company which would become synonymous with console gaming in the 1980s, also had much to do with the cultural association of video games with children, and especially young boys. In the wake of the console market crash of 1983, many toy stores which had been burned by the collapse of console game machines showed reluctance to sell any new entrants into the market. Nintendo worked its way around this problem by reconceptualizing the Japanese "Famicom" (short for Family Computer) as an "entertainment system" to make it seem more like a toy than a "video game machine."[160] This included packaging the device with more toylike devices such as the Robotic Operating Buddy, or "ROB," a rudimentary robot which could play games. Notably, when the Nintendo Entertainment System (or NES) became immensely popular after its release in 1985, ROB was very quickly and quietly retired as a control device, signifying its presence as a Trojan Horse into American stores distrustful of game consoles after the market crash of 1983 rather than an actual

[158] Rebekah Valentine, "Years Later, the Creator of E.T. Remains Proud of 'the Worst Game Ever Made,'" *IGN* Aug. 17, 2022, https://za.ign.com/et-the-extra-terrestrial/167916/feature/years-later-the-creator-of-et-remains-proud-of-the-worst-game-ever-made.
[159] Owen S. Good, "E.T. cartridges found in infamous Atari landfill," *Polygon* April 26, 2014, https://www.polygon.com/2014/4/26/5656282/atari-et-landfill-new-mexico-found-cartridges
[160] The Digital Antiquarian, "Generation Nintendo," *The Digital Antiquarian* April 1, 2016, https://www.filfre.net/2016/04/generation-nintendo/

component of the NES.[161] At the same time, this method had a price: the NES became most associated with children versus its more mixed age audience in Japan, and as more non-game players began to define all game consoles as a "Nintendo," the more games in general became seen purely as children's pursuits.

The view of games as frivolous and unrelated to "adult" computing was not a new phenomenon. Joy Rankin has documented how as early as when PLATO was the dominant computer network among college campuses, struggles would erupt between those who felt that gameplay took time away from people who wanted to use the computers for more "important" things versus those who felt that games were themselves essential towards understanding and learning about computing.[162] Some people, such as the women interviewed by Janet Abbate for her work on women in computing, felt that the image of young men huddled in front of computers playing games was in some ways off-putting, especially for young women.[163] For them, the image of people using computers primarily as a form of play rather than doing work presented a negative image of computing, especially as computers became increasingly essential as the building blocks of progress.

Gaming proponents, on the other hand, argued that games were an essential building block in learning more complicated code and figuring out how to work with computers. Much of

[161] Gaming Historian, "The Story of R.O.B. the Robot," Youtube March 16, 2018, https://youtu.be/w2FuHErzhVE
[162] Joy Lisi Rankin, *A People's History of Computing in the United States* (Cambridge: Harvard University Press, 2018): 226
[163] The full collection of interviews can be found at Janet Abbate, "Oral History" Women in Computing," *Engineering and Technology History Wiki* accessed 11/22/2022, https://ethw.org/Oral-History:Women_in_Computing. More detail about the specific interviews will feature in the next chapter.

Joseph Weisbecker's work with educational programs and computing, as seen in chapter one, was predicated on the expectation that "having fun" with computers was an essential element towards learning how they functioned. Some computer hobbyists would even argue that games were vital in the advancement of other areas of computing. One text called *The Computer Cookbook*, for example, stated that even if people did not care to admit it, "no computer is released without serious attention to its ability to play games."[164] Furthermore, it argued that the video game was actually responsible for a number of important advances in computing technology including but not limited to an increase focus on computer responsiveness, better graphics, and alternate control technologies such as the mouse and the "joystick."[165]

Furthermore, many argued that even if games were for "children," they were nevertheless essential precisely because they resonated with children, and therefore provided helpful entry points towards learning coding and entering careers as programmers and computer scientists. This viewpoint was especially relevant once focus was placed upon children learning programming at an early age, as an article in the first issue of *Compute!* Illustrated while discussing children interacting with microcomputers at a school in Menlo Park, California.[166] Another book which focused on programming game in Microsoft BASIC made an explicit connection between the hackers who created *Spacewar* and children in households with

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[164] William Bates, *The Computer Cookbook* (New York: Doubleday & Company Inc., 1st ed 1979): 89

[165] William Bates, *The Computer Cookbook,* 342. A quick definition: "joystick" tends to refer to any method of control which utilizes a stick pivoting around on a base. This can range anywhere from a flight stick-style control in which the stick is held in the entire hand to the smaller analog sticks which are common on modern controllers and allow for gradual increase of speed and full 360 in-game movement.

[166] Katie and David Thornburg, "Flying with PET PILOT: Kids and Microcomputers at Peninsula School," *Compute!* 1(1): 40-41

computers, hinting that the spirit of experimentation that created the prior game could be awakened in a generation that "can't do manual math or use a slide rule because of the pocket calculator" simply by bringing computer games home to the family.[167] Notably, however, many of these texts came from those who had grown up in the hobbyist world of computing, and who still held onto the belief that games played an important part in the holistic experience of the computer.

In the end, these conflicting views of the relevancy of games would result in both a growing consumer sector for video games, but also a viewpoint in mainstream, non-hobbyist perception of games as a "lesser" type of software, something both desired and devalued. Because its value was so high among the portion of the population least capable of purchasing them directly – children and young teens – the desire for the product often outstripped financial means of procuring them. As a result of this, and because of their relative simplicity as programs, games quickly found themselves at the center of growing concerns about piracy and hacking.

Primary among the concerns of game companies were hackers who could distribute their software to other people illicitly. For these cases, programmers began to introduce extra code in games which was meant to prevent any sort of copying whatsoever. Rather than dissuade pirates, however, these measures maintained a constantly evolving battle between hobbyist hackers and programmers to attempt to keep ahead of each side's actions. Professional

[167] David H. Ahl, *BASIC Computer Games* (New York: Workman Publishing, 1978): *IX*

programmers would attempt to introduce new encryption methods to daunt hackers. Hackers would spend time attempting to break through these encryption methods and spread their findings to other hackers. This struggle is one that continues to exist even today, as seen by continued data breaches despite supposedly revolutionary new protection methodologies.

Even *Compute!*, the magazine which printed the earlier editorial about fears of litigation creep, would eventually attempt to forbid readers from allowing anyone other than the owner of the issue to utilize the programs printed in the magazine, something which a different Commodore focused magazine noted was "bilgewater" because of the complete unenforceability of the prospect.[168] Unsurprisingly, this shift of stance occurred within a year of *Compute!* being bought by ABC Publishing, a subsidiary of the ABC broadcasting corporation. With the introduction of a corporate owner came a corporate understanding of sharing programs, and that understanding was that it was theft.

Hidden Messages, Real Conflicts

Evidence of the peculiar interactions between game developers and the hacking scene is scattered throughout the material history of games. Perhaps no evidence of these interactions between professional programmers and hackers is more fascinating than that hidden within games themselves. A long and storied history exists of programmers including hidden text within game programs regardless of country of origin. Some were internal messages that were

[168] "Letter from Edward C. James," *The Transactor* 5:3 (Nov. 1984): 15

not removed in the final build, leaving unintentional documentation of the game's development hidden within the game itself. Many of these messages, however, function as easter eggs – hidden elements which exist as fun surprises for people willing to put the effort into finding them. Contributors to the website *The Cutting Room Floor*, a site dedicated to finding hidden or cut content within game code, have uncovered numerous examples of these programmer additions, each which suggest different stories and ideas about the people who put them in. However, given the deeply hidden nature of these messages, the primary expectation seems to have been that hackers would break into the program and find them. These messages, though frequently short, tell a vivid story about the complicated attitudes held by game creators and "pirates."

In the earliest days of gaming, the most common form of hidden message content was developer credits. The earliest confirmed easter egg in a video game, for example, was a developer credit hidden in the game *Spitfire* for the Fairchild Channel F, a short-lived console most recognized for being the first console to use programmable cartridges.[169] For many of these programmers, these hidden credits were the only way they had any chance of gaining recognition for their work, as many companies such as Atari forbid programmers from identifying themselves to ensure focus was on the companies producing the games rather than individuals. These hidden initials can thus be interpreted as a small rebellion against a workplace that enforced anonymity of its workers in favor of promotion of the company. Whether they

[169] "Spitfire (Fairchild Channel F)," *The Cutting Room Floor,* accessed 11/18/2022, https://tcrf.net/Spitfire_(Fairchild_Channel_F)

expected hackers to find these initials or placed the letters there simply for their own gratification is hard to say. However, given the tendency towards the publication and examination of code that was so prominent in the earliest hobbyist days, one cannot rule out the possibility that they hoped someone would find those letters and recognize them for their work. If so, these programmers were placing trust in hackers to provide them the credit they felt they deserved, even if mainstream audiences would never know who they are.

The ever-increasing size of ROM size in games allowed for longer phrases. The first documented game with a distinct hidden message was an Atari game called Starship 1, released in 1977. This message, which simply stated, "Hi Ron!" was a reference to Ron Milner, the game's co-engineer. Significantly, however, Milner's own explanation of the message, as well as the fact the method also provided a player ten free credits, highlights both how thin the line between professional and hobbyist programmers was, as well as the risks that were already manifesting for doing anything which compromised a game's security:

> "I remember feeling like some sort of criminal putting the back door in my program. I knew that if it ever got out I would lose my job which I liked a lot. My boss, Larry Emmons, already had me pegged as a screw-up for various other mouthings off and shenanigans and something like stealing free games would definitely be the end even though I came up with vast numbers of great ideas. Who knows, I could maybe get tossed in jail if coin machine operators were losing real revenue. That's why I never bragged about it till now!"[170]

As games became more sophisticated, the messages became longer. More importantly, messages began to directly address hackers. The tone of these messages would vary depending

[170] "Starship 1," *The Cutting Room Floor*, accessed 11/18/2022, https://tcrf.net/Starship_1

on the programmer's own attitude towards hacking. Some messages were friendly in tone. A game for the Intellivision released in 1982 called *Land Battle* included a simple message that "Glyn H. Anderson would like to wish you many hours of battling fun,"[171] a sort of jolly wave to whoever had hacked into the program. Other messages were much less pleasant, with messages like the following found in the game *Blue Max* for the Commodore 64 computer, with all-caps seen in context:

"WHAT ARE YOU DOING IN MY CODE? YOU REALLY MUST HAVE SOMETHING BETTER TO DO THAN RIP ME OFF. BY TRYING TO CRACK THIS CODE YOU'RE CHEATING ME OUT OF WHAT I SHOULD EARN FOR THE WORK I PUT INTO IT. I WORKED HARD TO MAKE THIS GAME AND REALLY RESENT THAT I HAVE TO GO TO THESE LENGTHS TO KEEP PIRATES OUT OF MY CODE. BUT AS LONG AS THERE ARE PEOPLE LIKE YOU TRYING TO CHEAT PEOPLE LIKE ME, I'LL BE SPENDING AS MUCH TIME WRITING THIS SENSELESS PROTECTION AS I DO WRITING GAMES. SO WHY DON'T YOU JUST GIVE UP RIGHT NOW AND TELL YOUR PIRATE FRIENDS THAT YOU COULDN'T CRACK BLUE MAX. SPEND YOUR TIME DOING SOMETHING USEFUL WITH YOUR TALENTS, INSTEAD OF MAKING ME WASTE MINE. AND DON'T BOTHER LOOKING FOR MORE MESSAGES, THIS IS THE LAST OF THEM."[172]

This message in particular highlights how hacking and piracy were increasingly becoming conflated in the discourse about intellectual property and games, given that the programmer assumes by default that the hacker reading the message is doing so to pirate the game.

While these messages may have been strident in tone, their existence suggests a sense of inevitability felt by these programmers. Most of these messages could never be found by people

[171] "Land Battle," *The Cutting Room Floor,* accessed 11/22/2022, https://tcrf.net/Land_Battle
[172] "Blue Max," *The Cutting Room Floor,* accessed 11/22/2022, https://tcrf.net/Blue_Max_(Commodore_64)

playing through the games casually. The only way to read these would be to perform the exact act of code cracking these messages frowned upon. Furthermore, the anger displayed by game programmers in these messages suggests less that they felt that pirates would heed their request and stop pirating, but rather a sort of helpless venting against the type of people reading these texts. In some cases, the messages even suggested a subtle wink towards hackers in which they acknowledged their existence and condoned it by giving hackers an extra bonus to go with their hacking work, such as the Atari 8-bit game *Golf Master*'s hidden message to a "fellow hacker" breaking into the code.[173]

More universally, these messages suggest a desire to be recognized for work. For Western developers, the ranting against pirates was a desire for financial recognition, a persistent anxiety about their efforts coming to nothing in terms of profitability. Among Japanese developers, however, these messages took on a much different tone. While many were cute little comments, a few games took advantage of extra space in their cartridges to rant about poor work conditions and bad coworkers. One particularly unique example comes from the Famicom game *Erika to Satou no Yume Bouken*, developed by the company Namco. This message is unusual in that it is technically accessible to anybody who plays the game, not just hackers – but only if they waited a full hour and a half after the end of the game, then entered a complex series of button presses. What followed was a message by a programmer known only as Hidemushi, who sets the tone early by asking, "Meanwhile, who the hell are these people with the project? I'm so

[173] "Greetings, fellow hacker may bad luck and ill temper be yours in this current endeavor!!" from "Golf Master," *The Cutting Room Floor*, accessed 11/18/2022, https://tcrf.net/Golf_Master

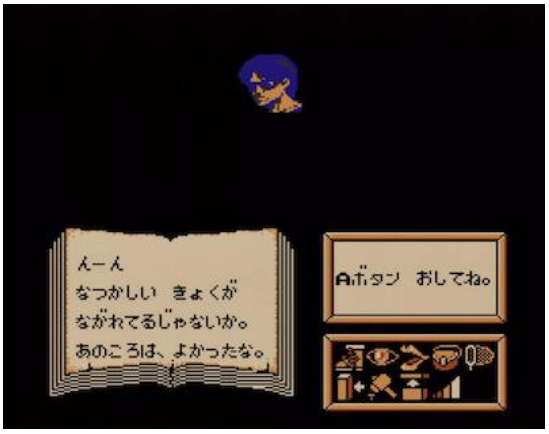

FIGURE 5 A SCREENSHOT FROM THE ERIKA TO SATORU NO YUME BOUKEN RANT. "MMM, THAT'S A NOSTALGIC SONG PLAYING. THOSE WERE GOOD TIMES." A RARITY AMONG HIDDEN MESSAGES IN THE FACT THAT IT COULD BE ACCESSED IN GAME WITHOUT HACKING. IMAGE TAKEN FROM HTTPS://WWW.ZEL-LIFE.COM/ENTRY/ERIKA_SATORU

glad it's over."[174] He then proceeds into a rambling rant cursing out coworkers that made him mad, giving thanks to those that did not, and finally an apology to who is presumably his wife, "Kazumushi," for not being able to come home as much as he would have liked. While the message is clearly targeted towards coworkers, its presence in the game, hidden as it is, suggests an even greater desire to be heard by a wider public than most such messages. Furthermore, the very deliberate method of access suggests that the programmer fully intended for the message to be readable after the game's launch by anybody, rather than being a case of accidentally leaving the message in the final build like could be argued about other games.

While unique in its relative availability, other similar messages could be found in Japanese games, hinting at a drastically different work culture from Western game developers. Whereas the Western programmers saw their work as individual and railed against others for

[174] "Erika to Satoru no Yume Bouken," *The Cutting Room Floor,* accessed 11/18/2022https://tcrf.net/Erika_to_Satoru_no_Yume_Bouken

infringing, Japanese programmers appeared to see these messages as methods of expressing strong emotions about the nature of their workplaces, searching for communities sympathetic to their feelings. They are extensions of the earliest hidden developer credits, allowing the programmer to express him or herself as a human being rather than as a simple name on a list, if that. Given the personal nature of such messages, one might assume such messages were not expected to be found by anybody but the writer's coworkers. But evidence in several messages suggests that these Japanese programmers were not only aware of hackers, but in fact reaching out to them as comrades. One hidden message in a game based on the popular pachinko style of gambling machines, for example, also told the hacker about a specific value that could be changed within the game code to make the pachinko balls sound more like actual pachinko balls than the final product did.[175] In another game for the Japanese-only MSX computer line, a hidden message applauded the hacker for poking around and suggested they work for the company that made the game.[176]

These messages represented two sides of the effects of capitalism on game development and coding culture. If Western messages showed the contentiousness of pitting programmer against hacker, Japanese messages highlighted the invisibility programmers felt under corporate control of game development, as well as a desire to reach out to fellow hackers and

[175] "Pachi Com," *The Cutting Room Floor,* accessed 11/18/2022, https://tcrf.net/Pachi_Com_(NES)
[176] "Ginga Eiyuu Densetsu II," *The Cutting Room Floor,* accessed 11/18/2022, https://tcrf.net/Ginga_Eiyuu_Densetsu_II_(MSX2) The message, translated, reads, "Oi, you there! Poking around inside the disk, eh? Not bad. Why don't you do the programming, instead of me? Our company is looking for programmers. Give us a call! We're waiting!"

programmers. Both display a persistent throughline of anxieties about control over their work and their creations. And in both cases, a sense of solidarity between programmers prompted the creation of these messages, even when the tone was confrontational versus friendly.

Both cultures also displayed prominent shows of masculinity. The Western messages angled towards a violent type of masculinity and self-assertion, expressing individuality, and lashing out at presumed thieves. The Japanese messages utilized crude language and wistful longing for acts of male comradery, occasionally dipping into the sexually obscene. The game *Ganso Saiyuuki* for the Nintendo Entertainment System, mostly known for being one of the most poorly programmed games in the system's early years, also contained a sexually explicit message which reads like a personal ad for someone looking for a quick one-night fling.[177] Such displays illustrated the degree to which programming had become a primarily male profession by the 1980s, particularly game programming. But they also hint at how the profession hit anxieties about male self-identity as programmers. In America at least, the programmer had by this point gained a reputation as being extremely smart, but socially awkward.[178] Meanwhile in Japan, the dehumanizing conditions suggested by the messages would have challenged one's self worth as a person in general, let alone how one lived up to expectations of masculinity.

[177] "Ganso Saiyuuki," *The Cutting Room Floor,* accessed 11/18/2022, https://tcrf.net/Ganso_Saiyuuki. Regarding its reputation for poor quality, *Ganso Saiyuuki* fits into a specific segment of Japanese video games referred to as *kusoge*, or "shit game." In Japan, an entire culture has built up around appreciation for these sorts of games, particularly those whose ambitions greatly outstripped the capabilities of their creators. A similar culture has begun to build up in the West as well, largely shaped around this original Japanese tradition.
[178] And usually white.

Most importantly, however, these messages were evidence of dialogues occurring between hobbyists and professionals outside of the courts or popular print. They are pieces of ephemera which have only become accessible to the wider public through the efforts, perhaps ironically, of hobbyist hackers. In this way, the hackers who were so disparaged for their supposed efforts in distributing stolen property have also become historians, archiving a history of early video games which may have otherwise disappeared into obscurity along with the games themselves. These actions which some programmers reviled, and others empathized with have become essential in continuing efforts to maintain the history of gaming.

Internal messages such as these have become much rarer in the Twenty-First Century, no doubt partly due to websites such as *The Cutting Room Floor* where contributors uncover such material within a matter of days from a game's release. The wider awareness of troubles within the industry as well as social media providing alternate outlets for communicating with fellow programmers have made such messages less necessary as well. They have not gone away entirely – the programmer Toby Fox, creator of the game *Undertale*, included a message after the initial launch of the game in the code begging hackers not to reveal what they found in the game too early (futilely, unfortunately).[179] But for the earlier years of gaming, these messages provide tantalizing glimpses into game development culture, as well as highlighting the walls that had been erected between hobbyist hacker and professional game coders.

[179] "Undertale," *The Cutting Room Floor,* accessed 11/18/2022, https://tcrf.net/Undertale

Pirate vs. Programmer

While software piracy was slowly becoming a larger issue within the industry, many people expressed ambivalence or concern about where the boundaries lie in identifying what counted as illegal acts of copying. *Compute*'s article was but one of many pieces that came out in the early 1980s which examined the ways in which anti-piracy clampdown could potentially infringe on the rights of independent game developers and hobbyists. *Play Meter*, a magazine primarily dedicated to the amusements industry, also expressed a similar sentiment when it came to arcade games, expressing worry in their July 1, 1982 issue from a different perspective, noting that copyright was frequently being used as a weapon against coin-op operators as well. "Has the copyright law, in regard to video games been stretched beyond its intended purpose?" the Editor lamented, concerned about the outlawing of modifications made to games already possessed by arcade owners.[180] They agreed that manufacturers had the right to protect their intellectual property, but as a publication dedicated to all sides of the amusements industry, they were best situated to observe how one-sided the benefit to these laws could be.

Others showed concern about how anti-piracy and copyright laws could prevent children from developing the sort of programming literacy which hacking into preexisting games could help nurture. *The Computer Cookbook*, while firmly stating its opposition to the utilization of hacking for commercial gain, also proclaimed clear support for the actual act of hacking:

> "For many teenage hackers, cracking codes is a major form of recreation that borders on being an obsession… The point is that these hackers are involved with their machines in an extraordinary, intimate way. The reward is not the cracked disk or a few

[180] Play Meter, July 1, 1982, 6

> rounds at a computer game, the reward is the activity itself. Adults who compare disk copying with copying records and videotapes miss the essential difference. Records and videotapes are for passive enjoyment; cracking a disk is an active, mind-stretching challenge. Few people who copy movies are about to become film directors. Most pirates also write their own games. The world, in short, needs these people."[181]

The Computer Cookbook thus drew a clear difference not only between motivations for hacking, but also in what was being hacked. Software hacking was not a means to steal, it was a way to self-educate and to entertain in and of itself. Bates was hardly alone in this sentiment. For many hobbyists, hacking was conducted as a way of studying code using legally bought copies of a game rather than to obtain "free stuff." In addition, hackers could, by understanding how a game's code worked, alter it to provide quality of life features which could allow easier completion of games, such as extra lives and infinite ammo. Such hacking arguably highlighted design problems common in games which would, as these hackers entered the industry themselves, be addressed and fixed in their own works. Hacking thus not only allowed people to peer at the technical building blocks, but also illuminated the building blocks of better game design.

Even if hacking was done for intellectual curiosity or personal ease of use, however, the act nevertheless offended companies who felt that such acts violated the unspoken contract between consumer and company which expected users not to tamper with their purchased products. Japanese companies such as Nintendo especially took great issue with this sort of hacking, something which resulted in a major lawsuit in 1992 against the company Galoob. This

[181] Bates, *The Computer Cookbook*, 230

was due to a product developed by the company called the *Game Genie*, a device which could hack into any console game and alter the code in various ways. While most users used this to make games easier, some found ways to use hacking tools such as these to search for hidden and deleted content. Nintendo felt that in allowing players to hack their own games, they were creating a derivative work, and thus violating their copyright. In the United States, the courts sided with Galoob, with the ruling arguing, "Consumers are not invited to witness Nintendo's audiovisual displays free of charge, but, once they have paid to do so, the fact that the derivative works created by the Game Genie are comprised almost entirely of Nintendo's copyrighted displays does not militate against a finding of fair use."[182] For the court, whatever a consumer did after purchasing their product, so long as their actions did not result in financial profit, could not be seen as violating copyright. While the Galoob case worked in favor of tools for modification, the process of modding and distribution of results continued to remain a legally contentious issue for at least a decade.[183]

Such attitudes were not restricted to games either. An issue of *Popular Computing* analyzing software piracy noted a story about a firm which had purchased an expensive suite of

[182] *Lewis Galoob Toys, Inc., Plaintiff-appellee, v. Nintendo of America, Inc., Defendant-appellant.nintendo of America, Inc., Plaintiff-appellant, v. Lewis Galoob Toys, Inc., Defendant-appellee, 964 F.2d 965 (9th Cir. 1992)* https://law.justia.com/cases/federal/appellate-courts/F2/964/965/341457/

[183] For an example outside of the time frame of this dissertation, the case of Micro Star vs. FormGen Inc. in 1998, involved a company selling a set of user-created levels for the game Duke Nukem, ultimately ruling against the modders in favor of the copyright owner as possessing the sole authority for the creation of sequels. Specifically, it determined that the levels by themselves did not infringe upon copyright, but utilization of the art assets made the project cross the line into infringement. The fact Micro Star charged for the content itself rather than the tools involved may have had a lot to do with the result. See Ninth Circuit, *Micro Star v. Formgen Inc*. 154 F.3d 1107 (9th Cir. 1998).

software that failed to handle payroll functions even two years after purchase. They hired someone – named only The Consultant in the article – to hack into the program and modify it, which he successfully did within two weeks of the assignment. The response from the company who developed the original software was, rather than looking at the modification and reflecting about why such action was necessary, to "[go] through the ceiling screaming about ethics, honesty and theft."[184] This hostile reaction highlights how seriously software companies were beginning to take any sort of hacking of their software, even on legally procured software which was failing to function as promised.

This example also highlighted a central conflict in asserting ownership of ideas within software, and that was the mutability of programming itself. The introduction of computing technology afforded people better tools for reconfiguring art to their own purposes. Sampling, as mentioned earlier, was a prominent example in the music industry. However, remixing music generally required creating something out of preexisting, unchangeable pieces. A song might take the rhythm from one song, the melody from another, a specific phrase from a third song, and put them together. The song is still, technically, a new product, but the parts themselves are the same as their original recordings.

The parts of a program, however, could have anything changed. Games especially, consisting of both the artistic representation of the game's graphics and music and the technical aspects of the program, could often result in grey areas of intellectual ownership. The exact

[184] A. Richard Immel, "Is Software Piracy Justified?" *Popular Computing* (July 1983): 54

same game could be compiled utilizing a completely different programming code. A totally different game can be made by shifting the assets of preexisting code. Thus, software required definitions of intellectual property which bordered on arbitrary, with both code and game assets becoming consequential or inconsequential entirely based on which would best prove infringement and disprove arguments of free use.

One of the most public examples of this conundrum came, surprisingly, from an actual game company. The game *Ms. Pac-Man*, ostensibly a sequel to the arcade hit *Pac-Man*, was itself an unauthorized use of the *Pac-Man* license by the game's distributor in America, Midway. Not only that, but development of the game came itself from utilization of modification kits, which themselves had been the subject of numerous legal challenges in the arcade scene. The game itself was a hit, widely considered to be one of the best sequels to the original game. However, the owning company, Namco (now Bandai-Namco), would have been entitled to have the project canceled or the machine banned. Midway was lucky in that Namco's President approved of the project when they shipped samples to him, but their working relationship almost certainly helped prevent any legal action – and the actual creator of Pac Man, Toru Iwatani, has never commented on the project himself.[185]

Ms. Pac-Man may have been approved, but Midway's connections to Namco as their primary American distributor no doubt helped with that. Had it been distributed instead as the game it originally modified Pac-Man into, *Crazy Otto*, the issue may have been more

[185] Colin Campbell, "How an arcade classic broke all the rules," *Polygon* March 25, 2016, https://www.polygon.com/2016/3/25/11287572/ms-pac-man-story

complicated, since it would have been a supposedly original creation produced via modification of an existing title. In fact, the company that produced the original modification kit, General Computer Corporation, had already dealt with a legal challenge by Atari for an earlier modification kit for the game *Missile Command*, marketed under the name *Super Missile Attack,* which was designed to make the original game more challenging for experienced players.[186] These days, the sale of unauthorized mods is discouraged within the modding community itself. But at the time of General Computer's legal battles, the precise components of what could be copyrighted on a video game had not been established.

For their part, General Computer argued that even if the game looked the same, the actual game experience was different enough through their kit to warrant being considered a different game. They argued that, rather than selling a whole new game and attempting to pass it off as a new one, that they were "taking a book that someone had already bought and selling them an index or an addition at the end."[187] This argument highlights the complicated problems with defining piracy when it comes to video games: if you are only selling something that modifies something already bought, does that still count as a violation of copyright? What if, as seen in the earlier example of the payroll program, you sell something that modifies or fixes a preexisting program? What if that program is, as more commonly occurs now, distributed for free? *Ms. Pac-Man* thus represents a rare example of the conundrum faced with the immutability

[186] ibid
[187] ibid

of programming, especially given the copyright holders' willingness to let the matter go rather than pursue legal action.[188]

The history of game development for older consoles in China and Korea are practically built around these grey areas. Bootlegs were central parts of the console gaming experience in these countries, as well as in other countries where these titles were distributed such as Russia. Some were straight examples of piracy, involving taking a preexisting game and reprinting unauthorized versions for selling. The "pirate multicart" is a common example of this, often claiming to have several games on it totaling anywhere from two to a million.[189] But there are also varying levels of modification and originality displayed throughout the bootleg scene. Some are as simple as changing the main character of a game to resemble more popular characters such as Mario or Disney characters. [190] However, others display a level of effort that goes beyond what one might expect for a simple cash-in, ranging from ports of newer games to original games created utilizing preexisting assets. In rare cases, the bootlegs were superior to official

[188] To say nothing of more recent problems. A lawsuit in 2019 resulted from a company called ATGames buying the royalty rights for Ms. Pac-Man from General Computer. It was settled out of court with ATGames holding onto the royalty rights – at which point Bandai-Namco began quietly changing all visual appearances of Ms. Pac-Man in their older games to a non-infringing new design. This once again highlights the way in when the malleability of games makes legal matters relating to them more complicated. See Owen S. Good, "Pac-Man has a new wife, thanks to Ms. Pac-Man drama," *Polygon* https://www.polygon.com/23015420/ms-pac-man-pac-land-bandai-namco-atgames-lawsuit" accessed 05/05/2022.

[189] Although the larger the number gets, the more likely the bootleg is lying. In the height of the NES Mini, a device created by Nintendo itself which could be plugged into a television and play classic games pre-programmed into the device, bootleg versions could be found in malls across the United States. Frequently, as in the case of a personally acquired machine, games would repeat the further down the list one goes. Some bootlegs could go even further; a special episode of the Japanese show *Game Center CX* where the host Shinya Arino visited Cambodia shoed him buying a multicart where many of the "games" were just stages from the game *Super Mario Bros.* broken up into individual levels. See *Game Center CX in Singapore,* 2013.

[190] As is often the case with such things, there is a wiki page documenting different bootleg titles. See *BootlegGames Wiki,* accessed 12/14/2022, https://bootleggames.fandom.com/wiki/BootlegGames_Wiki

releases: bootleg enthusiasts, for example, have noted that the version of *Aladdin* for the NES that had been reverse-engineered from the Super Nintendo version was superior to the authorized, official title released in European countries.[191]

Such games also testify to the complications of attempting to enforce intellectual property on a fully globalized scale. In countries with stringent rules about copyright protection, companies could easily prosecute infringers. But in countries where the laws were less restrictive, or in which distribution of the company's products was left in the hands of third parties such as Dendy in Russia, derivative for-profit products could proliferate with almost no interference. Nothing prevented these games from proliferating in other countries as well; even the United States has seen numerous devices of dubious legality sold with copyrighted games, especially once the NES hardware patent expired in 2005. In short, corporations had – and continue to have – an uphill battle to maintain the sort of control they desire.

Not even their "legal" consumers could be reined in. Hobbyists continued to hack into games for fun, even if they frequently skirted legality in doing so. An excellent display of hacking as a hobby comes not from America, however, but from Britain. Britain, by the 1980s, had fallen drastically behind in the international computing industry, and was just beginning to develop its own microcomputing scene. This, coupled with the lack of Japanese games imported to England, resulted in a gaming and computing scene that was drastically different from its

[191] The Youtube channel *Kinamania* discusses this phenomenon of bootlegs being better than official titles in its *Dendy Chronicles,* a video series discussing the NES bootleg scene the host grew up with in Russia. See Kinemania, *Dendy Chronciles: выпуск #5,* Youtube, February 2, 2012, https://youtu.be/_2JreLm4-mY?list=PLCE3FEDC39DEF28E3

American counterpart.[192] This also meant that hobbyist computing was still relatively young in comparison to America, and many popular computing titles were once again developed by hobbyists. However, corporate game production and copyright were just as prevalent, and England made its own antipiracy attempts. The UK's Copyright, Designs and Patents Act of 1988 included its own provisions banning the marketing of software copying devices, especially those which could also be utilized as hacking devices themselves.[193]

This did not deter magazines from doing something no American magazine would dream of at this point: printing codes which would allow players of games to hack into published computer games and see what made them tick. An issue of the magazine *Your Sinclair*, dedicated to a Scottish microcomputer called the ZX80, included an entire pullout section in their June 1987 issue explicitly on hacking into various Sinclair games. This pullout included an introduction to hacking for beginners, one which was cognizant of the view corporations took on hacking as an activity. They emphasized that hacking was not intended to make pirated copies of games, noting that "You'll realize that hacking is the hardest, most time-consuming and least effective way to copy a game."[194] Instead, they explained that hacking was for fun, allowing players to advance in games they might have been having trouble finishing. Indeed, a lot of the

[192] The full scope of the history of the British microcomputer industry is too extensive to cover in full here. For some sense of its development and why it lagged so far behind the US, see Ross Hamilton, "Despite Best Intentions: the Evolution of the British Minicomputer Industry," *Business History* 38 (1995), 81-104. For a more focused look at how the British gaming scene evolved in this time period, see Terri Rose, "British Microcomputer War (Part 1): Sinclair, Commodore, and Acorn," *Globax Gaming* posted July 10, 2018, accessed 12/07/2022, https://www.globaxgaming.com/blog/micro1

[193] United Kingdom, *Copyright, Designs and Patents Act 1988*. Sections 50A and 50B

[194] "Hacking Away Special," *Your Sinclair* 18 (June 1987): 52.

hacks included were for things such as infinite lives and energy, things which would allow a game player to finish a game without worrying about having to start over.

While not explicitly stated as much, the tone of the pull-out clearly felt that hacking was an educational opportunity for those who engaged in it. In offering suggestions for hacking programs, books on learning code and introductory commands to get readers started on doing their own hacking, the pullout invited readers to utilize hacking not just to "cheat," but also as a method of learning how to program Spectrum titles themselves. By examining the code of others and learning how to modify it, hacking could provide an early stepping stone in learning how to program without requiring a user to create their own programs entirely from scratch.

They also blatantly flaunted the purpose of copy protection. To the writers of the magazine, copy protection was an obstacle preventing users from using their legally bought programs as they wished. They acknowledged the purpose of protection was, in fact, to keep hackers out of the program, but nevertheless felt no guilt in suggesting ways for readers to learn how to bypass these protection schemes.[195] Thus, the magazine transformed what was intended to be a security measure into a game of its own, one which could teach a hacker about the full assembly of a game as well as make their games easier to play.

In this, these magazines maintained the spirit of curiosity and mutual exploration embodied by the earliest hobbyists. Sharing code, modifying games to improve upon them or alter them to fit their specific gaming experience – all of these were the same as what people

[195] "Hacking Away Special," 52

such as Weisbecker and his fellow computer hobbyists accomplished. The only difference was the level of legality attached to their actions. For the earliest users, the ability to modify was encouraged through the sharing of code in magazines without any expectation of legal penalty. In these British magazines, however, users examined code, modified it, and swapped tips on how to do so *despite* legal and technical barriers implemented to prevent users from doing exactly that.

Gatekeeping Logic

Game companies remained determined to find ways to prevent hackers and pirates from accessing their products as they wished. One method of doing so, particularly in the 1980s and 1990s. were what were referred to as "feelies." Feelies were external items packaged with new copies of games which served as gate keys of sorts towards playing a game. These could range from as simple as a game's manual including specific phrases required to advance the game, to things such as the "Dial-a-Pirate" utilized by the game *Monkey Island*, in which players would have to look up a code by matching a randomized face provided by the game on a specialized paper wheel. Failure to enter these codes would prevent players from progressing further than the very early instances of the game, or even getting to the title screen in some

FIGURE 6: THE DIAL-A-PIRATE FROM THE SECRET OF MONKEY ISLAND. IMAGE SOURCE: HTTPS://WWW.OLDGAMES.SK/CODEWHEEL/SECRET-OF-MONKEY-ISLAND-DIAL-A-PIRATE

circumstances. What made these tactics particularly clever were that they essentially required a player to have a new copy of the game, since that was the only reliable way to ensure that they would have the item needed to enter the codes. Furthermore, by disguising it as a cute extra or by integrating the copy protection with the game's manual, the process was made to seem fun rather than onerous.

Other games would integrate clever tricks into the games themselves. If a game detected something off with a game – typically in the form of a checksum, or an internal sum of numbers which can help a program detect errors. Since less savvy pirates and hackers frequently altered these sums, an improper checksum was often a sign that a copy was illegitimate. Rather than preventing the game from working altogether, however, some programmers would instead cause a game to act in ways which were actively detrimental towards allowing the pirated copy to be played. This could range from altering damage calculations to make combat nearly impossible such as in the Atari 8-bit version of *Ultima IV* to sudden, unavoidable deaths and game overs.[196] Such tactics are still utilized today despite general awareness that pirated copies are essentially an inevitability. If companies cannot prevent illicit access to their games, they can at least delay it long enough to sell legit copies to cover the cost of development.

Ironically in the ongoing war between hackers and software companies, one group of people frequently were caught in the middle: regular, non-hobbyist consumers. By the 1980s, an increasing number of computer and game software users were people with little to no technical

[196] "Ultima IV (Atari 8-bit)," *The Cutting Room Floor,* accessed 12/03/2022, https://tcrf.net/Ultima_IV_(Atari_8-bit)

knowledge. These users lacked stakes in the fight, neither needing to protect intellectual property like the corporations nor possessing the knowledge and interest hobbyists had in exploring the way their programs worked. Consumers viewed software and hardware both primarily as consumer products as intended, focused on either productivity or entertainment. For many, battles between hackers and corporations were strictly material for blockbuster movies or television shows.

Despite this, they were still affected as the fight between hackers and corporations evolved. Consumers could, through no fault of their own, end up victims of the very processes intended to ensure they were the legitimate owners of their product. One of the chief flaws of copy protection, for example, was that it lacked any way of detecting whether an incorrect checksum or password entry came because of a hacking attempt or a computer glitch. If a computer game utilized a feely, losing that feely could mean that a consumer permanently lost access to a game they had legally purchased, especially given that the internet as known today did not exist to allow users to download or view replacements.

Even console games were not immune to this problem. The video game *Startropics*, for example, was a rare example of a cartridge game where a password was located on a physical letter which was included with the game, and which required that the player dip it in water to reveal the code. Since a piece of paper could be easily destroyed or lost, or simply not included in the case of used titles and rentals, a player could find themself stuck at the point where the

code needed to be entered, with no way to track down a replacement.[197] Years later, when the game appeared on the Wii's Virtual Console, Nintendo got around this problem by providing a digital version of the letter which could be digitally dipped in water to reveal the code.[198] But when it was made available again on Nintendo's later console, the Switch, the company neglected to provide this "digital letter," once again rendering the game unfinishable to people who did not have the code memorized or who did not look up the answer online.[199] This highlights the degree to which utilizing physical methods of copy protection could cause problems unforeseen at the original time of publication.

Another way in which consumers were impacted was in the debate over the right to make backup copies. The 1980s already saw the production of devices which would allow computer users to create backup discs in case of loss or damage to store bought copies of their software. However, software companies viewed these devices primarily as methods of allowing illicit pirating of their products rather than a safeguard for users. As a result, part of the work they invested in combating piracy involved encoding elements into software which would prevent copying devices from functioning properly. If a consumer had the misfortune to buy one of these even just to make a duplicate for themself, they would find their purchase to be worthless when their software rejected any attempts to be backed up.[200] Any time a new device came to

[197] *Startropics,* Nintendo Entertainment System
[198] *Startropics,* Nintendo Wii E-Shop
[199] *Startropics,* Nintendo Switch Online
[200] An example of this back and forth, featuring two programs called *Nibbles Away* and *Locksmith,* is described in William Bates, *The Computer Cookbook:* 232

the market, or hackers found ways around the safeguards, software companies would simply develop a new way to prevent these devices from working.

A review of a copying device called the 1050 Duplicator in an issue of the Atari computer-focused *Current Notes* highlights this conflict. In it the reviewer, Rick Holtzhauer is aghast when he realizes that the Duplicator not only copied programs, but also removed any protection code from them. Holtzhauer compares this to a similar battle with another copying program by a group called Happy Computers, in which he details a cycle of struggle between the developers of the copier and software developers wherein Happy would make the copier beat copy protection, prompting software developers to create new protection, which Happy would then crack, and so on. According to Holtzhauer, this cycle cost the Atari line of computers dearly as software companies determined that abandoning the line was simpler than fighting. That the 1050 Duplicator removed copy protection altogether was something the reviewer found particularly onerous to the point where he blames not only the creators of the device, but the hypocrisy in which computing magazines of the day would denounce piracy while simultaneously printing ads for the device. Strikingly, the primary issue for the reviewer was not the copying of the program itself for backups, but the notion that someone could utilize these backups in any way other than their own personal use. Though Holtzhauer hits at the capacity to profit off these copying methods – he muses at one point if his own ability to crack protection means he can "get in on the action" – he is not most angry at people attempting to profit off

bootlegs, but at people who attempted to save friends and family money by copying their own legally purchased software and distributing the copies.[201]

Such an attitude reveals who software houses saw as their primary enemies: not bootleg retailers, whose actions could easily be prosecuted in court, but their own customers whose actions could slip through the legal cracks and potentially cost companies sales. As shall be seen in the next chapter, this paranoia about the piracy of the public would result not in more sales, but in a narrowing of the market.

Conclusion

By the 1990s, a solid idea of what would be considered piracy had been established. Rules had been firmly established through the court system regarding the modification and copying of games, and the game industry now had solidified expectations about who their consumers were and what was acceptable practice in regards to the purchase and dissemination of games. While thing such as game rental continued to niggle at game companies worried about the loss of sales through such free access, games were now widely understood as being just like any other commercial media product to be sold and consumed.

[201] Rick Holtzhauer, "The 1050 Duplicator - Rev. 3.0: You Can't Always Believe What You Read," *Current Notes*, February 1987. An interesting side note to this is that magazines focused on the Atari often had particularly aggressive attitudes about software piracy and its detrimental effects on the software industry. Given that the demise of the Atari console market was often attributed to copycat games, some bitterness may have carried over to the personal computing side of its business.

In this way, the average game consumer had been crafted. They would not modify their products. They would not share them with friends. They would simply play them, with a single copy per player if possible. Since many of their primary consumers would be children, such expectations were easier to manage. Younger children would lack the skills for such hacking, and older children and teenagers could be educated on the importance of maintaining the integrity of a game – "don't copy that floppy," as an informational video once demanded.

Still, the struggles continued. The fight between hackers and game companies continues into the modern day, with some game companies utilizing increasingly invasive anti-piracy techniques in an attempt to deter copying, and hackers finding ways around such technology. The industry could propose what consumers were meant to do, but for something as ephemeral – and, for a long time, as expensive – as video games, they could do only so much to deter determined individuals with a healthy curiosity in their products.

On top of that, these solid expectations of how to consume and who would consume would become a major limiting factor in the expansion of their market. Focused as these companies were on consumers that appeared guaranteed – frequently young white, middle-class men – their attempts to shift this ideal consumer identity to other groups would result in major blind spots which limited their capacity to reach out. One group especially would continue to be perceived as elusive and impossible to market to: women.

Chapter 4: “And There Is No Other Market:” Commodification, Intellectual Property, and the Narrowing of the Video Game Market

The game industry of the 1980s was beginning to develop a tenser relationship with its own consumers. A combination of fears of software piracy, coupled with an onslaught of poor quality control of console games which eventually caused the game market to crash in 1983, had resulted in an industry which zealously sought to protect their own investments even as it looked towards bringing more people towards their products. Meanwhile, the console game industry continued to be embroiled in high-profile legal battles over patents, as lawsuits involving large companies such as Activision and Nintendo maintained a contentious legal atmosphere throughout the decade. The roles of consumer and producer alike in the game industry were becoming starkly defined, with a strong atmosphere of competition overwhelming the hobbyist comradery of old.

To the growing consumer base just entering the world of computing technology, however, such battles remained mostly out of sight. For these newcomers buying these new devices that promised to optimize their work, or machines designed to play games on their home televisions, the conflicts between hackers and corporations, game makers and patent holders, remained mostly the domain of movies and television shows. New computer users particularly found the process of learning how to operate these machines enough of a battle in and of itself. Computers and consoles, as well as the increased prominence of arcades, would contribute to the increasing integration of video games into American culture.

Nevertheless, the results of these myriad legal battles would be felt by consumers throughout the growth of the industry, sometimes in unpredictable ways. Notably, in the process of crafting the ideal consumer free of desire to pirate or modify software, the industry inadvertently narrowed its own audience. Specifically, the growth of the industry seemed to include with it an increasingly gendered image pushing women out of consideration as consumers in favor of young men, and especially young boys. The computer, which computer philosopher Michael Mahoney once mused seemed like it should have been compatible with the interests of women, soon became broadly seen in mainstream media and discourse as purely the playground of men and boys, a stigma which computing still finds itself combating to this day.[202]

This chapter analyzes the various ways in which the game and software industries, through inherent biases regarding consumer activity, unintentionally pushed women out of the market. Both a failure to grasp the social and financial habits of women, as well as an unwillingness to engage with consumer practices that threatened in any way to permit piracy no matter how minutely, resulted in an erroneous perception that women lacked interest in computing technology, rather than the possibility that women were simply priced out of it. On top of this, lingering stereotypes and cultural beliefs in electrical hobbyist circles about the place of women and proper forms of feminine leisure made even attracting those women who did

[202] Michael Mahoney, "Boys' Toys and Women's Work: Feminism Engages Software" in *Histories of Computing* ed. Thomas Haigh (Cambridge: Harvard University Press, 2011): 108. Specifically, Mahoney suggests the increased focus on verbal, visual and conversational elements in computing would by cultural gender expectations seem to push computing more into a feminine space instead of a masculine space, as opposed to its eventual construction as a "male" play space.

engage with computing difficult to attract to "non-productive" methods of interaction with computers. Finally, lingering resentment from collegiate interactions between male and female computing students as well as underlying misogyny meant that even when women did finally show more interest in games, some men resented their presence.

Before getting into the heart of this chapter, some important notes must be made with regards to who the chapter defines as "female." Specifically, attention should be brought to who is excluded when market research flattens the category of "woman." For example, transgender women have a rich history of involvement with the gaming industry, with such notable transfemme creators as Dani Bunton, creator of the game *M.U.L.E.*, and Rebecca Heineman who worked for the game company Interplay. But transness disappears under the flattening perspective of market research, leaving the reader wondering where they fit into the larger picture. Granted, broader acknowledgement of transgender identities as a concept, let alone as an existing population of people meriting either inclusion or focus, is something which has only become most prominent in the last ten years. The possibility that many of the people who identified as one gender on the surveys would later identify as a different one is very real. Nevertheless, these surveys reveal scant information regarding transwomen, focused as it is on a traditional gender binary.

Likewise, an unspoken assumption in the evidence provided is that the women being interviewed are white. For historians this poses a problem, especially given how this assumption obscures the role of women of color in the history of gaming. Indeed, the subject of race, even from a consumer standpoint, is still a notable gap in the historical analysis of computing, and

gaming especially. The surveying techniques critiqued in this chapter failed to take race into consideration at all due to companies being more interested in identifying a generic female game preference – with an unspoken assumption that the generic woman was white.[203] Historians thus need to keep this lack of intersectional understanding on the part of market researchers in mind when reading this chapter, given that these blind spots resulted in an inability to tailor computing needs towards non-white, non-middle-to-upper class populations.

Hardware Limitations

Women did not shun computers as devices. In fact, the earliest programmers of digital computers were themselves women, responsible for much of the terminology that has since become default in programming. Before that, women themselves were the computers, as rooms full of women working out mathematical problems in an assembly-line style methodology performed the same function transistors and circuits would later. While women would temporarily drop off as programmers when men began to look past initial perceptions of programming as resembling secretarial work and realize both the lucrative and intellectual potential of programming, the start of the 1970s would see a gradual increase in women entering the programming field. This trend would continue throughout the decade, only starting to drop off in the middle of the 1980s.

[203] Better consideration of the racial exclusion encouraged by surveys and their attempts at gauging a standardized audience can be see in Sarah Igo's work. See Sarah E. Igo, *The Averaged American* (Cambridge: Harvard University Press, 2007).

Selling women on computers as a hobby rather than a profession, however, was much more of an uphill battle – and games even more so. Multiple interviews by historian Janet Abbate with major female figures in the computer industry revealed little in the way of discussion about games, and those who did mention computer games specifically treated them as an impediment towards getting women involved in computing rather than the developmental stepping stone male programmers such as Weisbecker regarded games as being. .[204] This is striking given that the concept of having fun with computers and the terminology of play did sneak into these interviews, but the notion of play by itself was regarded as unappealing

Evidence that women resisted viewing computers as a site of play can also be spotted in stories told about PLATO computers in colleges, in which women often complained of male students taking up school computers to play games and leaving little room for actual work.[205] This, unfortunately, fed into a narrative that women were an oppositional force for game players, which combined with the rise of second-wave feminism and the resulting pushback by men made women easy targets for misogynistic arguments about computer usage.[206] These same women who complained about their fellow PLATO users, for example, found themselves on the

[204] For the full collection see Janet Abbate, "Oral History: Women in Computing," *Engineering and Technology Wiki,* https://ethw.org/Oral-History:Women_in_Computing. As is discussed later, "play" mostly comes up in the context of their work, rather than actual recreation.

[205] Joy Lisi Rankin, *A People's History of Computing in the United States*, (Cambridge: Harvard University Press, 2018): 217-219

[206] Susan Faludi wrote extensively about this type of backlash in Susan Faludi, *Backlash: The Undeclared War Against American Women* (New York: Crown Publishers, 1991). Though there is not an explicit connection between men discriminating against women and this backlash, the reactions documented by Rankin do line up with how the increased presence of women in professional and academic spaces equaled an increase in awareness of the pervasiveness of discrimination.

receiving end of various forms of harassment both over the computer networks and in person, as male game players refused to cede computers to women despite using them for play rather than work.[207] The current problems with misogyny within computer programming cultures can thus be traced back to these conflicts, and becomes closely intercorrelated with similar misogynistic attitudes in gaming cultures.

Why would women have such a distinctly different reaction towards use of computers for play from men? One plausible explanation may lie in what the computer promised for women versus what it promised for men. Computers and programming computers promised new career possibilities for women in a way they did not for men, especially as computing companies attempted to court women into programming jobs in the wake of a "software crisis" in the late 1960s resulting from an insufficient amount of production and support for the increasing amount of business computers being sold.[208] For women, then, the computer was a work tool which promised a career, not a toy to play with.

Central to this idea is understanding the nature of the gendering of hobbies. Rachel Maines has described the process by which technology becomes "hedonized," where technologies that had previously been utilized primarily for necessity or wage labor becomes a source of pleasure instead.[209] Maines focused on needlework for women as an example, which

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[207] Rankin, *A People's History of Computing in the United States,* 219

[208] Nathan Ensmenger, *The Computer Boys Take Over* (Cambridge: MIT Press, 2010): 238-239. Ensmenger mostly argues that the marginalization of women started as men saw the financial opportunities in programming and never really stopped, but his evidence does highlight how women were being courted to enter the profession regardless.

[209] Rachel Maines, *Hedonizing Technologies: Paths to Pleasure in Hobbies and Leisure* (Baltimore: John Hopkins University Press, 2009)

originated from the need to repair textiles and make clothes yet nevertheless was perceived distinctly differently. For men, similar hobbies such as barbecue (recreating a method of cooking which was arduous and "primitive") or woodworking are cited. In both cases, said hobbies sourced from prescribed jobs. With women however, since their "job" was maintenance of the house, many of the most popular hobbies among women were those which also had productive effects for the domicile. Cooking would create food, needlework would provide décor for the home, and so on and so forth. Leisure for women, therefore, also deeply integrated a cultural need to show evidence that their leisure was a constructive use of time.

Another relevant factor in the gendering of hobbies is the splitting of male and female household roles. In Lynn Spiegel's analysis of the adoption of television by women and households, she notes that from the Victorian era to the postwar era, clear lines began to be drawn between what men and women were expected to do at home. Men were increasingly expected to be sources of play within the family, whereas women were expected to continue providing "morally uplifting" activities for children.[210] Men, in other words, had the societal freedom to treat their hobbies fully as off-time, whereas women were still intended to produce something even in those activities they found fun, such as music or needlecraft.

Furthermore, unlike radio and television, computers and video games could not easily be integrated into the domestic labor flow. For both activities, households became increasingly designed around the idea of allowing women to do acts of domestic labor (washing dishes,

[210] Lynn Spiegel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago: University of Chicago Press, 1992): 27

ironing, and so forth) while simultaneously indulging in "familial" pastimes such as listening to the radio or watching television.[211] The key element here, however, is that television and radio were both primarily hands-off methods of entertainment, which would thus allow them to be a source of leisure without disrupting the process of production and maintenance. In contrast the computer required full physical engagement with the device, both in viewing what occurred on the screen and utilization of peripherals such as keyboards. Lacking as they did both in the ability to produce and consume simultaneously, as well as lacking any obvious physical health benefits, games were perceived as a general "waste of time" for many women.

Finally, there were the ways in which the computer, up until the advent of the microcomputer, would have been related to labor overall. The earliest computers were enormous devices which could only be kept in large rooms and purchased by large facilities such as universities or businesses. This meant that, until the advent of the microcomputer, computers were jobs that primarily required working outside of the home. Men, by the 1970s, would have become familiar with the computer as part of their workplaces, making the ability to create their own computers and their own programs take on a sense of novelty. That hobbyist computer users often tinkered with other electronics like ham radios or Heathkits (mail-order kits which allowed people to build electronic devices at home like radios and oscilloscopes) suggests that computers easily slotted into the same feeling of hedonistic pleasure as these other devices.

[211] Spiegel, 90

For women, however, the desire to work with computers would have required a particularly strong desire to push against gender norms and have a career outside of the house. Joyce Weisbecker, in discussing women in engineering, theorized that the sort of women who became engineers had to be particularly determined due to a lack of cultural support for entry into engineering.[212] Given the pressure on women to take "feminine" jobs rather than engineering, the temptation to peel off and take other, less stressful job opportunities prior to graduation meant that only those women most determined to complete their training would eventually enter the field. A similar sense of pressure would have been present for programming, especially given the mystique of male programmers and their "magic" which had already developed by the 1970s, providing a social motivation for men to enter the field lacking for women.[213] As a result, women would see games as "wasting time" better put towards progressing in their college programs. Yet as seen with the PLATO computers, women who pushed back against the use of college computers for gaming were the ones who found themselves most targeted for harassment by male student game players, who themselves did not experience the same pressure against success.[214] Little surprise then that the women most determined to become computer programmers were the least likely to play games: they were a distraction from the real goal of graduation and career, and those people women did encounter playing were the ones who made that goal difficult.

[212] Interview with Joyce Weisbecker, August 18, 2018
[213] Ensmenger, *The Computer Boys Take Over,* 144
[214] Rankin, *A People's History of Computing in the United States,* 217-219

This mentality is especially striking when analyzing the language of many women who entered the programming field. Abbate's interviews with female programmers may have shown a distaste for games themselves as wastes of time, but the rhetoric of play and games manifests within discussion of the profession regardless. Jean Bacon, one of Abbate's interviewees, simultaneously dismissed games as "mindless" at one point and describes the utilization of software as something people could "play" with in the same transcript.[215] Another, Marlene Hazle, notes that she was "not a game player," but also describes her workplace as "fun" because "we were always doing something new."[216] Even if they recoiled at the actual concept of computer "games," women nevertheless embraced the entertainment value of computing in ways they may not have even recognized. The language of leisure was present in their subconscious approach to computing even if their conscious approach was purely career-focused and experimental.

Abbate herself noted that pleasure was a constant factor in womens' involvement in computers. She notes women reporting a variety of different sources of pleasure from computers that broke stereotypes about feminine and masculine expectations of computing, ranging from enjoyment of utilizing the machine itself to engaging in the theoretical possibilities of computer programming.[217] However, the possibility of computing for play disengaged from larger,

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[215] Janet Abbate, "Oral History: Jean Bacon," *Engineering and Technology History Wiki,* accessed 12/12/2022, https://ethw.org/Oral-History:Jean_Bacon

[216] Jane Abbate, "Oral History: Marlene Hazle," *Engineering and Technology History Wiki,* accessed 12/12/2022, https://ethw.org/Oral-History:Marlene_Hazle

[217] Janet Abbate, "The Pleasure Paradox: Bridging the Gap Between Popular Images of Computing and Women's Historical Experiences" in *Gender Codes: Why Women are Leaving Computing* ed. Thomas Misa (Hoboken: John Wiley & Sons Inc., 2010): 223

grander projects is not included in these sources. If these women played computer games at all, they certainly did not consider them important enough to discuss in their own historical experiences with computers.

Having described these cultural impositions, the leisure possibilities for women were nevertheless beginning to open dramatically with the 1970s. Title IX, for example, allowed the formation of women's sports teams, allowing for the pursuit of athletic activities independent of the imperative for familial moral development. For non-athletes, however, a huge indicator of women's increasing freedom to consume without uplift was the rise of the concept of "fandom," in which fans engaged in discussions and produced materials to distribute among themselves relating to popular television shows such as Star Trek – which included, of course, amateur game development in the computer hobbyist circles. For women, fandom provided a new mechanism for networking and communicating with other women who shared common interests, promoting the possibility for women to embrace interests that went beyond traditionally "feminine" hobbies.[218] It also gave women ways of exploring sexuality and recentering popular culture towards their own interest. The most prominent example of this is "slash fiction," or works of writing primarily by women which put typically two male figures in romantic relationships with each other, which was named after stories whose descriptors put a slash between Captain James

[218] While an enormous body of literature exists for literary and cultural analysis of women with Star Trek and/or fanfiction, very little of this literature makes contextual historical connections between women's entry into fandom and broader societal shifts. For at least some sense of the importance of Star Trek fandom among women, Edi Bjorklund's article on the female-centric nature of serious Star Trek fandom provides valuable insight. But it is also over thirty years old and little appears to have been written specifically analyzing this early history of female fiction fandom since. See Edi Bjorklund, "Women and Star Trek Fandom: From SF to Sisterhood," *Minerva* 4:1 (Spring 1986): 16-65

T. Kirk and Spock to denote them as a couple. This rise of female participation in fandom, in conjunction with other social movements prominent in the 1970s, suggests a possible connection between the rise of interest in fanfiction and shifts in broader ideas about appropriate uses of leisure time for women that were disconnected from housework.

Nevertheless, as the 1980s arrived, women were still not as visibly on board with the use of computers for leisure as men. A manifestation of this discomfort came in the form of the "computer widow," or women who felt their marriages were disintegrating due to their husbands' new and pronounced interest in personal computers. The term originated in the January 1977 issue of the computing magazine *Kilobaud* in an article written by Barbera Henderson, in which she lamented how her husband spent far more time playing with and working on his computer than he did household responsibilities and interacting with his family.[219] Though clearly written in a humorous tone, it nevertheless crafted an image of wives competing for their husbands' attention with hobbyist computers. Even the suggestion that wives should form a group to learn how to program and repair computers themselves is only presented as a way for women to spend more time with their husbands rather than encouraging women to develop an interest and literacy in computing on their own terms.[220]

What is more striking, however, is the way this term continued to persist throughout the 1980s in computing literature. For women, it was a way of complaining about the impossibility of extracting their men from their computers. For men, it became a form of light self-mockery

[219] Barbara Henderson, "Computer Widow" in *Kilobaud* January 1, 1977: 99
[220] Ibid.

regarding their own obsession with computers even as they continued to nurture it. Some circles apparently even saw the concept as an actual, tangible problem: a feminist text first published in 1986 makes mention in a footnote of female sociologists identifying the phenomenon as a genuine social issue along with "football widows" in England.[221] As a result, this term would continue to see usage well past its inception, with a scan of the Internet Archive indicating texts as late as 2002 still referencing the concept. In all cases, the term was used exclusively to describe women being abandoned by men for computing or gaming, implying that the reverse – a woman becoming so obsessed with computers she widows her husband – was never a possibility to consider. In the public eye, women's leisure and computers were perceived as incompatible.

If women seemed resistant to utilize computers to play games, their interest in devices that did nothing BUT play games appeared to be even lower. Arcades were perceived as the domain of boys, and console games were categorized as "boy toys" by the end of the decade. For arcades, admittedly, this image may have become overstated over time, though clearly still with enough basis in reality to develop this stereotype. With regards to consoles, however, much of the responsibility for this could be placed on Nintendo. In Japan, Nintendo had attempted to give the Famicom broader appeal by introducing peripheral devices that could be used with the console such as a keyboard (complete with its own version of the operating system BASIC) and, surprisingly, a knitting device. Yet when Nintendo marketed the console in the United States, they leant more into a gendered presentation of the device, with advertising in magazines angled

[221] Maria Miles, *Patriarchy and Accumulation on a World Scale: Women in the International Division of Labor*, (London: Zed Books, 1986): 325

more towards boyish sensibilities. Particularly notable was the suggestion that boys sought empowerment when playing games. An early slogan for the Nintendo Entertainment System, for example, was "Now you're playing with power," a phrase seemingly tailored towards attracting young boys with promises of strength.

FIGURE 7: AN EARLY ADVERTISEMENT FOR THE NES. "FUN FOR THE WHOLE FAMILY," YET THE ONLY ONES VISIBLY PLAYING ARE YOUNG BOYS.

Ads also rarely featured female players, further nurturing an image of gaming as a boy's pastime. While part of this could be attributed to the gendered nature of toy sales and the fact that Nintendo had to introduce the console specifically as a toy to get it into stores at all, the narrow focus on a male market is still striking.

Yet Nintendo alone cannot be held responsible for the increasing social construction of the video game as a male-only form of entertainment. In fact, the gender gap in computing in general began to widen greatly starting in the 1980s, with the once rising number of women entering programming professions dropping off precipitously by the middle of the decade.[222] This by itself was troubling enough, given as it increasingly promoted the image of computer science as a masculine activity by skewing the ratios. For computer games however, which already had an image of being male-focused from the PLATO era, the loss of women involved in the industry would have only contributed to the notion that playing with computers was only interesting to boys.

What makes this market shift striking is the amount of evidence suggesting that creating a gender gap in gaming was exactly the opposite of what game companies intended. Indeed, many companies were attempting to find ways to reach out to female audiences attempting to increase profits. In the arcades, extensive player tests attempted to identify themes and styles of games

[222] Caroline Clarke Hayes, "Computer Science: The incredible Shrinking Woman" in *Gender Codes: Why Women Are Leaving Computing* ed. Thomas Misa (Hoboken: Thomas Wiley & Sons Inc. 2010): 33, 35

that would draw in women as well as men. Meanwhile, survey cards were regular sights in game boxes and magazines, analyzing the shape of the market and potential avenues for future growth. Yet by the 1990s, most attempts to target women by game companies appears to have ceased - the arcade scene was perceived as a wash for women. Not only that, but the trend of computer games and video games became increasingly bloody and violent suggested that the gaming industry was increasingly perceiving "masculine" to be equated to violence and gore, with the success of titles such as *Doom* and *Mortal Kombat* informing game companies that aggressiveness and violence were what the male market entailed – an image which the industry itself had created by its own design and marketing decisions. The diminishing attempts to appeal to women, thus, can be traced to the industry's increasing adherence to a specific image of a masculine market, one whose simplicity made the supposed lack of a similarly simple formula for female consumers a continued source of frustration to an industry focused on fast profit.

Software Development

The push in earnest to attract women to games came via a circle with a slice cut out. Developed by Namco of Japan and released in 1980, *Pac-Man* was a revelation to arcade game makers. Technically, the framework of the game by itself was nothing new. Maze games such as *Pac-Man* had existed since before the inception of the arcade machine. Bernard Lechner of RCA, before arcade games even existed, had developed a maze-style game of his own in order to demonstrate the capabilities of RCA's televisions, albeit one that was only seen by participants in RCA's 1968 open house, and may have gone otherwise unnoticed given his primary focus on

televisions had it not been utilized as an example of prior art in subsequent lawsuits challenging Magnavox and Baer's television game patent.[223] Atari had also previously released a competitive maze chasing game named *Gotcha!* which involved players chasing each other rather than a computer-controlled character chasing them. The maze game was thus an established genre by the early 1980s when *Pac-Man* was released.

What *Pac-Man* did introduce, however, was the notion of collecting – or eating, in this case – objects before the stage was finished, as well as AI-controlled enemies chasing the player, secret point items, and powerups. More fundamental to its success, however, were two specific aspects: one, it introduced a new style of game that did not require violent action on the part of

[223] "Deposition of Bernard Lechner" for *Magnavox v. Chicago Dynamic Industries,* Northern District Court of Illinois, 1976, 17-24. Bernard Lechner Papers, Box M&A 1191 in the David Sarnoff Collection at the Hagley Museum, Wilmington, DE

the player for success. Two, it was the first game to introduce a "character." Pac-Man was a distinctive figure, a round circle with eyes and a mouth, who was chased by equally colorful and

FIGURE 8: A SMALL ASSORTMENT OF THE VARIETY OF DIFFERENT PAC-MAN MERCHANDISE CREATED SINCE THE GAME'S RELEASE. SOURCE: HTTPS://PACMAN.FANDOM.COM/WIKI/MERCHANDISE

distinct ghosts. No longer was the player simply "the player;" they were playing a character with a goal, a game sprite with a personality rather than a ship or a paddle. Such a simple concept had been foreign to games up to this point, but the effects of its introduction were striking.

Pac-Man was an enormous hit, to the point of launching its own pop cultural phenomenon and encouraging merchandise, television shows, and even music. For the electronic game industry, however, the bigger revelation was of a market which they had not previously acknowledged: namely, female players. *Pac-Man* was one of the first arcade games

to visibly attract women.[224] Prior to this point, many game producers had not fully considered the lack of female engagement with video games. While advertising did include women, they often featured as a unit with men, either as a couple enjoying games together or as a family unit with a mother and a daughter.[225] Video games, much like computing, had instead encountered the same subconscious assumptions many electronic hobbies of the 1970s had that all participants were male unless otherwise specified. In short, prior to the release of *Pac-Man*, women were effectively an invisible market. In exposing the fact that women could be interested in video games in large numbers, a newfound resolve sparked in the industry to find the next big game which could pull women into the arcades and increase their bottom lines.

The issue was examined in depth in an issue of *Play Meter*, an industry magazine for people in the amusement industry. The magazine, originally focused on other amusement devices such as jukeboxes and pinball, had been quick to incorporate arcade games into their coverage. Like most magazines of the era, however, the magazine had an inherently male-gendered bias. Browsing earlier issues, for example, reveals that the magazine tended to identify women by who they were married to, as seen by the insistent reference even to women working in the industry as "Mrs." This practice had disappeared by the 1980s but based on the wide-eyed wonder the magazine held towards the success of *Pac-Man* among women – enough to focus an entire issue, even – the industry clearly had not even considered the possibility of women playing

[224] For more information regarding the development and popularity of Pac-Man, see Michelle Delgado, "Why Players Around the World Gobbled Up Pac-Man," *Smithsonian Magazine* https://www.smithsonianmag.com/innovation/why-players-around-world-gobbled-up-pac-man-180974902/

arcade games. From a scan of several issues from the 1970s, evidence suggests the magazine made few attempts to analyze arcade engagement from a gendered perspective. Much like with computer hobbyists, the unspoken expectation was that most players were male.

The May 1st issue of 1982 was the first time *Play Meter* addressed the issue of women in gaming in earnest. The issue, which was titled *The Fair Sex and Videos* (a title which highlights by itself attitudes the writers had about women) included articles which focused on the surprising increase of women playing arcade games due to *Pac-Man*. One of them, a guest editorial at the beginning of the issue, provides a stark illustration of how arcade distributors viewed this phenomenon, and how they viewed women in general:

> "Early last spring when we received one of our first *Pac-Mans*... we placed it in a shopping mall. After it had been out there a few days we decided to inspect the mall and see how all the games were doing. As we entered the mall we saw in the distance a group of girls surrounding some object, thing or person.
>
> Could it be that Robert Redford was a visitor or perhaps it was some rock star drawing all the feminine attention? … As we got closer, lo and behold, a girl was playing *Pac-Man* and there were four or five ladies watching. This was a new phenomenon. We had never seen this before."[226]

The sight of women gathered around an arcade machine had clearly defied their expectations. At the same time, this passage illustrates how little the writer took women seriously, suggesting that the only reason they could think of for women to gather en masse in such a way was the presence of a celebrity. That they not only played *Pac-Man*, but also lined

226 Louis Boasberg, "Hats Off to Ladies and Pac-Man," *Play Meter,* May 1, 1982: 8

up and watched others play, was a novelty of such an extreme sort that the writer felt it worthy to point out.

Arcade game makers especially paid close attention to this phenomenon. Among them was Atari, then still one of the largest video game companies in the country, whose arcade division would continue to go strong throughout the 1980s. A newfound pressure developed within the company to try and replicate *Pac-Man's* success among girls with their own titles. If they could find the next big thing for the ladies, they could easily double their market, and double their profits. Thus, quietly, Atari changed their play test models to one which not only considered age groups and style of play, but also the gender of the players involved. In that way, they hoped to understand what could bring the girls to their games.

This shift in attention can be seen in their internal play test records. Before Atari would try games out in arcades, they would first bring in a contingent of volunteers to play the game in a controlled setting, allowing them to identify the most glaring problems early and address them before allowing them to be played publicly. A broad scan of the notes taken from these tests reveals, starting in the early eighties, an increased focus on the gender makeup of their volunteers, as opposed to tests from the 1970s where no delineation between male and female play testers was made. In that way, Atari could know that they were getting female input, and could figure out how to adjust their products based on their impressions. Atari would also include in these play test notes a standardized set of questions which allowed them to chart more general opinions as opposed to specific responses. Starting at the same time as they began to note female testers, another question was added to this list, one which asked testers whether they

thought girls would want to play these games. Based on the responses, they could thus try and deduce the possibility of attracting women to their games.[227]

For home games such as consoles and computer games, the methodology was different. These games differed from arcade games in that they existed primarily as forms of private rather than public leisure. Lacking access to public areas such as arcades, the "site test" methodology would have been less effective. The international nature of console games from 1985 onwards also presented a problem, as many games for the NES especially had been developed and published in Japan years before they emerged on the American market. Games for personal computers, meanwhile, often suffered from a perception of being "niche," especially given price points and the increasingly complex nature of PC games versus simpler arcade and home console titles.

In these cases, companies turned to a different sort of market research: the survey. Utilizing surveys, companies could attempt to gauge statistically various aspects of the market: age groups, genre preferences, number of games purchased in a year, and so on and so forth. These could take multiple forms: the registration card, for example, became a common sight in games as a way of gauging tastes, with the added side bonus of guaranteeing (in theory) that they were polling people who bought the game legitimately. Phone polling was also utilized,

[227] The Strong Museum in Rochester, New York has an enormous collection of Atari Co-Op archives which include these play tests. See Atari Coin-Op Division corporate records, Brian Sutton-Smith Library and Archives of Play at The Strong National Museum of Play, Rochester, NY.

typically by larger groups advocating for the industry. Finally, polls would also be printed in magazines, ensuring broad access to players playing games from different companies.

In short, companies clearly wanted to understand their audiences, and were utilizing the most well-worn methods to do so. Yet by the 1990s, most attempts to target women by game companies had slowed down or ceased altogether - the arcade scene was perceived as a wash for women, and computer games and video games became increasingly bloody and violent to appeal specifically to what the industry decided the masculine market wanted, suggesting that serious attempts to attract women had been abandoned in all corners of the market. In short, the companies had failed to attract the female audience promised by the *Pac-Man* craze, which contributed to a greater essentialization of video games as purely male pursuits. As shall be seen, however, the failure to attract women may have had less to do with a lack of interest on women's parts and more of a lack of willingness and understanding on the part of corporations to cater to women properly.

Controller Malfunction

For all the research conducted by all sides of the industry, women nevertheless remained seemingly impossible to attract. For many, this led to essentialist conclusions that women simply lacked any sort of interest in games, reinforced by the cultural constructions which reinforced and promoted the idea that women were not game players. Yet other factors begin to emerge upon looking at the various sectors of the industry and their methods of assessing the female market. One was a conflation of female and male consumption habits which rendered

many companies incapable of considering alternate reasons why games may have failed to attract more female players. The other reason, however, was the desire for maximum control over the flow of profits – a problem which can directly be tied to the sort of paranoia about piracy and intellectual property theft which divided hobbyists and corporations so thoroughly over the course of the 1980s.

The comprehensive archives of Atari's arcade division help to shine light on the troubles the arcade industry faced in capitalizing on the success of *Pac-Man*. For all their rising interest in bringing in female players, Atari's own internal culture regarding women provided a formidable barrier in understanding what they wanted out of games. While Atari did have women working for them who stated that it was among their better job experiences in the tech industry[228], Atari nevertheless had ideas about women which, tied to the politics of the day or otherwise, would have made initial forays very difficult.

In its early years, the company – especially Nolan Bushnell, one of the founders - had deliberately fostered a reputation as a "party company," with wild tales about hot-tub meetings, booze, and drugs circulating – and confirmed many years later by former employees, including Bushnell himself.[229] Furthermore, Bushnell was in no way averse to utilizing male gaze and sex appeal as a method of selling games. Perhaps nothing serves as a better example of this than an ad for their first hit *Pong*, a game which otherwise was devoid of any sort of gendering

[228] Cecilia D'Anastasio, "Sex, Pong, and Pioneers: What Atari was Really Like, According to Women Who Were There," *Kotaku* https://www.kotaku.com.au/2020/12/sex-pong-and-pioneers-what-atari-was-really-like-according-to-women-who-were-there/ Dec. 26, 2020, accessed 03/09/2023

[229] Don Valentine, "Atari," *Sequoia,* https://www.sequoiacap.com/company-story/atari-story/, accessed 03/09/2023

altogether – yet nevertheless utilized a female porn star Bushnell was acquainted with.[230]

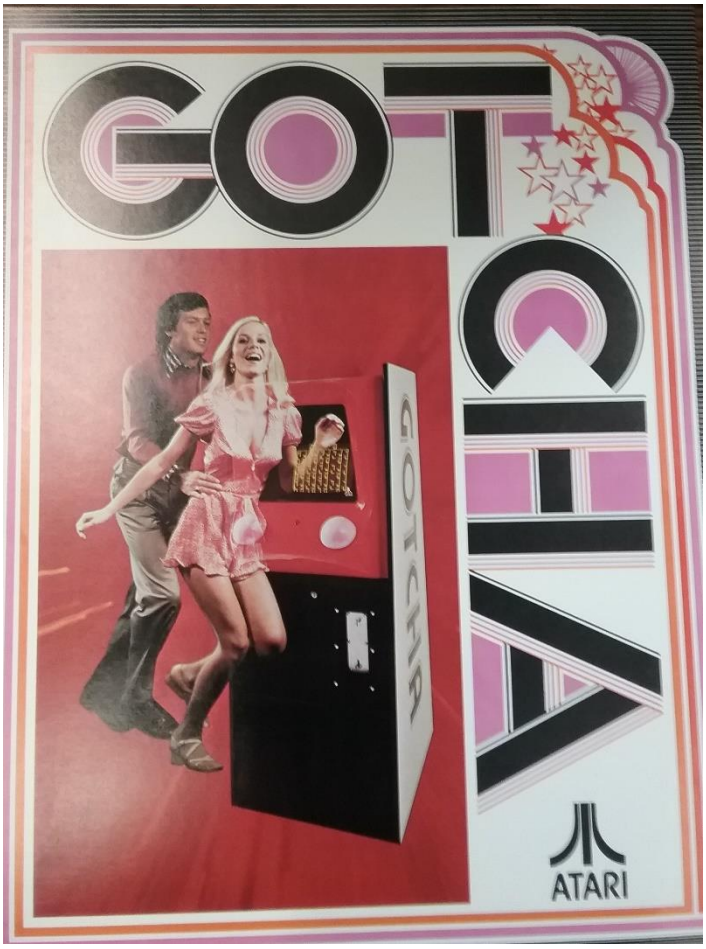

FIGURE 9: A ADVERTISEMENT FOR THE GAME GOTCHA!, WITH ITS... UNIQUE CONTROLLER DESIGN.

Meanwhile the previously mentioned game *Gotcha!* was advertised with fliers depicted attractive woman being grabbed at the waist by a man, clearly having been caught after being chased, and early versions of the machine even utilized a pair of breasts as control mechanisms, eliminating any doubt about who the abstract dots chasing each other were meant to be.[231] If games themselves could be said not to have a specific audience, Bushnell himself clearly did, and that audience was young, heterosexual men.

By the 1980s, Atari had been acquired by Warner Communications, and the days of wild parties and skinny-dipping had made way to a much more traditional and conservative corporate culture. This led to a different sort of

[230] Walter Isaacson, "The Invention of Pong: How Nolan Bushnell Launched the Video Game Industry," *Slate,* http://www.slate.com/articles/technology/technology/2014/10/the_invention_of_pong_how_nolan_bushnell_launched_the_video_game_industry.html, Oct. 7, 2014, accessed 03/09/2023

[231] Atari Sell Sheets, Folder 4, *Atari Coin-Op Division Collection* Box 67, found at the Strong National Museum of Play, Rochester, NY

problem in terms of gender representation: if the Bushnell days focused on fast women and partying, the Warner Bros. version of Atari attempted to stick to well-worn stereotypes about gender roles within the family. Nowhere is this better illustrated than in a series of ad storyboards which generally suggested that the only person not allowed to enjoy video games in the family was the wife or mother. One ad, for example, suggested a family situation where the role of bread winner and housewife was switched, but only because the husband realized he could play video games all day while theoretically (and poorly) doing housework.[232] Another ad, echoing the "computer widow" concept so many computer magazines had written about, featured a mother lamenting the loss of every other member of her family to the allure of the Atari 2600, up to and including the family dog.[233] These ads resonated heavily with the traditional belief of domestic responsibilities: men played, women uplifted. The message in these ads were clear: adult women were supposed to have no interest in video games, instead existing to keep the household together while the rest of the family got to play.

Whether via advertising gimmicks or dated ideas about women's familial roles, Atari clearly had problems presenting women as game players. Nevertheless, a scan of play tests conducted by Atari over the course of the 1980s do show an increase in frequency of surveyors asking whether players felt a game would be of interest to women.[234] This question, while in theory a potentially useful rubric, was inherently flawed. For one, it relied upon players'

[232] "Atari Commercial Storyboards, 1981" in Steven Bristow Papers Box 13, M1887 at Stanford University.
[233] Ibid
[234] These surveys can be found in the Atari Co-op Collection at the Strong Museum of Play in Rochester, New York.

naturalized assumptions about what sort of games women would and would not like to play. Cultural assumptions about femininity and leisure would therefore dominate any answers provided by both men and women. This was compounded by how many of the play test groups had a much higher ratio of men to women. In other words, Atari was primarily asking men and boys what they thought women and girls would like to play, rather than hearing straight from women themselves. By doing this, Atari was expecting men to tell them what women wanted, thus ceding authority about the desires and interests of girls to men and boys.

This problem was only exacerbated in the arcades. Part of the play test procedures included shipping copies of the machine to different arcades, then surveying people who played on what they felt about it. Again, those in charge of product analysis assumed that these tests would reach a wider audience than those who volunteered for the internal tests. By stress testing them out in public, they could work out errors, figure out what was popular, and plan for future products based upon these tests. However, in a play test group, Atari had the option of choosing their volunteers. This gave them greater control over the gender makeup of their testers, which meant that if they so choose, they could ensure that they had female players included in their analysis. The audiences of arcades themselves, however, were beyond Atari's ability or desire to control, meaning that they relied heavily on people who played games in arcades in the first place. This is where Atari’s market-focused approach failed to appreciate the largest barrier towards creating a female audience: namely, that women simply were not participating in the arcade experience in the first place.

The test plays for the game *Peter Pack Rat* provide a perfect example of this. In this game the titular character, Peter, had to collect a series of items and get them back to his den without running into the myriad of enemy characters trying to get in his way.[235] Internally, Atari developers thought that the game would be a hit among women, feeling that women were more likely to be attracted to cartoony art and characters. Indeed, documents reveal that among focus groups, *Peter Pack Rat* scored particularly well among women and less so among younger males, theoretically due to the colorful and cartoony nature of the game.[236] This reinforced Atari's general belief that there was a stark difference between "masculine" and "feminine" tastes in games, with boys supposedly disliking anything "cute" versus the more "manly" games Atari usually distributed based around more visceral themes like racing or space shooters. Based on these results, Atari felt as though they had a potential arcade hit among women, noting that it had "the potential to be a game with strong initial appeal, especially females."[237]

When it came down to the field test, however, the results were considerably different. Observers during the test noted that despite the initial results showing strong interest among women for the game, no women were observed playing the game at the test site. Instead, the observer noted that most of the girls seen at the arcade during the test period were just "hanging out."[238] While many of the male players who did participate in the field test agreed there was

[235] Atari Games. *Peter Pack-Rat.* Atari Games. Arcade, 1985
[236] "Packrat Topline Report" 2-2-84 p.1, Atari Co-Op Collection Box 2 Folder 14 "Peter Pack-Rat Collections and Statistics, Player Survey Results, Field Test Results 1984-1985" found at Strong Museum of Play in Rochester, NY
[237] Ibid, p.2
[238] "Comprehensive Evaluation," Atari Co-Op Collection Box 2 Folder 14 "Peter Pack-Rat Collections and Statistics, Player Survey Results, Field Test Results 1984-1985" found at Strong Museum of Play in Rochester, NY

equal potential appeal to men and women, the actual results on the ground did not live up to these expectations.

What happened? Why would a game that so many women enjoyed in an internal testing situation do so poorly in an actual arcade? The answer lies not in the lack of women playing *Peter Pack Rat* itself, but rather in the more general observation made by observers regarding girls just "hanging out" rather than actively playing. While the observers did not appear to place a great deal of significance into this observation, it raises an extremely valid point as to why *Peter Pack Rat* underperformed compared to its focus test, and it had nothing to do with any issues with the game itself. Rather, the fact girls watched from the sidelines or used the arcade as a social space, rather than actively playing the games which were the primary feature of the arcade. This suggests that girls felt uncomfortable interacting with arcades in more than a surface level fashion, or beyond a spectator role. Their reluctance to actively engage with the arcade despite their presence suggests a subtler cultural issue that kept girls away from machines altogether, one which more adequately explained the depression in the female gaming market rather than a matter of game genre.

They would also learn the wrong lessons. During play tests for the original *Star Wars* game, they included a mix of both men and women. While the players generally agreed the game was good, there was a general consensus among female players of disliking "space" games in general."[239] Yet as pointed out in internal documents analyzing the success of *Star Wars*,

239 "Star Wars Focus Group Summary and Directional Considerations" 10

Atari executives were fully aware that this "space craze" was not going away anytime soon, and that it would be highly profitable for them to continue to make space-themed games.[240] Instead of attempting to understand why the women did not enjoy space games, therefore, they simply concluded that the space shooter genre was pointless to advertise to women. Subsequently, despite the follow-up *Return of the Jedi* game actively including female representation in the form of Princess Leia as a playable character, no women were present in the play test.[241]

Furthermore, while Atari could try and tailor games to a limited extent to what they felt women would be most interested in, other games showed that this female-friendly approach only went so far. The internal notes for the game *APB*, in the early days where it was still planned to be a game based on the California Highway Patrol, reveals a sense of off-color humor that suggests Atari's patriarchal ideas about women had not fully left the company with the party culture. In this game, the player is a highway cop, pulling over cars to meet quota and being awarded or demerited points depending on how many they pull over and who.[242] Developers intended for the game to have a goofy, humorous take on law enforcement, taking humor cues from Atari's previous hit game *Paperboy*. Among the earliest ideas proposed prior to the process of cleaning up the game ideas and making them more acceptable, however, were plans for various in-game announcements to be read out loud by a "sexy" female voice.[243] For enemies,

240 Rick Moncrief, "Star Wars Act II," 4/8/83, in Atari Co-Op Collection Box 4, Folder 38 Star Wars Upright Memos, Market Research 1982-1983, found at Strong Museum of Play in Rochester, NY
241 "Additional Jedi Focus Group" in Atari Coin-Op Collection Box 4, Folder "Return of the Jedi, Game Development Documentation [Lucasfilm Agreement, Casting, Field Test], 1984" at Strong Museum of Play, Rochester NY
242 Atari Games, *APB,* Arcade 1987
243 Ibid, 15

the only female representation was of hookers and their pimps,[244] with the latter presented with stereotypical "pimp" accoutrements and a note that the length of the car also dictated how many prostitutes were in the car with the pimp. They also planned for pregnant women to be escorted to the hospital for extra points, but this "good" task was offset by the rather dehumanizing use of the term "preggos" in the writeup.[245] Though these ideas did not make it into the final product as originally proposed, they do illustrate that Atari's interest in including women in their market base only went so far as the money they could make, and not in any shifting of attitudes towards their other games.[246]

Whatever reasons those might have been in that immediate moment are unknown. Atari was only interested in what people who played *Peter Pack Rat* had to say about it, not what kept others from doing so. From a marketing and product development standpoint, this attitude made sense to them. By their logic, people who were not paying for the product were less important than people who were already enjoying it, because people who liked and paid for one Atari game would be more inclined to pay for another one. But in failing to follow up on these observations

[244] Ibid, 1

[245] "Thoughts on Converting Cannonball Game to CHPS Game" p.1 in Atari Coin-Op Collection Box 1, Folder "APB (Police Force) Memos, Correspondence, Market Research, Focus Group Results, and Game Development Status Reports, 1985-1987" at Strong Museum of Play in Rochester, NY

[246] The final version of *APB* still included mentions of prostitution. However, the idea was simplified so that rather than consisting of a pimp with hookers, there was now only a single hooker, Candy Goodbody, who was the only female named criminal in the game. Whether this made things better by improving her agency or worse by removing any mention of the abusive nature of the sex trade altogether – and making it seem like the only crime a woman could commit was sex-related – is a matter of personal judgement. Precise examination of the representation of women in arcade games in general is out of the scope of this chapter, however.

about female behavior within arcades, Atari was also cutting themselves off completely from any possibility for improving their female audience.

Ironically, the act of observing men and women as separate consumer groups may have also worked against Atari's efforts. Carly A. Kocurek's survey of masculinity in arcades notes that while it was true arcade players skewed towards men, the idea that arcades were exclusively masculine spaces was one that appears to have been written in retroactively rather than existing as a concrete phenomenon. In fact, the player ratio of men to women in arcades often varied between arcades in different areas, reflecting the cultural differences of each location rather than suggesting an innate tendency among the genders towards playing games.[247] By falsely presuming that women only began playing arcade games because of a magic formula rather than investigating the actual player experiences from arcade to arcade, Atari and other companies became hyperfocused on developing "female-friendly" games. In the process, they neglected socioeconomic factors which, more than likely, pushed women away from arcades harder than any one game could.

What's more, Atari had already developed a game which, comparatively, achieved about the same or better level of success than *Pac-Man* did at reaching women: the game *Centipede,* released only a year after *Pac-Man* itself. Like *Pac-Man*, it utilized a well-travelled genre for its mechanics: the horizontal shooter, which had first reached prominence with *Space Invaders* in 1978. Rather than space aliens, however, the player used a trackball to shoot darts at the

[247] Carly A. Kocurek, *Coin-Operated Americans: Rebooting Boyhood at the Video Game Arcade*, (Minneapolis: University of Minnesota Press, 2015): 19-21

eponymous centipede as it trailed its way down the screen via consuming mushrooms. Shooting at the mushrooms and destroying them could prevent the centipede from descending, while shooting the centipede itself would cause it to split into segments that continued to function, with shooting at the head simply resulting in the segment behind becoming the new head.[248]

Two things are striking about *Centipede* in this era: one, it had a sixty percent female player base at its peak. Two, it was – and remained – the only Atari arcade game designed by a female programmer. Dona Bailey, who had in fact been inspired by *Space Invaders* when she worked on the game, was the only female engineer in the arcade department, and had worked on the game with another employee, Ed Logg. Her work established that not only could arcade games appeal to women, but they could utilize mechanics which might have been considered "masculine" such as the shooting game. Yet for her efforts, she would leave Atari within a year, something she would later attribute to growing resentment and disrespect shown to her after her success.[249] She would leave the industry altogether three years later. In other words, the one person who brought to Atari the result they desired was unceremoniously drummed out of the company by male engineers jealous of her success.

In fact, disregarding or failing to recognize women's experiences in general worked heavily against the arcade industry's attempts to woo women. The *Play Meter* article discussing women playing *Pac-Man*, for example, held a hint which properly followed up on could have

[248] Atari Games, *Centipede,* Arcade 1981

[249] Leigh Alexander, "The Original Gaming Bug: Centipede Creator Dona Bailey," *Game Developer*, https://www.gamedeveloper.com/disciplines/the-original-gaming-bug-i-centipede-i-creator-dona-bailey accessed 07/02/2022

helped arcade game makers bring in more women, specifically regarding where the "strange" scene it described took place: at a shopping mall rather than an arcade.[250] To be more precise, the line for *Pac-Man* took place in a location more associated with female consumption habits – the mall - rather than in the predominantly male-dominated sphere of the arcade. What if women were more likely to play games if they were set up in "feminine" public spaces? Would Atari's efforts have been more fruitful if they had conducted site tests at shopping centers rather than arcades they were already distributing to? Unfortunately, the question for the most part is moot: coin-op producers, in attempting to attract women, paid less attention to the location of the game machine and more to the game itself. This meant that most efforts were focused not on understanding how women's consumption habits may have contributed to increased interest in arcade games, but rather on finding the magic combination of game elements that would convert women to all coin-op games in general.

Furthermore, women were more than willing to tell companies what bothered them about arcade games. The same issue of *Play Meter* that talked with such hushed excitement about the way that *Pac-Man* was drawing women into arcades also had a lengthy article – written by a woman, no less – telling them exactly what women played and why. Mary Claire Blakeman, the writer of the article, not only discussed the types of games that women tended to like and the precise reasons why they did, but also discussed why girls may not play games for reasons that extended beyond the appeal of the individual game itself. One paragraph is particularly striking

[250] Boasberg, "Hats Off to Ladies and Pac-Man," 8

in its observations of the way gender plays into consumption, comparing it to how women played pinball prior to video games:

> "Women tell me that the one feature that they like in pinballs [sic] as opposed to video games is that they can win free games in pinball. Perhaps this factor has to do with economic concerns of women who still make about 56 cents to every $1 made by men in the United States, or because women usually are responsible for the family budget, and since they are aware of bargains and specials, they appreciate the bonus of free pinball games. Maybe pinball manufacturers could start a 'Smarter Quarter' promotion in which housewives would give testimonials about which pins give the best value for their money…"[251]

Blakeman points to a significant factor in why arcade companies ultimately failed to appeal to women: a lack of understanding about how women shopped. By noting persistent income inequalities as well as the societally ingrained tendency for women to "bargain hunt" as part of their financial responsibilities, Blakeman indicates that failing to address this is as much a reason for why women generally did not play arcade games as what the game itself was. Her article even called out the tendency to try and find specific types of games rather than addressing the societal reasons why women would shy away from them, such as inexperience and public perception of games as a "masculine" activity. Had Atari and other companies listened closer to what women like Blakeman had to say, a lot of expense could have been spared on playtesting "women-friendly" games that did not attract women.

But they did not. As a result, by the beginning of the 1990s, Atari tapped out altogether. An internal memo written by Rich Moore, discussing various games Atari was producing, made note that one might not be violent enough for the male adolescent market, adding that "there is

[251] Mary Claire Blakeman, "The Video Games Women Play… and Why," *Play Meter* May 1 1982: 36

no other coin-op market anymore."[252] The bloody, violent era of arcade games had begun, completely surrendering to an audience that was developing a taste for "edgier" titles. The Atari arcade division's female market testing was at an end.[253]

Computer games, compared to both arcade titles and home consoles, remained a niche product throughout much of the 1980s and early 1990s. While microcomputers did improve upon the availability of computing technology to the mainstream public, the price of prebuilt computers continued to remain prohibitive enough as to restrict purchase only to institutions or to financially well-to-do private users. Furthermore, those computers which did make it to the public's computer desks were generally intended for productivity purposes, such as word processing or income work. Still, for those who were able to gain access to computers either through creating their own or buying one fully constructed, computer games were among some of the highest selling software, developing a small core of dedicated gamers.

The 1980s and 1990s saw the growth of a computer game industry that was simultaneously niche and devoted. With little pressure to appeal to a large market, programmers were free to make games which, as designer Warren Spector noted were "exclusively for ourselves and others like us."[254] Game series such as Ultima, Wizardry, and King's Quest, among

[252] Rich Moore, "Minutes of October 15, 1992 PL Meeting" in Atari Co-Op Collection Box 53 Folder 8 "Atari Games Corporate Documents [Minutes Handouts Agendas Calendars] 1992-1993" at Strong Museum of Play in Rochester NY

[254] Warren Spector, "The Guild Hall at SMU" in Warren Spector Papers Box 2008-091/13 folder "Guildhall [SMU 2004]" at University of Texas Austin in Austin, TX

many other smaller titles, were born during this period of low customer expectations. Eventually, however, as the companies that produced these games grew bigger and consolidated with other companies, the early game entrepreneurs had to begin to address the pressing issue of ensuring sales of their titles for the sake of keeping their companies on top. And, like with arcade games, this would require consumer tests.

Given the size of these smaller startups, computer game companies were less inclined towards developing internal focus group tests. They knew what they liked, knew what they felt worked, and as a result much of the testing occurred in house. The high difficulty of many early video games is a testament to this approach, as established by former President of Nintendo, Satoru Iwata. Speaking about the internal testing process for the console market in an interview on the television show *Game Center CX*, he admitted that the high difficulty of early console games was due to internal testing resulting in gamers with a high level of expertise in their own games, which subsequently blinded them to the difficulty level as perceived by the general public.[255] Given how small many Western computer game developers were in those days, they quite likely tested their titles in similar fashion. In short, what they liked went.

For PC games, the primary method of gauging consumer interest instead lay in surveys which were often packaged along with the software. These cards, which were themselves fully optional and predicated on the participation of consumers, asked many of the same questions that Atari asked about their arcade games, gauging what the players did and did not like about the

[255] "Iwata Asks: Balloon Fight," *Game Center CX*.

games they played. Unlike Atari's testing, these surveys were much more likely to ask respondents to base their answers on a numeric scale under the expectation that the number of replies would exceed the ability to analyze them all on an individual basis. In that way, computer game companies could get a general sense of the market and decide which games to focus on, and which ones would be best shelved early.

The main issue with this method was that, again, it only focused on people who were buying their games straight from the store. A survey for the magazine *Computer Gaming World*, for instance, relied upon specifically contacting the purchasers of specific games to analyze the computer game market. While this would have allowed them to understand the habits of people with interest in specific interests, it also relied upon knowing that someone had bought the product in question, which meant that said users would have had to have submitted some form of registration.[256] Since there was only ever one card per box, only one member of the household would have been able to respond. Given that young men were most capable or willing to pay the price for such games, they by default became the most common responders. Such survey cards would have only been available to people buying games second-hand if the original owner sold the game with everything it had come with, including the survey card itself. If they sold only the discs and the manual, therefore, the new owner would have no capacity to provide input. With the price of games being what they were, access to new titles was restricted to the people most able to afford PC games – which, as surveys established, were largely men with disposable

[256] *Computer Gaming World Research: Game Buyer Study*, (Ziff-Davis Publishing: 1994): 5. Found in Warren Spector Papers Box 2008-91/1, Folder "Manuals and Research" at University of Texas Austin in Austin, TX

income and some level of higher education.[257] By no small coincidence, this was revealed in these surveys to be the primary audience of PC games.

Surveys conducted by phone, however, disrupt this image of a male-only game purchasing market. According to one survey conducted in the early 1990s, women were more likely to answer surveys by phone than they were by postcard at a six to ten ratio. On the one hand, this meant that every four out of six women passed the phone over to the male head of the household, suggesting that they regarded said male as the primary decision maker. On the other, in performing blind surveys this way, they were nevertheless actually guaranteeing that women were receiving and responding to requests for information, something that survey cards could not. Significantly, while the results still weighted towards men, they also established more women participating in game purchases than the postcard method revealed, with the percentage of male primary players of "entertainment" personal computing software established at seventy percent[258] - a twenty percent drop from the ninety percent figure provided by the *Computer Gaming World* survey. This means that the survey method itself may have been affecting results, effectively hiding a larger female audience than the survey cards established.

257 Something to note about these surveys: while they asked about gender and age, they rarely investigated racial makeup. This means that unfortunately, assessing the game purchasing habits of people of color is impossible to accomplish with these sources alone. Given that, as historian Sarah Igo noted, many surveys in the growing trend of statistical analysis through the twentieth century tended to systematically exclude non-white groups, it is probably safe to assume these consumer surveys assumed their interviewees were white by default. See Sarah Igo, *The Averaged American* (Cambridge: Harvard University Press, 2007)

258 *Software Publishers Association Consumer End-User Survey* 104. Found in *Warren Spector Papers* Box 2008-91/1, Folder "Manuals and Research" at University of Texas Austin in Austin, TX

For those four out of every ten women, their tendency for women to defer to men on the issue of computing technology could have meant many things beyond a lack of interest. What would have happened had surveyors insisted that the person who answered the phone be the one to answer the survey, rather than allowing the responder to pass the phone off as forty percent of women apparently did? Would there be more data about what women preferred, or why they supposedly did not play computer games? How much was this willingness to cede authority on the issue to the men of the household connected, once again, to the cultural expectations of leisure and productivity in the domestic sphere? How much was simply women being too busy to answer such surveys, focused as they were on their domestic responsibilities? How many simply did not like surveys? Such questions end up remaining hypotheticals.

Another point made in the phone surveys were the large number of games purchased specifically in households with children.[259] According to the research, console games saw far fewer men identifying as the primary purchasers of games at only 59%,[260] as opposed to 74% for personal computer games.[261] Given the binary gender split of the survey, as well as the fact that the primary players of console games was given at 82% male, the conclusion as presented by the survey would suggest that women would be buying the games exclusively for male children. But then where did young girls fit into the equation? Were they only in that remaining 28%? In a family with both boys and girls, was it really only boys playing in each respective household?

[259] *Software Publishers Association Consumer End-User Survey,* 10
[260] *Software Publishers Association Consumer End-User Survey* 104
[261] *Software Publishers Association Consumer End-User Survey* 62

To complicate matters, the same survey found that 54% of purchasers also played the games they bought.[262] Given the high number of women who identified as the primary purchasers, this suggests that even in cases where women were buying games for their children, they were also playing the games on the side, and simply not noting that because the purchases were meant to be for their children. Of course, the possibility existed that the 54% of purchasers playing the games was exclusively within the 59% primary purchasers who were male, but the more likely explanation was that there were women who played the games they bought, even if they were not the "primary" user of the games. Since this detail is not expanded upon, there is no evidence one way or the other.

The key term that obscures results the most is the survey's reliance on identifying "primary users"– in other words, its attempt to isolate exclusively people who the games are "meant" for. The gap between what the questions asked and what remained unanswered provides alternative questions that the survey fails to address. Were there younger or older female siblings who would play the games as well, albeit with less intense focus? Would the women who bought the games also play the games, and just fail to note their participation because the games "were not for them?"[263] Were women playing a lot of games, but felt

[262] *Software Publishers Association Consumer End-User Survey,* 104

[263] A personal anecdote illustrates this: my mother often bought games under the notion that they were mostly for us, and especially me. But she also played games a lot herself, had been specifically gifted a handheld console, and in general was just as likely to play the games she found on discount as anybody else in the family if she liked them. How common such a situation was is uncertain, but it provides a possible alternate experience than what surveys seemed to suggest.

embarrassed about it due to social expectations about women's – and especially mothers' -- use of time in the home? Again, these questions were not directly addressed.

These problems are indicative of a general problem with utilizing surveys to gauge consumer interest: the tendency to conflate male and female shoppers as being identical. Lizabeth Cohen, in her work about the growth of consumer culture in America, noted that market researchers used to segment by gender before World War II, assuming the default consumer was female. The growth of credit as a financial force and the corresponding level of consumer power it afforded male heads of household, however, resulted in a blurring of the line between male "producers" and female "consumers," essentially regarding them as a single unit. At the same time, despite this amalgamation, women were scrutinized with greater psychoanalytical intent than men well into the 1980s.[264] In other words, men and women were viewed both as identical in consumer habits but also completely different. This opened the possibility for people to interpret actions taken during the surveying process as indicating a gendered preference as opposed to gendered practice.

With computer games, utilizing surveys attempting to gauge the tastes of men and women thus ran into the core issue with this philosophy: by believing men and women essentially functioned as identical consumers, the lack of female response to surveys would seem to indicate that women had no interest, rather than the possibility that they simply were not responding to surveys the way men did. Any given number of reasons could have caused

[264] Lizbeth Cohen, *A Consumer's Republic* (New York: Vintage Books, 2004): 313-315

women to pass on answering the survey, not just the reasons the surveyors presumed. How do you gauge an audience who does not reply? Does a non-answer truly equal an answer, as these surveyors believed?

Something else hides in these surveys as well: the existence of the secondhand market and the frequency of software piracy. As analyzed before, the computer software industry during the 1980s became obsessed with the problem of piracy, to the point of openly distrusting their own consumers' honesty with regards to copying and distributing software. This meant that any distribution model which opened even a remote possibility of profiting off or creating copied discs was discouraged. For these companies, the secondhand market was immediately suspicious since there was no way to guarantee an opened game was a genuine copy of the title, rather than a version ripped from legitimate discs and sold illicitly. Indeed, any alternate form of consumption was viewed as a net negative by game companies. Even renting was viewed hostilely: Nintendo's internal company newsletters, for example, praised the efforts of judges attempting to rule against game rental as a legal method of access.[265] Computer games, meanwhile, remained out of the question for rental during the era of floppy discs precisely because of ease of copying, and while initial attempts were made to create a rental market for CD-ROM games when that became a standard format, reports came in about difficulty of installation for users.[266] Thus, despite the sense that CD-ROMs provided better anti-piracy

[265] "Congressman Rod Chandler: Co-Sponsor of Computer Software Protection Act of 1990," *Nintendo News Pak* (July 1990): 6

[266] *Forecasts for the US Market*, 37-38 Found in *Warren Spector Papers* Box 2008-91/1, Folder "Manuals and Research" at University of Texas Austin in Austin, TX

protection, computer games never received a large rental market, removing that possibility from consideration for increasing the ability for consumers to try games without purchasing them. For game companies, second-hand products, piracy, and rental all contributed to fewer sales of games, and thus companies did their best to discourage or dissuade consumers from engaging in these habits.

The degree to which companies vilified the act of computer piracy is acknowledged in the phone survey. The group noted that 17% of respondents reported getting copies of games from friends, family, and other acquaintances, but also suggested that the actual number of people engaging in these acts of casual piracy were underreported due to the unwillingness to admit to illegally obtaining copies of the game, something which the survey itself notes as "piracy" in quotes.[267] In contrast, the *Computer Gaming World* survey, which focused entirely on new purchases, had no way to discern the frequency of people trading copies at all. People had clearly gotten the message by 1990 that piracy was bad, and the act was becoming invisible – but not nonexistent. Because of this, another audience – that of people who could only be bothered to use software they did not pay money for directly – remained underreported.

If we consider the fact that secondhand games are frequently cheaper than initial releases, then we must also consider the possibility that, if women were in fact buying more through this method, that one of the biggest impediments to women with regards to participation in gaming was price, not content. In addition, many who used productivity software saw little problem in

[267] *Software Publishers Association,* 90 Found in *Warren Spector Papers* Box 2008-91/1, Folder "Manuals and Research" at University of Texas Austin in Austin, TX

copying software from, for example, their workplace, and installing it on their home machines, thus saving the expense of buying it for themselves.

The issue of discretionary funds and women are central towards understanding female reticence towards entry into the gaming market – something which women had been telling game producers from the start. Recalling Blakeman's article, women focused on tight budgets were already disinclined to play arcade games which offered no capacity for free games. Paying full price for a PC or console game – even if that was the entirety of the cost paid for the game – would be a major drain on financial resources that could be used immediately for things such as food and bill payment. Bearing in mind that by the 1980s video games already cost significantly more than many other forms of media, one could see why women especially might turn towards cheaper ways to keep the family – or themselves – entertained.

On the other hand, Blakeman's note about the "bargain hunt" also illustrates the weakness of the "new copy" model of business. If women could find ways to play games for cheap – say, by sticking to secondhand software or piracy – then to them it would be worth the effort. In turn, however, this meant that they would be outside of the purview of the average customer survey, as opposed to men. Thus, to game manufacturers, it would look like men were the only ones playing their games, resulting in a feedback loop.

A later study performed in 1995 analyzing the game market overall indicates that the game industry continued to fail to acknowledge the degree to which price factored into women's interest in games. The study had noted the problems with personal computer games in particular: namely, the expense of the computer itself, the swiftly evolving technological capacity of

computers quickly rendering purchased devices obsolete, and the difficulty in trying titles before purchase to ensure quality games were being played. All of these would point to an overall financially fraught situation with personal computers, especially comparing a $2000 computer to a $300 console. The report also notes that approval of buying a console requires "all the adults in the family, including the female head of household." Yet when discussing the troubles with selling games to women, a sidebar states that "no one has figured out what women like."[268] The researchers recognized the financial burden of gaming and recognized that women appeared to be a harder sell, and yet could not put the two pieces together to conclude that pricing might have been a significant factor in their failure to attract women. Clearly, the only reason women were difficult to sell to was that "nobody knew what they liked" – a statement which verged on an essentialist argument that women were too "fickle" to properly gauge their tastes in games.[269]

But a system can only analyze people who actively participate in it. That women continued to elude game makers as a market despite active attempts to appeal to them illustrates that market research alone cannot result in a new demographic of buyers. Without grasping the larger socioeconomic issues that kept women out of games, whether that be cultural gender norms that prevent entry or the failure to understand women and their relationship with money and the market, video games had no way to combat seemingly infallible proof that men and men

[268] *Video Games and Electronic Entertainment: Forecasts for the US Market* (San Diego: DFC Intelligence Research, 1995): 62. Found in the Warren Spector Papers at University of Texas Austin in Austin, TX

[269] Ibid

alone played games. To an industry still in its nascent form, this would have a dramatic effect on its identity, one which would continue to haunt gaming to the modern day.

Conclusion

In the mid-2010s, people developed a brief fascination with the phenomenon of the anti-piracy screen. Examples of such screens would be compiled into Youtube compilations, with users bemused at the creative ways that game programmers attempted to block unauthorized usage of their games. The creepiness of some examples even inspired people to create their own fake anti-piracy screens as part of the "creepypasta" phenomenon, a popular type of internet post involving creating miniature horror stories based around fictional incidents happening to people offline, including supposedly from glitched or unusual copies of video games.

One anti-piracy screen documented was real, however, and quite modern: an anti-piracy screen for the independent game *Just Shapes and Beats,* released in 2018. When triggered, a voice in accented English proclaims loudly, with enormous white text to match, "DOWNLOADING PIRATED GAMES IS STEALING! (DUN-DUN-DUN) STEALING IS AGAINST THE LAW!" The voice then breaks into laughter before shifting over to a roughly animated set of stills of the game's creator, in which he mulls how others stealing his game is perhaps just karma for his own identical infractions when he was younger. He then suggests to the pirating player that if they cannot support the game with money, then they can help support the game with words though review, online messages, and so forth. That way, the game would

reach the attention of people who could afford to play the game and continue to support the developer regardless.[270]

As the above example suggests, people have begun to develop a more nuanced view on the reasons behind game piracy since the 1990s. While some companies continue to clamp down hard on unauthorized usage of games – Nintendo's push against ROM sites is particularly of note in this case – many other developers have begun to realize that the cost of intercepting and prosecuting pirates often is not worth it. One argument – that the people inclined towards piracy would not purchase the game new even if that were their only method of doing so – has highlighted the degree to which a lot of anti-piracy measures were based more on emotion than financial reasons, since it was a lost sale either way. An article on the website *GamesIndustry.biz* even suggests that piracy is just something to factor into a game's design rather than something to be actively combated.[271] In an era where increasingly people are beginning to question the artificial constraints placed upon them by capitalism and the ways in which corporate short-sightedness acts as an active detriment to the preservation and distribution of media, this shift in perspective is particularly noteworthy.

Likewise, attitudes towards the modification of games have also begun to shift. Indeed, many people have gotten their start in the games industry through modification of preexisting games. *The Forgotten City*, a commercially sold game about investigating the fate of an ancient Roman city while stuck in a time loop, originated as a free modification of the Bethesda game

[270] *JSAB – Anti-Piracy Screen* uploaded by BlixerTheGamer April 23, 2021, https://youtu.be/Ae5yV4p7uh8
[271] https://www.gamesindustry.biz/piracy-does-it-matter

Elder Scrolls V: Skyrim. This is unsurprising given the series' long-standing positive relationship with "modding," with the third game in the series debuting a set of tools explicitly to allow players to modify their games to add assets, change mechanics, and other ways to alter the "vanilla" (or base game) experience. Indeed, the third game still has a robust and evolving mod scene, with one long-standing project which focuses on adding a major landmass still active twenty years after its debut.[272]

Game culture is, in short, closer to the older days of hobbyist gaming in some respects, especially given the ubiquity of the internet making the type of gatekeeping common in the 1980s and 1990s nearly impossible. But there are other ways in which game culture is still affected by its past. For every *Just Shapes and Beats* there is a story about fans being sued for attempting to unofficially resuscitate an offline Massively Multiplayer Role-Playing Game,[273] or stories of gross impropriety and mistreatment of staff within previously well-regarded game corporations,[274] or instances of games becoming lost media because an online store goes permanently offline, meaning any games which were not backed up by players – illegally, in many cases – are lost forever.[275] In other words, there are still walls between the game players and the game makers which have not been dismantled, which in turn fosters a sense of distrust going both ways.

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[272] *Tamriel Rebuilt, https://www.tamriel-rebuilt.org/* accessed 11/03/2023. As of this date, the latest "expansion" of the landmass has in fact just been released.
[273] https://www.destructoid.com/shin-megami-tensei-imagine-mmo-lawsuit-atlus-reimagine/
[274] https://www.pcgamer.com/how-blizzards-reputation-collapsed-in-just-3-years/
[275] https://www.wired.com/story/google-stadia-lost-games/

Furthermore, widespread acceptance of modding is heavily contingent on cultural factors, some of which depend upon the way technology itself evolved within a country. For areas of the world where the personal computer played a major role in developing game culture, the relative ease of access to tools and the source code of games made modification of code a common activity. In areas where consoles are more dominant, however, modding may still be seen as a transgressive act, as consoles often lack the same degree of control over a game's content. In Japan, where corporations such as Nintendo hold tight control over the discourse about piracy, an enormous controversy arose in the online game *Final Fantasy XIV* when the first people to clear an extremely high-difficulty series of fights were clearly seen utilizing mods on stream to assist them, something which the more mod-negative Japanese player base objected to immensely. This later became particularly contentious after the next set of high-tier difficulty raids were released, in which a Japanese group claimed world-first, only to be exposed as using mods themselves; they would later claim they only did it to remain competitive with Western gamers. These incidents stand out as a way in which the differing cultural values attached to modding could clash in a borderless gaming experience, with one culture seeing the other as having unfair advantages thanks to their embrace of game modification. One culture's "quality of life improvements" is another culture's "cheating."

Perhaps even more important than our attitudes towards piracy and game modification, however, are the ways in which the attempts by the industry to mold consumers into a specific image have continued to haunt the present in ways nobody could have predicted. A sizeable portion of young straight men who grew up playing video games have become hostile towards

any attempts to broaden representation and access to games. While the Gamergate incident in the mid 2010s is the most infamous example, there nevertheless persists constant attempts at gatekeeping in game culture, particularly from heterosexual white men who continue to view "outsider" groups such as women and LGTBIA+ people as threats to the creation of games they can enjoy. Since such groups often push back against the kind of games these men grew up with and were conditioned to view as part of their nostalgic identity, and since little to no understanding was fostered on what such groups preferred in games, they have become seen purely as spoiling games, a viewpoint gleefully exploited by right-wing extremists. An excellent example of this problem can be found in the game *Guilty Gear Strive*, in which a character was reintroduced into the game as a transwoman versus the cross-dressing boy she had originated as.[276] This news quickly resulted in transphobic arguments framed as complaints about mistranslations and "femboy erasure" predominantly by straight men who had previously fetishized the character before her transition. "Woke culture" once again threatened something boys had been conditioned to enjoy.

Such gatekeeping also takes the form of what is considered "real" video games. As more women began to participate in gaming, the categorization of "casual" games began to be utilized as a method of determining who counted as a "gamer," with the sort of game identified as casual being, not coincidentally, the sort of games a lot of women were perceived as preferring such as Minecraft or The Sims. Often these would be titles that were less reliant on

[276] Arc-System Works, *Guilty Gear Strive*

heavy physical action or huge time sinks such that they could easily be played during down time. Sometimes, however, the term could be used solely to identify games that an individual male gamer did not play, thus insinuating that his game choices are true "gamer" choices.[277] That such games could be easily enjoyed by men as well as women was ignored – such games did not fit the "male" experience as dictated by the game industry, and thus merited scorn. In contrast, games which demand high skill levels or featured heavily in competitive scenes, such as fighting games or games in the "Souls-like" genre (named after the game *Dark Souls*, a Japanese game whose high difficulty gameplay was heavily reliant on timing-based fighting actions) are considered games for "true gamers."[278] These arguments, of course, get increasingly diluted as players outside of the heterosexual male demographic increasingly get into such games as well, but a quick Google search online still reveals the use of the term "casuals" to derogatorily refer to gamers requesting more accessible gaming.[279] This process of what most refer to as "gatekeeping" thus remains a pervasively toxic aspect to gaming culture, designed first and foremost to create a rarified space for straight male gamers free of "invasive" forces. [280]

[277] Conversations like these are often present all over the internet. A good example of this sort of thinking can be found in this post: r/gatekeeping, "classic video game gatekeeping: 'a feminist, I see'," Reddit, Nov. 15, 2016, https://www.reddit.com/r/gatekeeping/comments/5d57z7/classic_video_game_gatekeeping_a_feminist_i_see/

[278] An example: this thread on the Steam forums for the game *Valheim* making exactly this sort of assertion. Kite, "Valheim is for Real Gamers!" Steam, February 26 2021, https://steamcommunity.com/app/892970/discussions/0/3105766250711081937/?l=english&ctp=2

[279] Smokeandmirrors1983, "'Casuals Kill Fandoms,'" Reddit Nov. 28, 2021 at 7:33 PM CST, https://www.reddit.com/r/gatekeeping/comments/r4k0hu/casuals_kill_fandoms/

[280] This discussion is one which obviously requires much closer attention. Suggested reading would be Amanda C. Cote, *Gaming Sexism: Gender and Identity in the Era of Casual Video Games* (New York: New York University Press, 2020).

Perhaps worst of all, this has had a dangerous effect on our political landscape. The game industry's hyperfocus on developing and encouraging a specific image of "masculinity," in conjunction with the very real political attacks on video game content by politicians such as Joe Liebermann in the early 1990s, has resulted in an audience of young men particularly attracted towards messaging which frames them as defenders of "proper" culture. This in turn has left many of them vulnerable towards the now widely recognized right-wing radicalization efforts online, with figures from infamous moments in recent American history such as the January 6 insurrection of 2021 and the attack on Senator Nancy Pelosi's husband connected to these earlier video-game related movements.[281] Focusing on these seeming easy sells may have made the most financial sense back in the 1980s and 1990s, but they have come back to bite American culture hard.

For women, the shift to digital distribution has also been a major factor in increasing female participation in games. In particular, the lowering of cost of entry has been vital in attracting women, with free-to-play games (or games which do not require payment to start but may involve microtransactions to accelerate progress) being particularly popular.[282] In other words, the one thing women had attested to for a long time – that more women would play

[281] For the January 6 attack, see Christiano Lima, "How 'Stop the Steal' Grew Its Digital Playbook from Occupy, Gamergate," *Washington Post,* https://www.washingtonpost.com/politics/2022/09/19/how-stop-steal-grew-its-digital-playbook-occupy-gamergate/, accessed 11/16/2023. For the Pelosi attack, the assailant claimed to have been sent down a right-wing extremist path due to Gamergate – see Kyle Orland, "Pelosi Assailant Found Guilty After Pointing to Gamergate Influence at Trial," *Ars Technica* https://arstechnica.com/gaming/2023/11/at-trial-accused-pelosi-attacker-says-gamergate-led-him-to-far-right-conspiracies/ accessed 11/16/2023

[282] https://allthingsd.com/20130321/surprise-surprise-a-lot-of-people-especially-women-really-like-free-to-play-games/

games if they were cheaper to play – has turned out to be the most reliable factor in developing a female audience, something which anti-piracy concerns combined with the high cost of development had prevented. If gaming companies of the 1980s and 1990s had demonstrated more flexibility in pricing options for newer releases, the "conundrum" of how to get women playing could have been easily resolved. Thus, ironically, the capitalist impulse to maximize short-term profit was what inhibited an entire sector of market growth in the first place.

Nevertheless, gaming culture continues to be a contested space. Whether it be large companies doing their best to prevent unauthorized use of their games or pirates who see downloading games as a form of praxis, whether it be men who bought into the image of male gaming presented to them in the 1980s and 1990s or women and LGBTIA+ people expanding what subject matter games are allowed to tackle, whether it be people who see games as only being valid if they require struggle or people who believe in the maximum amount of accessibility to players, these debates continue to rage online.

How much of this can we place at the feet of corporate gaming's evolution into aggressively "masculine" protectionism? As this dissertation has illustrated, more than one might think. Even if, say, the difficulty of early games was a sort of rite of passage for many early players, corporations saw little reason to discourage players from viewing them this way, since easy acceptance of all elements of a game made it easier to sell games to players. Only when players attempted to modify their experiences materially to make things easier for themselves did corporations object, and only because doing so threatened the fragile stability of the construction they had erected of video games and programs as absolute, inviolable

commodities. Better for players to believe that "true gamers struggle" than for them to realize they did not need to accept their gaming experience as presented to them.

Likewise, the molding of gaming into a "male" pastime, even based as it was on pre-existing gender essentialist cultural pressures dictating what men were "supposed" to enjoy, nevertheless reflects an inability to consider alternate possibilities for "masculine" play. Rather than resisting a gendered view of entertainment, corporations leaned into it as an easy and reliable way to sell product, mapping gender essentialism into their products. This in turn ensured little time would be wasted experimenting on other, riskier ideas which could fail to attract consumers. Unfortunately, this resulted in a blinkered view of their own industry which relied on "simple" solutions. This worked on boys, who were catered to and who were culturally encouraged towards gaming earlier than girls. But this also meant that attempts to bring women into the fold became more difficult due to the desire to find an equally effective gendered trick rather than focusing on what women were telling them they wanted. Since they could only recognize their own view of what women wanted, they were unable to hear their actual desires.

On top of it all, the industry itself discouraged alternate methods of distributing code. With most gaming companies beholden financially to a single unimpeachable patent for decades, with the software world constantly fighting over what was and was not considered infringement of intellectual property, the stakes in the game industry became too high to allow for the ambiguity that was built into the complex nature of code. Either a company forced a foothold into the industry, or they would trail behind. Winning the legal fights to enforce their authority over the idea of the "video game" was more important than ensuring everybody had access to it.

Would things be different without the corporate influence of the gaming industry? Nobody can say for sure. At this point, we only have the history which has been produced. Yet we have more than enough evidence that, given different historical circumstances, alternate possibilities existed. One only has to look at Weisbecker, or the People's Computer Company, or the myriad of hacker newsletters and code bases to realize that more than a few people believed in a more egalitarian, more accessible gaming world. One even only needs to look online at translation, preservation, and modding communities to see different paths the industry could take. There are, in short, any number of ways to encourage and develop gaming culture that could nurture both healthier competition and more robust collaboration.

But for the time being, we still must contend with the producer/consumer construct. Corporations benefit from the continued belief in the idea of an authoritative producer providing to passive consumers. If such a society sounds like that of a conservative masculine patriarchy, it is no coincidence: like most conservative power structures, the producer/consumer relationship relies heavily on centralized hubs of power zealously protected from weaker, "feminized" compromise. Even as the game industry faces conflict with growing unionization efforts and revelations of internal sexist impropriety, only so much change can occur without questioning the foundation of industry's relationship with the public. Only one thing is for certain: capitalism made its impact on video games, and we are still living with the results.

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