Labour, Learning, and Leisure:
The Technical Culture of Practice in Video Game Live Streaming

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Abstract:

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Tyler Holt

Games, and especially video games are fast becoming the most pervasive media form, and live streaming games is fast becoming the most pervasive way of experiencing those games. This thesis looks at the history of broadcast, the practices of technological hobbyists, the social and technological aspect of games, gaming communities that transform game narratives, and gaming communities that transform political narratives. It demonstrates how the study of video game live streaming can be used as a model to study and analyze the production, consumption, and reciprocal relationship between the producers and consumers of media.

Key Words: Video Game, Live Streaming, Twitch, Youtube, Games, Gaming, Broadcast, Broadcast History, Technical Culture, Ham Radio, Computer Hobbyism, Amateur, Amateur Production, Stellaris, Stellaris Invicta, Templin Institute, Shaun Hutchinson, Trump Impeachment, Paracinema, Bill Gates is the Devil

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Preface

Throughout this thesis I use the term "technical cultures of practice" to describe cultural publics of people who identify with technology and modes of technological use that are socially conditioned. I synthesized these terms from Lisa Gitelman's use of "technical/ supporting protocols" in *Always Already New: Media, History and the Data of Culture* (2006) and Kristen Haring's use of "technical Culture" in *Ham Radio's Technical Culture* (2007).

Gitelman states that media "are the instruments of humanism at large, dynamically engaged within and as part of the socially realized protocols that define sites of communication and sources of meaning" (135). Especially when media technologies are new, technology is defined and identified by its modes of use and purpose until the inner workings of that technology are taken for granted. Using the telephone as an example, Gitelman explains that protocols consist of not only "norms about how and where one uses [media technology], but also standards like units of measure […,] that you answer 'Hello?' and that you pay the company, but also standards like touch-tones and twelve-volt lines" (6). The word "protocol" which becomes the "practice" in "technical cultures of practice" is a cluster of various socially embedded rules and contexts that define and express the social, material, and economic relationships of media technology.

Haring defines a *technical culture* as "culture built around and establishing an ideology about technology" (xv). The establishment of this technological ideology is done by members of technical cultures who both "personally identified with technology

and […] created identities for technologies" (7). The dual meaning of "technical identification" reveals that the identities of technologies and the people who use them are reciprocal and coproduced. Technical identification is motivated personally by particular modes of engagement with technology which ultimately become acts of publicness from which technical cultures emerge. These are self-organized publics, constructed of various competing references and citations to concepts and standards of technological identity which project self-images of values, goals, and practices. These images become the social measure of who is a part of the in-crowd (and with what level of social capital) versus the uninitiated. However, these cultural distinctions are not at all solid or definite boundaries, with influence from governments, corporations, outside users, and other technical cultures leaking in.

Even if we do not belong to a specific hobbyist or technical culture, the way we interface with media is always personal and cultural. Everyone interfaces with media differently, a difference distinct enough to call it a form of expression, but the various practices that make up that nominal interface are learned in cultural circles of various magnitudes. Some of these cultures are national, general, and casual, like American television viewers who channel surf or pay for DVR to skip through commercial breaks, or British television viewers who take the opportunity during an ad break to put a kettle on, which makes a predictable and appreciable effect on the British energy grid (BBC NEWS, 2007). Other cultures are class-based, such as art speculation which redefine the meaning of media as an investment/tax shelter, or subaltern and politically motivated cultures like Anarcho-Punk and the DIY punk ethic that rejects major record companies and mainstream distribution models.

The technical culture of video game live streaming is therefore not exceptional, but it is emblematic and clearly demonstrates a quality of media and publics that is often deliberately obscured by authors and publishers: that the meaning of media and publics are ultimately in the hands of readers and the various citations they make which keep media and ideas in circulation. When Michael Warner, who's work in *Publics and Counterpublics* explores how the qualities and dimensions of a public are made up of textual and discursive reference to texts over time, that "public discourse says not only 'Let a public exist' but 'Let it have this character, speak this way, see the world in this way," there is only so much an author can do or a publisher control to enforce their particular meanings of that public because success depends on "further attempts to cite, circulate, and realize the world understanding it articulates […] Its success depends on the recognition of participants and their further circulatory activity" (114). Most often this means that the meaning of texts, especially a series of texts which define a public, are changed by the groups of people who take social ownership of the text. This makes market-oriented authors and publishers nervous, leading to or revealing political/industrial intervention to curtail user agency and discourse.

These tensions are apparent in video game live streaming for a variety of technological, social, and historical reasons. First is the culture of broadcast information and entertainment that digital communities have inherited from the television and radio industry, cultural norms that were co-constructive efforts of access providers, content creators, and users. Second are the traditions of technological hobbyists which, especially as the traditional corporate-network bottleneck to the means of media distribution were broken by the internet, proliferated a vast amateur content creation community in conflict

with professional industry leaders. The third are the games that sit at the center of video game live streaming discourse as technological mechanisms embedded in the production of the stream and as social narratives that are transformed by their public exhibition, reception, and reciprocation. While all media are interactive, games are *explicitly* interactive. These conditions reveal how engagements with media are always potentially transformative political events in the public sphere, grounded in a socially historical and material context of user agency and media literacy, either authorizing or contesting the legitimacy of authority.

Chapter One

The History of Broadcast (So Far)

> Radio is a mystic force that brings something to the listener, but when it attempts to draw a coin or two out of the pocketbook -well, that is a thing for which science did not equip radio.
>
> Dunlap *The Story of Radio*, 1935

Introduction

New or emerging media are never totally original or isolated incidents; a formative historical line can be drawn from the development of American broadcasting in the 1920's to modern video game live streaming. Video game live streaming, especially within the larger context of games media, has been influenced by and borrowed from nearly all forms of media, but can be understood as much, if not more, by its relationship to television and radio than by gaming and computers. As a form of broadcast media, video game live streaming is influenced by not only incumbent media corporations, production studios, and audiences but the access provider-content creator-user paradigm in which these corporate entities and the public perception of our media landscape have become entrenched. An examination of this paradigm not only reveals the importance and magnitude of user action in forming the media landscape, but also explains the effect that digital distribution, an alternative to the studio-network system, had on the media and broadcasting industry by empowering content creators and expanding user communities. Radio and television not only preconfigure the internet technologically, but more importantly preconfigure the culturally learned technological protocols which typify our

conception of media production, transmission, and reception. Tracking market trends and patterns of technological use across broadcasting and information sectors will not only illustrate an industrial architecture of media production or cultural disposition towards media consumption, but that those inherited environments are co-constructive.

To hit as many markets as possible, mainstream broadcasting profited by building products and encouraging a media culture where users increasingly and actively had more control over what content they consumed and when, increasing the need for more creators. The internet and computers gave users and content creators an amplified and more sophisticated level of control and access, fundamentally shifting power and dependence from the access providers that dominated traditional broadcast institutions in the studio system. Users consuming media and interacting with other users generated content and creators on a community level. The combined work of a printing shop, a mastering studio, a station, channel, or network, being produced, consumed, and transformed in all the conventional ways and more from a bedroom anywhere in the world characterizes the contemporary conflict between user rights, content creation, and access in the configuration of modern digital media infrastructure. This chapter traces the history of broadcasting (in a mostly American context) to establish how we arrived in this conflictual situation.

My lens for investigating the thread connecting radio history to games live streaming is inspired by a synthesis of Amanda Lotz' and Lisa Gitelman's perspectives on users as the drivers of cultural change. When these scholars write about media histories, they do so with a narrative focus on concepts rather than objects-- that is, through analysis of cultural communicative paradigms, rather than through the more linear and

chronological progression of particular technologies. This focus allows for more nuanced accounts of how the metamorphosis of mass communication is contingently shaped by dialectics between taste-making/regulating bodies and the user/consumers they purport to manage.

The mass media broadcast industry's main goal until the 1990's was to drive demand for programming and information as hard as possible. Benkler (2006) describes this period as "the industrial information economy," where "most opportunities to make things that were valuable and important to many people were constrained by the physical capital requirements of making them," and "financing the necessary physical capital, in turn, oriented the necessarily capital-intensive projects toward a production and organizational strategy that could justify the investments" (6). This dynamic carved out three main actors: access providers, content creators, and users. Access providers own or control the infrastructure which determines what content can be published or distributed and where. Content creators own information production tools, intellectual property, authorial control, and mobilize talent/labor. Users negotiate and reciprocate through social norms, market influences, and technological operation.

Gitelman, for example, describes users as "mirrors and receptors for the ideological formations of the public sphere, [who are] are not themselves necessarily ideological" (60). Her phenomenological-social emphasis here resists technologically determinist readings of media histories: "media are more properly the results of social and economic forces, so that any technological logic they possess is only apparently intrinsic." (Gitelman 10). This informs the chapter's argument that the relationship between users and the entities that police them are always more symbiotic than they first appear. It also

complements Lotz' emphasis on the constant material influence exerted by viewers and audiences. Lotz argues that television has always been an actively changing and revolutionizing concept; to highlight this, she frames the notion of 'television' as a cultural concept rather than a particular medium or technology. "We [the public] have processed and will continue to process coming changes through our existing understandings of television" (12). By applying this combined framing to the subject of broadcast evolution, I intend to reveal how a meta-convergence of various social roles, institutions, and actors plays out in the field of broadcasting. I will focus on state and industry power throughout the formative history of major broadcast infrastructure, while simultaneously underscoring the rich interactive influence of users as being on a level playing field with more centralized mediating entities.

Radio broadcasting interests were initially the enterprise of radio manufacturers, who wanted to generate interest and demand to sell radio receivers. As consumer broadcasting equipment became ubiquitous, the manufacturing of devices became corporately less related to broadcasting content, and the attention that radio had captured increased in value through advertising. Networks couldn't keep up with the demand for content alone and focused on a business model of buying programming from content creators and selling advertising space. When the market was saturated with content and devices designed for the mainstream public, targeted and customizable content and technology with expanded capabilities began to rise in value, creating a need for even more content creators. In general, technological and industrial development in the studio system and advancements in information storage and transmission repeatedly introduced new methods of content creation and distribution which decentralized the gatekeeping

control which had been the privilege of governments, universities, large corporations and corporate relations (Benkler pp. 20, Gittlemen pp. 7). In this chapter we will see that the access provider-content creator-user paradigm is a fluctuating, interdependent relationship and that the change the internet and digitality has on the media industry and this relationship is not that of a "kind" but that of a "rate"; that production, transmission, and reception has not transformed, but become faster and broader, compressing cultural and industrial conceptions of time and space.

The State of Broadcast Media

One constraining physical reality of radio technology is that the ability to broadcast effectively is limited by the amount of intelligible information you can transmit in a radio band at any one time, requiring standardization and regulation to maintain operation. For this reason, state intervention was as inevitable technologically as it was politically. While my primary focus is on broadcasting in the United States, comparing early American broadcasting to British broadcasting is useful as an example of the medium under different economic and political principles. Most countries followed the precedent of the U.K., where broadcasting was heavily regulated if not outright operated by the state, while the U.S. spawned the networked broadcast system with corporate access providers being articulated in key institutional roles. Comparing these two approaches will illustrate how the turbulent geopolitical backdrop of the radio era, and the prevailing socio-political sentiments that arose from this, permanently influenced not only the formative institutions of, but also social and even basic cognitive modes of use towards, distance communication technologies. The functional difference between these

two systems was in terms of how the distribution and availability of access constrained how many and what kinds of creators could enter the market and interact with users. I will begin by examining the UK, and then move on to the USA, where the development of providers-creators-users forged a unique mode of relationship between policymakers and users/audiences, and where voices of corporate and governmental authority were intertwined.

In the U.K., The Royal Charter which granted a monopoly to the British Broadcasting Corporation specified that the service should be conducted "by a public corporation acting as trustees of the national interest" (BBC). The charter refers to the "great value of the service as a means of education and entertainment" referencing founder John Reith's summation of the BBC's public service to "inform, educate, entertain" (BBC). The Corporation replaced the British Broadcasting *Company,* which was formed by the British government to stop the perceived national security threat that unregulated sprawl of commercial and amateur towers seen in the United States at the time presented (Dunlap 282). This threat was taken so seriously in Britain that the British Security Service (MI5) started vetting applications for positions at the BBC in the 1930 (BBC 2018).

The vast majority of content that was aired by the BBC was produced by the BBC or specifically contracted for and tailored, making content creation a process more at the discretion of the government than of the public itself, privileging opera, theatre, and educational programs over popular music or sports (Dawkins 565). The funding of this programming also typified standards for use and user access, as licensing required users to be registered and send fees through the mail. The BBC also published The Radio

Time, a weekly program magazine whose circulation surpassed 2.2 million and derived a net profit of $1.3 million a year from sales and advertising (Dunlap 301).

One consequence of this tightly controlled approach to broadcasting was, predictably, resistance. That is, it produced unexpected user action in the forms of pirate radio operating on ships off the coast and high-power foreign radio stations beaming content across the sea (Dunlap 304). While there would be some radio broadcasts from neighboring Canada and Mexico, the diffuse state authority of the private market system in U.S. had comparatively far fewer restrictions.

The American model had many more moving parts as a commercial industry. The Communications Act of 1934 would form the Federal Communications Commission, with the mission "to make available, so far as possible to all the people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, for the purpose of promoting safety of life and property" (47 U.S.C. §151), pulling from the 1927 Radio Act standard that radio operate in "the public interest, convenience or necessity." Towers were constructed by individual private interests and early American radio was financed through renting out the station's studio and airtime, usually to other businesses (usually a radio hardware or electronics supplier, if the owner of the station wasn't one already) who produced content in order to advertise their products (Dunlap 250). FCC regulations limiting how many towers a company could own in a given market led major network broadcasters NBC and CBS to develop an affiliate

network to expand their reach.[1] This production method would drive up the profitability of radio and see the technology rapidly expand across the country as local broadcasters could join other affiliates to collectively access "network quality" content afforded through the collective audiences they amassed (Lotz 23). However, the term "network" became increasingly a misnomer as all distributors/access providers under network affiliation became corporately organized and gave corporations and their advertising agencies increased control and influence.

The American system, compared to the British system, seemed to promote a more distributed control over providing broadcasting access, supposedly allowed more, and more diverse voices to be heard. However, that access was still constrained by business interests, and network affiliate broadcasting only increased the stratification of that access. Funding the radio through advertising also began the narrative that listening to American radio was "free." Dunlap observes this notion in the psyche of the American audience: "The set owners have been taught that when they pay the price of a radio receiver they have purchased a ticket for the ethereal theatre, and no further transfer of gold or silver is necessary. Listening-in is free. The 'ether' belongs to the people." (306). This narrative had several consequences: it imbued radio with the powers and responsibilities of the governing "fourth estate" normally associated with press journalism and nationalist ideals about communication; it made the labor being done on the part of the listening audience invisible; and it presented advertising as benign. The trade off was that American radio comparatively flourished as a more profitable and

[1] . The network affiliate is a broadcaster not owned by the network which agrees to carry some or all the network's programming for a percentage of the ad revenue.

creative industry (Dunlap pp. 43), but history would prove that the market system could just as easily result in monopoly and homogeneity, prompting government intervention.

In 1932 an Anti-trust suit was filed against the Radio Corporation of America with the concern that General Electric, Westinghouse, and AT&T had created spheres of influence amounting to a monopoly (*U.S. v. R.C.A.,* 1959*)*. After GE was forced to divest of RCA, the 1941 Report on Chain Broadcasting was published by the FCC and an investigation into alleged monopolistic practices being used by RCA and CBS (*Gettysburg Times,* May 4, 1930). The main effect of this was an antitrust suit requiring RCA to divest of their NBC Blue network which produced experimental content that wasn't on-brand with their mainstream network (Meehan, 2005, p. 240). RCA's Blue Network was sold to Edward Noble and became the American Broadcasting Corporation. At the same time, the government initiated an antitrust suit against the Big Five major Hollywood film studios and many of the minors for oligopolistic or vertical integration strategies involving theatre exhibition. The suit was resolved in 1948 with the Paramount Decree, forcing the studios to divest of all their holdings in theatre and exhibition companies. This decision, followed afterwards with a ban on constructing new radio towers, would functionally freeze the configuration of American broadcasting with the Big Three networks of NBC, CBS, and ABC until the 1980's (Wasko, 2003).

Television and the Changing Optics of Advertising

The end of the American golden age of radio, which would last through the 1940's, grew into the golden age of television, adopting the production standards and commercial relations of the networks that were established at that time and was characterized by single-advertiser sponsored shows and live broadcasts of news, classical

music, theatre dramas, and sports (Whittaker, 2013). However, this carry-over of industry standards from radio began to strain the viability of broadcast television. Companies with long-standing relationships advertising with the large radio networks were used to and expected single-advertiser funding and were loath to surrender the privilege of control that it afforded, but also wouldn't or couldn't pay to cover the much higher production costs of funding a television show (Lotz 28). In response to this problem, NBC's Network President, Pat Weaver, introduced magazine-style advertising to the mainstream operation of the network. In 1955, NBC cleared their successful block of weekend programming to broadcast an experimental live broadcast that would run from 8am on Saturday to midnight Sunday called "Monitor," featuring advertising slots that could be bought in six, thirty, or sixty second packages (Hart 2005). This style of advertising funding substantially freed up the possibilities for content creation and managed to distribute the burden of funding. For the network it had the added advantage of structurally consolidating its power as the access provider. It was a model the other networks quickly adopted.

Due to the increased costs of programming, networks were left as the only legitimate commercial clients for television production. This led to a boom of production studios using high-risk, high-reward funding models to cover costs. As Amanda Lotz notes, "[T]he networks had the upper hand in the dealings because of their monopsony power as the only three buyers of content, and the networks attained greater control and less risk by forcing production companies to deficit finance their programs while also demanding a percentage of the syndicate revenues (Lotz 98). External production houses and independent film studios would generate the additional content that would help drive

the interest and demand for television. At this time, in the late 40's and early '50s, television programming was still mostly live, and to some degree that was representative of a type of anxiety on the part of the networks. Networks were afraid of moving from live broadcast to filmed programming because live broadcasts gave the networks definitive control over national advertising distribution and the content that was available to affiliates (Lev, 2003). However, as the cost of production continued to climb, the profit that could be made from foreign distribution, syndication, and reruns caused filmed programming to win out (Anderson, 1994).

Fairbanks Studios and Desilu were two of the first and most successful of these who made programming specifically to sell to networks, sticking around due to their popular programming (Sanders, 2011). Failed programming would lead to failed studios, leaving only well-established, demonstrably profitable producers with history with the networks, which could mitigate the risk of making up deficits over time (Wasko, 2003). Anderson concludes that "By the end of the 1950s, with the fates of the networks and studios deeply entwined, filmed television series emerged as the dominant product of the Hollywood studios and the dominant form of prime-time programming—a pattern that has remained unchanged for more than thirty years" (1994).

This system was hard on production studios, especially on independents, with the amount of studios dropping from reportedly as many as 800 at the end of 1940 to 180 production studios by 1960 (Wasko, 2003). It's possible that the reason the U.S. was popularly seen internationally as having a vibrant TV and film industry with unparalleled quality was that, unlike foreign access providers operated by the state, the American system enabled access providers to acquire premium content at a fraction of the cost

while drastically minimizing the risk to their business. If a government had done this, they would have had to face the public backlash of profiting off the financial demise of its citizens. This era in American broadcast is termed “the network era” by Amada Lotz as a “predominantly nonportable, domestic medium [...] in which programming was uniform, uncorrelated with channels and universally available” (Lotz 24). These conditions affected the production of television in the network era as networks looked to broadcast not beloved shows or critically acclaimed works, but shows that would be considered acceptable to the general viewing public, or what CBS’s then-vice president of programming called “the least objectionable content” (TV Guide July 24 1971). It didn’t matter what was thought of the broadcasts as long as the numbers showed that people were watched.

Network affiliation used economies of scale to diminish the otherwise prohibitively expensive cost of funding content, which consolidated authority in the corporate networks as their business model transformed from broadcasting content and operating radio towers to administrating and organizing the production of “network quality” content to sell ad space around (Lotz 22). As Mullen explains: "The degree of flexibility telefilm and videotape production techniques brought to television programming complemented the flexibility of magazine-format sponsorship. By the 1960s, virtually every component of the television schedule was both interchangeable and recyclable” (30).

As television advertising became less monolithic in curating the actual programming, the relationship between network and viewer became a larger corporate concern. The changes of the network era meant that advertising firms found it more

profitable to service a demand for audience research that would verify the value of advertisement purchases and allow agencies to more accurately determine the most valuable and appropriate slot for the sponsor's message to reach their target demographic (Lotz 187). The cultural and social importance of knowing what was on television was just as important as knowing what television people watched. Consequently, audience measurement played a critical role for networks and advertisers in deciding what content was created, at what cost, and when it was to be broadcast. The largest source for this audience measurement in the United States was, until the '90s, ACNeilsen or The Nielsen Company, which continues to play a role globally. Nielsen obtained the vast majority of data through surveys and daily sampling, where dutiful volunteers would keep a diary that they would mail into Nielson full of entries detailing when and what they watched and for how long. Later, through the 1960s and the 1970s, they supplemented their sampling with the introduction of the Storage Instantaneous Audimeter, making daily television ratings available by 1973 (Lotz 211). The data provided from audience measurement research would greatly contribute to the creation of specific time slots for prime time, "domestic", and children's programming slots (Lotz 40). While the audience had limited agency during this time, the industry made capturing audience attention the engine that generated value.

Cable and the Paradigm of Customization

The political, industrial, and cultural conditions of how information and communication is created and distributed online has developed in a context of consumer relations. Beginning in the 1940s, radio programming was a service designed to drive the

sales of radios; television programming was similarly designed to sell television sets. With the introduction of coaxial cable in the 1970s, however, the format of the commodity from the consumer's perspective began to change from the occasional purchase of a device to regular payments for programming. Technological advances and the push for higher resolution would still drive television set manufacturing, but networks had grown quite separate from this process. Cable not only broke open the network bottleneck which gatekept what content was being produced: now the programming was the product. The emergence of so many new cable networks and channels changed the competitive dynamic of the industry with entire networks like ESPN, CNN, or MTV producing specific genres of television while other channels such as Lifetime or BET were directed at specific demographics. Many more users at this juncture had individually developed tastes through long-time exposure to television and could be targeted more individually as transmission suddenly became more segmented and "packaged" curated cable product.

Up through the 70's radio transmission had continued to be the primary technology through which television was broadcast. This would change in the mid-80's with the mainstream adoption of cable television. This begins what Amanda Lotz has termed the multi-channel transition (Lotz 98), a 20-year time period during which technological and industrial changes provided more niche content to consumers and the ability to watch that content more conveniently. While there had been technological changes during the network era such as various takes on the remote control and the adoption of the colour standard, cable television was a deeply material, infrastructural change in the television industry.

Paid television had been an ongoing failure of experimentation before cable. Many companies had tried theatre television, coin-operated televisions, or scrambled frequencies, but the technology was cumbersome and ineffective (Lotz 122). Cable television allowed access providers to selectively deliver content to consumers, leading to the creation of paid television service. Television subscriptions such as HBO or PayTV became technologically viable and created a new production space for premium television programming. This rise in alternative programming saw a drop of Network television viewership from 90% of all television viewers in the 1970s to 65% in the 1980s (Lotz).

The creation of consumer recording and storage technologies further changed the relationship between consumers and the product in terms of time and space. The cable distribution method had opened up the industry to competition from more broadcast networks and the developments of VHS, laserdisc, and later TiVo and DVR meant that television consumption was much less constrained by time and location, leading to an increase of available content. Much like the independent studio boom in the 1950s, cable television providers, from the multi-channel transition to present, have adopted tiered service packages and a la carte options for consumers. Compared to the shared experience of broadcasting, Amanda Lotz observes, “the explosion of content providers throughout the multi-channel transition enabled viewers to increasingly isolate themselves in enclaves of specific interests” (26). Television had achieved a level of customization that would not be surpassed until the introduction of the internet.

The Digital Turn

As boundaries between creation of content and consumption of content became more complexly blurred, so did the boundaries between methods of media transmission and reception. The digital turn would affect the media industry by introducing a method of information transmission which would not only ultimately be more accessible for content creators (having far fewer corporate hoops to jump through in order to be published), but also create an archival space where users could interact and transmit content of their own. This behavior was not coincidental. Historically and architecturally the internet was built by a coordinated international effort across governments, universities, and military institutions, for the purpose of reciprocal information and resource sharing.

The initial concept for wide area networking had developed along with computing technologies in the 1950s in computer science labs across various countries such as the US, UK, France, and Norway (Hafner 2006). In 1963, the [Defense] Advanced Research Projects Agency (DARPA) in the US began working on a way to create a faultless communication system between computer networks at military bases and universities to share and maximize time and computer resources for academic and military applications (Hafner 2006). In 1983 the development of TCP-IP[2] packet-switching protocols, an international effort based on the French CYCLADES protocol, was responsible for bringing the various educational and governmental institutions together, providing for

[2] Transmission Control Protocol/Internet Protocol (TCP-IP) is a set of standards that determine how information should be packaged and sent. The advantage in the "packet" system is that information can be recovered, or processes restarted after failures, meaning that the information transmission needs very little central management.

more bandwidth and fewer faults, opening the ability to join almost any networks together in an internetwork.

The development of DARAPNET[3] by The U.S. Defense Department meant that use was usually restricted to research at and by universities and military bases, with unrelated commercial use not allowed. Due to the lack of private sector support that led to the proliferation of radio and cable, CSNET[4] received considerable funding by the National Science Foundation (NSF) in 1981 to create a network that would continue to expand network sharing benefits to more educational institutions through external telnet connections. The NSF then began to develop NSFNET in 1985 to further expand this extension, creating some of the major data routes which would eventually become part of the backbone of the commercial internet. Commercial internet access using the x.25 protocol over the public switched telephone network had existed since 1980, around the same time as CSNET, but the connection was very slow and access was billed (local and long-distance rates) by the minute or hour. While the largest investor in communications technologies are always governments, the internet is especially marked as benefitting from prolonged and essential public funding to construct infrastructure.

The internet as we know it did not become a viable residential product in the United States until 1991, when the last of commercial access restrictions of NSFNET were dropped and set-rate billing became widely adopted by internet service providers

[3] Originally the Advanced Research Projects Agency, DARPA led the construction of DARPANET, designed to share computer resources across U.S. military bases and Universities.
[4] Computer Science Net (CSNET) was a government project aimed at expanding computer and internet access for education institutions.
[5] Hyper Text Markup Language (HTML) "tags" text, video, audio, and image information and their design configuration for a webpage, telling a browser what information is on the page and how it should be displayed.

(Hafner 2006). The continued interoperable software systems and the standardization of HTML[5] led to the emergence of the World Wide Web: the global collection of documents and digital resources that are connected through hyperlinks and findable through Uniform Resource Locator addresses (This is distinct from the internet, which is the system of computer networks interconnected by telecom infrastructure). I've laid out this history for two related reasons. The first reason is to account for the development of the internet as the television industry was also developing and growing into the dominant media form. The second reason is to reinforce that, unlike television in the United States, the internet was not the product of private capitalism (though it was related to the military industrial complex), but of international cooperation between various state governments and academic institutions with the intention of sharing resources. Inter-networking architecture, while still susceptible to hierarchical organization, is in general much more distributed and decentralized than mainstream broadcast media, with a critical enhancement of user ability to receive and then answer back.

The internet amplified many of the changes to the television industry that cable had, making place (even in the case of live-broadcasts) and time a matter of convenience, with new technologies making the experience of television viewership more casual, granular, and mobile. Content could be watched wherever and whenever, and consumers thought more in terms of seeking out specific shows instead of channels or networks. However, the more important change in video media that came with the internet was in how it enhanced the capabilities of users to not only receive information, answer back more directly, and form tighter media communities over larger distances, but for those same users and audiences to create and distribute original content themselves.

Access to niche content online motivated users and audience members to participate in tighter, multi-media communities over various communication platforms. The effect of having a community of users surrounding a central media artifact is that those users will start generating their own content, regardless of the intent of the original content the community was based around. The act of accessing and interacting on the part of the audience requires some form of content creation in itself (such as starting or participating in a forum, posting pictures and memes, or creating anything that can be responded to). So the most important effect of this high-access-to-niche content is that it makes for an *inherently* co-constructive and prolific media culture. Today, one of the most diverse and vibrant types of these media cultures online are gaming communities, which can have critical effects on their subject media and manipulate it in ways completely outside the consideration of the publishers.

Machinima is the use of a real-time graphics engine (the ones used in video games) to create cinematic productions. This type of digital puppeteering had advantages and disadvantages. On one hand, it is less expensive and time consuming than conventional animation; on the other, it limits the possibilities "on set" to objects and actions programmed into the engine. However, the point of the production was usually that it uses a specific game to make content for that game's online demographic. While records of casual and professional gameplay were also in circulation around forums and messaging boards, a line can be drawn from machinima to the popularization of Let's Plays and then video game live streaming. That same line models the evolution and popularization of niche online community/hobbyist content creation to the contemporary conception of the internet content creator. These forms of media rebel structurally

against traditional systems of production through alternative or self-distribution, but also in reducing the cost of production and labor in ways that are reminiscent of the DIY ethic and anti-establishment values of punk rock. There are also shades in common of those who became big enough in those media landscapes to sell out.

The first major example of machinima was *Diary of a Camper*, which was uploaded in 1996 by the gaming clan[5] The Rangers. The upload is 100 seconds long and contains gameplay from Id Software's incredibly popular First Person Shooter (FPS) game *Quake*. *Quake* was an apt video game and community for machinima, as the game has a devoted following with a history of modding[6] the game. Different from the regular free-for-all arena gameplay that was typically uploaded, the video contained a small story with the characters expressing dialogue through the game's chat function. The first feature length *Quake* movie, *Blahbalicious,* was released in 1997, featuring original animations, lip syncing, and a feature length script. Though the shorts and film may have used settings and concepts familiar to the game and other players, these users were interacting with *Quake* primarily as computer software in order to produce animated shorts instead of as a game.

A community of game "modders" began to form around the creation of these films and shorts, leading to user developed software such as David Wright's Keygrip, which was made specifically to record and edit *Quake* demo files. Distribution outside of the *Quake* community was limited; after editing, the file could not be exported into other

[5] A gaming clan or guild is a group of players who regularly play together.
[6] Modding can refer to the modification of either hardware or software to customize, change, or optimize a game.

formats and remained as demo files played through the game engine, requiring the viewers to own the game, access the forum where the shorts and films were posted, and then running the demo file through the game (Marino 2004). As other game communities began to emulate the trend, however, ways of publishing these videos in common formats were developed, allowing the videos to be delivered to a more wide-spread audience. The internet and social media platforms as a content distribution method was an alternative to avoid the gatekeeping power of Hollywood and television networks, who accepted and denied content according to their own mainstream corporate standards. Without the need to cater to risk adverse and profit-first access providers, there was no need for content creators to constrain themselves to making the least objectional content, and instead could make content tailored to more specific demographics using subjects, language, and themes that would not meet the standards of mainstream profitability.

On April 1st, 2003 the first episode of *Red vs. Blue* entitled: *Why Are We Here?* was uploaded to redvsblue.com (RoosterTeeth). *Red vs. Blue* was different from other instances of machinima or even other online or flash content produced in that it was the first to attempt a serialized narrative. The idea of serial content was at first so foreign to the medium that Burnie Burns and Mat Hullum, the creators of the series and website, regularly reminded their audience to come back for more content the following week as the series would premiere a new episode weekly. The show would go on to continue creating 19-episode seasons in an irregular production schedule with small breaks between seasons (RoosterTeeth). Despite the first season of *Red vs. Blue* having a run time of less than two hours, with episodes averaging between three and five minutes, the series picked up nearly 75,000 viewers in the first week and grew past a million regular

viewers by the end of the first month. As a way of dealing with increased server costs, an optional subscription was added to the site, allowing audience members to become sponsors for three dollars a month. The series, and other content made by RoosterTeeth remained free to watch with occasional sponsors-only content being released sporadically in various formats including behind-the-scene footage or deleted scenes, occasional exclusive videos, and discounts on merchandise once an online store had been created. Bandwidth to host videos had been a major problem for early would-be digital content creators, so RoosterTeeth's website to platform their videos made the company a very early figure in that regard.

In 2005 Youtube was founded, and by 2006, purchased and further developed by Google, in many ways solving the bandwidth problem for content creators all over the web. Netflix began delivering video on demand online in 2007, reaching two million subscribers by 2013 and achieving more formal recognition as a television network after being nominated for various Emmys for their original series and winning Outstanding Directing for a Drama Series for *House of Cards* (Liedtek 2013). Also in 2007, the livestreaming service/channel Justin.tv was founded and then rebranded in 2011 as Twitch.tv before being acquired by Amazon in 2014. As a reaction, Youtube split into two main services, Youtube Gaming and Youtube Music, in order to compete with Twitch and curate content in a more targeted fashion as easily producible, mostly unedited gameplay footage with player commentary proliferated across the platform. Netflix and Youtube, Twitch and several other services[7] have now emerged as threatening competitors to traditional television and cable providers, who have seen years of stagnation, holding at

[7] iTV (1998), Prime Video (2006), Hulu (2007), Roku (2017), Apple Tv (2019)

the peak of 68.5 million subscribers in 2010 and not seeing any changes in 2022 (FCC 2010) (Stoll 2022). However, this data doesn't include the success or failure of streaming services provided by major television networks.

The trend of the media creation and transmission ecosystem has been increasingly that content creators are in a constant conflict with access providers. Access providers allow the distribution of content, which is demanded at a rate and with enough diversity that access providers can not generate it on their own. With the ease and multiple points of distribution there becomes a definite problem of maintaining the pay-structures and market share which have been supporting traditional media, this not only includes the decline of cable television, but also networks trying to establish their own online services. The control of content becomes more and more pertinent as the roles of user and content creator grow closer together. For publishers and multinational tele-conglomerates, the answer to the problem of diversifying content while increasing their market share has been two-fold: purchase and assimilate as many successful alternative media outlets as subsidiaries as they can and then implement online systems to regulate the spread and monetization of content. This is exactly the history of RoosterTeeth, beginning as hobby and amateur content, evolving into an independent production studio, sold to multichannel network Fullscreen in 2014, and subsequently folded into Otter Media, owned by Warner Brothers, a subsidiary of AT&T, one of the largest international telecommunications conglomerates in the world.

Though digitality and digital distribution have empowered content creators and expanded the capabilities of users and the communities they are a part of, this has not diminished the power of access providers, it simply opened up industrial competition in a

way that it appears power has changed hands and lowered the barrier of entry to media publication. Cable television broke the big 3 network bottleneck that dominated the OTA television market in much the way that the internet has broken the Hollywood and television network bottleneck and neither have resulted in a free or democratic media ecology. The digital turn is not a revolution, it has not transformed anything, but instead accelerated and expanded what was already there: an unequal material and political economy based on capitalism. However, the history and trends covered in this chapter also reveal that a given media ecology is an interdependent structure, not a monolithic corporate domain, which requires an amount of user and creator agency to function.

Conclusion

Broadcast media around the world have evolved out of a variety of geopolitical and social contexts that have shaped the configuration of their communications infrastructure. From radio's establishment as a commercial enterprise in the USA in the 1920's, the broadcast industry and government leaders pushed to create and profit from a media culture that facilitated the consumption of content at the whim and convenience of the user. However, the development of the internet critically destabilized the corporate dominance by traditional access providers, allowing many more content creators to publish content and interact directly with their audience in a community fashion outside the mediating obstacles of the studio network system. The democratizing effect of broadcast media and the resistance to it on the part of the corporate networks will go on to describe the relationship between access providers, content creators, and users as more and more users decide that the best way to get niche, personal content is to do it yourself.

Chapter Two

It's Amateur Hour: The Rise of the Hobbyist, the Enthusiast, the Independent.

Introduction

While Chapter One was a historical overview of American broadcast development, with analysis of major networks and policymakers' symbiotic relationship with audiences, this chapter will pivot to a closer analysis of the audiences and users' increasingly self-determined symbiosis with new media and technology. This will be demonstrated along a few historical signpost examples that represent the articulation of 'the amateur' as a major actor in regards to ham radio, computer hobbyism, and the development of the mainstream economies surrounding radio and computing. The intent of this is to analyze the soma-technical evolution of users (the relationship between technology and the body) and their actions into the defining functions of a media public. This chapter will look at amateurs and hobbyists as users who exist in a fluid or flexible state between the mainstream corporate market forces and the cultural public constituted by the casual attention of individual users. These users come from technological cultures of practices that have historically been influencers in the negotiation of media use, constituting a separate media public and cultural economy from the mainstream.

I will demonstrate, with examples of peer community protocols and with insights from Kristen Haring, Martin Campbell-Kelly, and Michael Warner, that these actors are the main driving force that evolves end-user media, not just through tinkering and developing it, but also by making media content *about* that new media. The emergence of

the amateur represents an unlocking of users' ability to not only become creators, but to simultaneously manifest more users and creators. Fans, hobbyists, and amateurs generate their own economies of cultural capital and community-generated value. This para-economic field of production (where there is a sociality that contains transactions and exchanges which can be understood as an economy, but distinct from the industrially dominated and profit-oriented economic field) provides a space where there is an alternate choice to opt out of the mainstream or negotiate collectively to define media. We will see that there are groups organized around the use of nonproprietary technology and practices which stand apart from and subvert mainstream production through networked information ecologies and economies of symbolic and cultural capital.

Ultimately, this chapter places the importance of the historical argument of Chapter One in sharper perspective, through the subjects examined: viewing media artifacts through an emphasis on the agency and meaning-making power of the user can help deconstruct and reimagine assumptions about the nature of top-down power relations in the broadcast tech industry, such as the construction of tinkerers, hackers, or proponents of open-source culture as parasitic, or saboteurs.

The role of the amateur in relation to media use has become more pervasive since the internet broke a bottleneck of access to distribution. Understanding how amateur cultures are constructed and affect the larger public of media use helps us to understand the increased influence of how modern "amateur" users define media, and how creative and publishing technology becoming more accessible has distributed economic and cultural power more widely and democratically.

Ham and the Articulation of the Amateur

The 'amateur' is an unstable, mutable figure across various historical, geographic, and political contexts that have shaped an extraordinary range of activity, from non-remunerated, self-organized, anti-ruling class insurgent artistic efforts, to part-time or unofficial industrial activity and programmatic state efforts . In opposition to professionalism, amateurism can be understood as a function of modern divisions of labor, leisure, and industry. Amateurism, on the part of the amateur, plays with a tension of legitimacy which outside of highly contextual and mostly arbitrary value judgments on knowledge and skill, are more simply understood as value judgements on the level or appearance of market participation. Others may self-designate as amateurs in order to avoid the legal responsibilities or technical certification of professionalism. "Ham" in ham radio originated as an insult and criticism of the amateur's ham-fisted style of operating a telegraph, which set them apart from the professional's style.

The history of ham radio displays how radically (and relatively quickly) amateurs can change the general mode of public comportment towards a medium. Prior to the 20th century, radio was more a scientific phenomenon than a useful or commercially viable technology. The turn came in 1901 when the Marconi company publicly demonstrated its application in wireless telegraphy by repeatedly transmitting an "S" in morse code from the UK to Canada (Campbell 203). Governments and corporations took interest and used the technology to augment the current hardwired telegraph network and instituted their use on sea-going vessels. Amateur telegraphers quickly adopted the wireless technology to expand their range and overcome the geographical obstacles and social issues of running line over tracks of land that may belong to the hobbyist's uncooperative

neighbors (White). We can see how the employment of radio by institutions and users at that period of time defined the public conception of radio's use and value as an inherited development of the telegraph in two-way communication technology. Hams would continue to define radio and typify its use for conversation even as broadcast grew to become the dominant mode of use for the general public.

Irving Vermilya was one such telegraph amateur and radio enthusiast, who recounted in a 1917 article of *QST* (a magazine for amateur radio enthusiasts published by the American Radio Relay League) of a cable that grew from initial experiments stretching between his house and his neighbor's, to over six miles of line collectively managed by his community of thirty-six member stations in New Bedford, MA. Vermilya's article is entitled *Amateur Number One*, and in it he claims to be "the first amateur in this country to get an aerial up and investigate into the mysteries of wireless." (QST 1917). This article is useful as a demonstration of the title of "amateur" becoming imbued with a connotation of competence; early amateur telegraphers formed local communities (literally) around the wires they laid and the conventions of their use.

> Needless to say, the line was working day and night. Some one of the bunch always used it. It was the custom for every one to say 'good morning' and then sign off his or her call letters, when we got out of bed, and 'good night' before retiring. Some of the operators kept scandalous hours.[...] I always kept my instrument cut in, and thought nothing of hearing my pal, Milo White, say 'GN' three o'clock in the morning. We always knew when any of the fellows had been out with any of the girls on our line, as we would hear them chewing the visit over after he got home and while she was getting ready to retire. Then the final 'Well, good night, dear.' (Vermilya, 1917)

This example illustrates how the value and utility of the technology was derived from the conditions of user action. Vermilya and the other telegraphers were mostly interested in the convenience and novelty of keeping track of their friends from home, not

unlike the function of Twitter or Facebook today. Vermilya and the New Bedford company of amateurs were engaging with technology in a way that borrowed from a larger public socio-technical context, but also derived protocols from the conventions of private use among themselves.

Telegraphy was a very public and possibly alienating technological experience for the layperson who had to travel to an office in order to employ the services of the telegraph machine and usually also its operator. Building the New Bedford lines brought the telegraph into the home of those users in a way that domesticated the technology between not-quite-private and not-quite-public spheres. We can see from Vermilya's account how the device had a physical and auditory presence in the house and how the orientation of their private and social lives around the device reciprocally affected their lived experiences and the device itself, becoming a part of their daily and nightly rituals. These are examples of how contexts of use and sociality condition technical protocols and distinction of in-crowd/outcrowd in technical cultures of practice.

Commercial telegraphy charged to send messages by the word, which led to the development of the telegraph style, or telegraphese, to maximize the amount of information sent for the lowest cost. Much like early SMS texting, this led to a truncation of words and common sets of short forms that became convention. However, this would have only tangentially affected the standards of use by the New Bedford amateurs, who had ready and open access to the device. Instead, other more private social motivators would have conditioned their conventions of use, such as efficiency as a function of sharing the line with others, and an awareness of those others and who they were.

We can assume that even if the average user on the New Bedford line wasn't familiar enough with electronics to have installed or maintained the device themselves, they were at the least functionally proficient in morse code. The original design for the telegraph intended the device to record incoming messages onto a reel of paper. It was incidental that the mechanical notation produced an audible clicking sound and that users found it more convenient to translate by ear. While various telegraphs would still retain the notation function, the use of telegraph sounders compounded the ephemerality of telegraph messages and its association as a speech act and the comportment of user action as "talking". Much like the daily publication and disposability of news papers which took on a "voice" that mimicked casual speech rather than formal address of long form print, the clipped register of telegraph messages took on a similar tone. In this context it becomes more apparent how standards of use are a combination of the mechanics involved in a technology and the social contexts that motivate the operation of that technology.

Many of the New Bedford users were probably aware that regardless of who they were talking to, others (especially Vermilya) were listening in or over hearing. Operating the telegraph in this situation would have been something between a live performance and talking in a chat room, being both casual but requiring practiced attention. The virtues of morse code were extolled by hams for being both reliable and versatile, having both a technical feel while still imparting the personality, voice, or "fist" of the sender (Haring 23). Especially in the time of the hardwired telegraph which communicated solely through dits and dahs, knowing code would have drawn a distinct boundary between the in-crowd and confused outsiders. Through a personal and social engagement

with technology, Vermilya and the New Bedford amateur telegraphers created and managed a space that could be considered the first media public to exist on a technological social media platform. The material technology that made up the physical infrastructure of this public was as reciprocally formative to user action, as those protocols were to the manifestation of that infrastructure, from the non-market organization to the normative rituals of transmitting a “GN”, “GM”, or signing off with their call letters.

As these amateurs and others across the United States adopted radio as a way to expand their reach beyond their local hardwired communities, home-spun radio stations popped up en masse, prompting the federal action that we observed in the last chapter, and bringing the technology to national and global attention. While most consumers didn’t understand the appeal of creating a mass of wires and antenna to take up residence in your house just to talk to strangers (especially as the telephone caught on around the same time), HAM radio normalized the technology enough that consumers could understand keeping a box around to listen to music and programs. Even when voice and music came to the radio and expanded into broadcast, it still involved significant engagement and operation on the part of the user. The first paragon radio sets came with the box and receiver, but required the user to purchase and install their own battery. These regenerative receiver radios were initially developed for war strategy, and thus were made to maximize the utility of a simple design with few parts (Dunlap 31). They are a notable symbol of the unblackboxing of consumer tech products, as they were a hybrid of mass standardization and DIY enthusiast ethic. “Naturally, these sets were home-made, because, with the possible exception of five manufacturers who were making apparatus

for the amateurs previous to the war, and who continued after the war was over, no one in the field was in the least prepared for the work of furnishing the instruments for broadcast reception" (Dunlap 35). For hams, the value of the experience was found in challenging themselves and pushing the technology to its limits, while at the same finding a social value in the public performance of operating the technology. Hams were spreading not just the technology but the practice and engineering of radio technology and creating a market for hardware that could be accessed and manipulated.

The fact that a hardware design that was intended for war purposes 'accidentally' nudged the future trajectory of broadcast development further into the hands of consumers than it would have been if it was initially developed with marketing intent, reveals the incidental nature of how technological path dependencies become entrenched. Other normative modes of use among HAMs slipped into the protocols of home radio receivers in the form of keeping diaries and logs of the broadcasts they received. While this action was mandated to HAMS from the FCC, casual broadcast users picked up the habit as a way of personally recording what programs and broadcasts they managed to receive through their use of the technology (Haring 60), and this evolved to be of use to the commercial broadcast industry for advertising purposes, as was explored in the previous chapter with television diaries and audience monitoring.

Early adopters of radio technology needed to be active and technically proficient consumers, willing to do the work of building and operating their own radio sets to receive only limited broadcasts. It was only acceptable to consumers to purchase and learn to operate it because they understood the value of it from watching hams. That is to say, because of the wide systemic adoption of radio amateurism as halfway between

casual hobby and professionalized craft, users were articulated as a kind of consumer, and generated the demand that would make radio broadcasting a viable commercial product as a vehicle for entertainment.

Zine Culture as Amateur Standardization

Along with their improvisational tinkering and intimate physiological involvement with the medium they took as their craft, radio amateurs also consciously built autonomous social information economies. They circumvented formal routes of authentication and constructed their own systems of cultural legitimacy. The use of local clubs, newsletters, and eventually magazines was a key method for organizing these standards. In these technical cultures, the use of titles like "amateur" or "hobbyist" are constructed to signal an ideological identity, especially in the case of ham radio, to both the initiated and the public. This was seen as a necessity to the practitioners of amateur radio, and the suppliers of radio hardware, due to the great difficulty they had building a favorable cultural reputation. Though hobbyists left behind the trail of wire, conflicts would still arise on local, commercial, and even national levels. Neighbors complained about wireless aerials being an eyesore, while both community members and business entities were annoyed by the electrical interference and drain on the grid (Haring 133). Governments took repeated regulatory action for economic and political reasons, and hams were legitimately afraid that amateur radio would be made illegal or shut down in order to make space for commercial broadcasts and soothe anxieties about national security (Campbell 231; Haring 21). This struggle for legitimacy becomes a theme even in the domestic space as Haring observes that "[the magazine] *Ham Radio Horizons* still

felt the need to inform readers in 1977 that families would not 'resent the time you spend' on the hobby if they understood it better" (133). In light of this mainstream skepticism and federal regulation, it seemed especially pressing for passionate hams to establish institutions and cultural signals of respectable expertise and social utility.

Hiram Percy Maxim was one such passionate ham operating an impressively equipped radio station in Hartford, Connecticut, who saw the need for organization to mitigate obstacles both political and technological. Under the Radio Act of 1912 amateur stations had managed to retain their right to operate on the condition that ham activity be regulated to the 200 meters (1500 kHz) wave length, limiting an individual ham's transmitting range to about 40 Kilometers (25 miles). Dunlap observes that an impressive amount of experimentation was done by HAMS at the 200 meter wavelength to maximize their range, with some instances under ideal conditions received at 200 kilometers or more, but never guaranteed (63). Maxim is credited with the idea of forming the American Radio Relay League. While experiencing difficulties transmitting from Hartford to Springfield, a distance of about forty-eight kilometers which his rig should have normally been able to reach, he troubleshot the issue by relaying the message through a friendly operator stationed halfway in Windsor Locks (DeSoto, 1936). The idea for an organized relay system composed of HAMS was proposed by Maxim to the already established Hartford Radio Club. The Hartford Club agreed to support the call for members into the ARRL, developing application forms and sending them to as many registered operators as they could. The creation of this volunteer network expanded the reach of radio operators while maintaining close-knit communities.

Hobby periodicals and clubs are of special importance to the organization of ham radio as a nexus for the circulation of texts. Hams viewed clubs, especially those organized at the national level, as legitimizing structures that clarified what the hobby was and who hobbyists were, grounding the values of the technical culture in a visible social unit and providing vital mechanisms for enculturation. This culture was spread through a dissemination of texts. Haring observes that "supplementing the practical lessons hobbyists acquired through clubs and informal social-technical networks was a vast body of hobby publications" (9). Most clubs raised a small amount of funds by providing hardware and electronics catalogs and user manuals to their members (in which could also be found chapters on ham etiquette and other social lessons), but the growing amount of information on the operation of radio, reviews on equipment, and member events would be exchanged through weekly newsletters published by the clubs. Trying to emulate the function of the newsletter on a larger scale, a magazine was proposed by then Hartford Club member and radio hardware supplier, Clarence Tuska, as a way for the ARRL to organize HAMS across the continent (DeSoto 1936). The first three issues of ARRL's new magazine were paid for personally by Maxim and Tuska, and sent out to the over 230 stations that had responded to their call for applications (DeSoto). The ARRL's *QST* magazine got its name from the Q signal, or radio short code, for "calling all stations" and was the self-appointed authority on the official stance of ham radio (Haring 3). In this way, the public sphere of ham radio organized and curated the practices of their technical culture textually through "the concatenation of texts over time" (Warner 2002). However, the conditions of what Warner calls the "metapragmatics" of belonging in this public were as contingent on writing as they were on reading, a practice of making media

about media, conducive to the ARRL being a sort of "club of clubs". However, locally-based publications were still instrumental in growing and maintaining localized clubs.

The fourth issue of the first volume of *The Canadian Amateur,* published in April 1959, offers an example of the localized role of club zines. The issue celebrated the newly-formed Halifax Amateur Radio Club and its initiation into the ARRL. The content and the form of the issue was anchored by themes of ham as infrastructurally useful to Canada as a nation, and as a domestically sustainable pursuit. Their profiles on noteworthy maritime hams (written by other maritime hams) emphasize their work as a form of commendable public service. One article, by Aaron Solomon, reads, "not only is [Britt Fader] well known 'down east,' but throughout the world where his cheerful voice and distinctive signal are eagerly awaited and sought after [...] from the 1st of January to date he has handled well over five thousand QSL cards" (4). In the article "Maritime Net is Favourite," Cyril Boudreau claimed, "Amateur radio serves as one of the main connections between Sable Island and the Mainland. Every night on his network, John Weir, operator of radio VE1ABV, can be heard passing along, or accepting, messages" (12). Just below this, the piece included an image of an operator sitting at his station with his family, the caption describing his two sons as "second ops" and his wife as "beautiful boss" (12).

A tone of hobbyist excitement and peer encouragement is also notable in this document. Recalling with fondness the early days of his introduction to ham radio, Major William Borrett writes "All I could think of was the fluttery note of f8AB sending Dah Dah Dit Dit" (8). Distinct from a traditional editorial authoritative voice, the journal's handful of authors appeal to the excitement of a growing and formalizing network of

amateur expertise and coordination. The closing article puts out an enthusiastic call for participation, with an emphasis on the importance of collaborative knowledge: “Being fairly new at this wonderful hobby and not too well acquainted with [publishing], this writer (and many other amateurs) believe that without the cooperation of all hams, not much can be done. Why not at least drop a few lines of comment [?]” (16). This medium of autonomous ‘journalism’ was a powerful method of curating technological sensibilities and cultures of practice while also functioning as a nexus for interaction, organized under a relationship of shared texts and textuality.

Hobbyists who tinkered with amateur radio were often not restricted to this one medium; as more consumer technologies became similarly unblackboxed, new cultures of practice were heavily derived from the ethos of hams. Hiram Percy Maxim, for instance, is credited with founding a number of hobby clubs outside of radio in aeronautics and amateur cinema, bringing with him his ideas and ethics about what constitutes a true hobbyist. A radio hobbyist identifying themselves as a ham doesn’t mean that they are closed to other technologies or don’t have a general interest in electronics. Hams were exposed to a wide variety of technologies related and unrelated to radio through hobby literature. Many of the early suppliers for ham equipment, because of the similarity in components with other electronics, expanded out to larger commercial markets and other electronic devices which would appear alongside catalogs for radio equipment and in electronics magazines. As a result, ham radio’s technical culture had a significant impact on the development of the personal computer.

The Personal Computer is Political

Early computer hobbyist clubs were very similar in spirit and form to their preceding ham clubs; the earliest among them were particularly community-oriented, and they were structured around a pride in collaborative education, knowledge-making, and resource-sharing. The Homebrew Computer Club was founded in California in 1975, and the club's first newsletter issue began by repeating the words that had been posted around the Bay Area to garner group members: "Are you building your own computer? Terminal? TV Typewriter? I/O device? Or some other digital black-magic box?...you might like to come to a gathering of people with like minded interests. Exchange information, swap ideas, talk shop" (wired.com 2009). The use of "black-magic box" highlights the sense of enthusiasm that was bound up in not-knowing and the mystique of technological unpacking, rather than in the possession of the hardware itself. The language through the rest of the issue also conveys the same combination of community familiarity and pride in workmanship that is evident in the HARC magazine. For example, even though it is the first issue, the editor, Fred Moore, casually uses first names of other members to describe the events of the first meeting in a Silicon Valley garage: "Bob passed out the latest PCC and showed the Altair 8800 which had arrived that week (the red LEDs blink and flash nicely)" (Moore, 1975). Additionally, this document provides intriguing insight on the motivations and visions of Altair hobbyists, as Moore remarks on the "imagination" of people who wanted to develop methods for "text editing, mass storage [...] heating, alarms, sprinkler system, [...] TV graphics, x-y plotting, making music" (Moore 1975).

The Altair 8800, released by American electronics developer MITS (Micro Instrumentation and Telemetry Systems) in 1974, was the first commercial breakthrough in personal computing. Featured prominently as the first microprocessor-based computer on the January 1975 cover of Popular Electronics, the Altair derived its mass appeal entirely from the novelty of its possibility. It lacked any semblance of what would define the basic functionality of a computer today, in that there was virtually no output, not even the ability to store generated data, or connect to a Teletype for the consumer to use. Instead, the Altair 8800 had to be manually programmed in pure binary code by flicking the hand switches on the front panel. The home-coder's only prize for this meticulous task came in the form of lights flashing in accordance with the machine's new programming. The consumer novelty of this device, then, consisted of an academic, rather than functional or recreational, commitment to the product; the main product was the knowledge derived from tinkering, as well as the anticipation of understanding what the technology was not yet capable of, but soon would be (the ability to connect to a Teletype, for example, was added with the next iteration of the Altair, the Altair BASIC). The real unforeseen advantage of the Altair was that, despite how bare it was as a computing device, it left the conceptions of the device up to the amateur's imagination of technology and hobbyism at the time;

> The limitations of the Altair 8800 created the opportunity for small-time entrepreneurs to develop "add-on" boards so that extra memory, conventional teletypes, and audiocassette recorders (for permanent data storage) could be added to the basic machine. Almost all of these start-up companies consisted of two or three people—mostly computer hobbyists hoping to turn their pastime to profit. (Campbell 235)

Early computer hobbyist's bare-bones intimacy with computer programming evolution is sometimes reminiscent of ham's tactile familiarity with radio protocol and engagement

with morse code. It is interesting to juxtapose the relationship that amateur hams and computer hobbyists have had with code, manually inputting ones and zeros or dits-and-dahs. Though the complexity of code had grown exponentially from the encoding of letters through morse code to the programming of computers with BASIC, an overall sense of practiced literacy dominates the mindset of these technological cultures. The practice comes from the interaction and operation by the user, demonstrating a type of read-write culture where the act of writing is as much a part of the act of media consumption as reading, creating a culture that is as literary as it is technological. It stands then that in order to establish technological cultures of practice, information needs to be able to be produced and consumed as freely as possible. This manifested as a custom of sharing in the Homebrew Computer Club, whose newsletter would be a major influence to the culture of Silicon Valley and club members such as Steve Jobs and Steve Wozniak, who were inspired to make the Apple computer after seeing the Altair 8800 at the first Homebrew meeting.

The thought that electronic and digital tools were important to society and needed to be in the hands of the general public were ideals that the homebrew club upheld as their main goal in spreading the popularity of computing technology. The drive to spread information and technology was conducive to a DIY ethos of sharing that computer hobbyists were exposed to through publications like The Whole Earth Catalog. Jobs, in his June 2012 Stanford commencement speech described the catalog as “one of the bibles of my generation […] It was sort of like Google in paperback form, 35 years before Google came along”. The “computer liberation” this gave rise to was not so much a movement as an inciting idea that computer tools and the future of computing technology

needed to be in the hands of users. The catalog derived its name from an earlier project by its founder, Stewart Brand, where he had lobbied NASA to publicly release a digital image mosaic of the first photo of "the whole earth" from space (Turner, 20). The catalog's purpose printed on the first page of each edition reads:

> We **are** as gods and might as well get good at it. So far, remotely done power and glory—as via government, big business, formal education, church—has succeeded to the point where gross defects obscure actual gains. In response to this dilemma and to these gains a realm of intimate, personal power is developing—power of the individual to conduct his own education, find his own inspiration, shape his own environment, and share his adventure with whoever is interested. Tools that aid this process are sought and promoted by the WHOLE EARTH CATALOG.

The WEC came alongside the counterculture movement in its promotion of foundation-changing experimentation and anti-establishment DIY ethics, appealing to STEM scientists, academics, young hippies, environmentalists, and survivalists. The first 1968 edition organized its content into roughly seven categories which more or less remained the norm for future editions including understanding whole systems, shelter and land use, industry and craft, communications, community, nomadics, and learning (Turner, 43; WEC,1968). In the 1998 *Whole Earth Catalog: 30th Anniversary Celebration* edition, Brand reflected, "At a time when the New Left was calling for grassroots *political* (i.e., referred) power, *Whole Earth* eschewed politics and pushed grass-roots *direct* power—tools and skills" (WEC 1998). What Brand did in spreading ideology and information through clubs and texts was much like the work of Hiram Percy Maxim, but with a much clearer and specifically political goal in mind. By situating himself across a variety of intellectual communities, Brand organized "network forums," where previously separate information and social networks began to connect together and collaborate in a way that allowed them to imagine themselves as part of a larger single community where

“representatives of the technological world met leaders from politics and business, as well as former counterculturalists [...] their conversations turned digital media into emblems of network members' own, shared ways of living, and evidence of their individual credibility” (Turner 3). However, Turner appropriately points out that “For all the utopian claims surrounding the emergence of the Internet, there is nothing about a computer or a computer network that necessarily requires that it level organizational structures, render the individual more psychologically whole, or drive the establishment of intimate, though geographically distributed, communities (3). Nevertheless, the utopian vison that was gradually associated with computers and the internet due to the social networking of people like Brand became a rhetorical tool which obfuscated the effect of political economy of these technologies and justified the ruling elitism of those at the head of digital technology firms. Turner observes that:

> The fact that the social and the natural, the individual and the institutional, the human and the machine could all be seen as reflections of one another suggested that those who could most successfully depict themselves as aligned with the forces of information could also claim to be models of those forces. They could in fact claim to have a “natural” right to power, even as they disguised their leadership with a rhetoric of systems, communities, and information flow. (260)

This was the cultural zeitgeist of hobbyist information-sharing and technological democracy that clubs such as Homebrew began to tap into and develop, disseminating hardware and software innovations, such as the various forms of BASIC, but specifically the popular and controversial Altair BASIC written by Bill Gates and Paul Allen.

BASIC is a family of programming languages originally developed in 1964. Its philosophy of design was dedicated to user-friendliness to spread the use of computers to students outside the faculties of sciences and mathematics. Gates, Allen, and later, Monte Davidoff developed Altair BASIC as a software interpreter for the Altair 8800 on

Harvard's federally funded PDP-10 time sharing computer. They used an Altair 8800 emulator that was created by Allen to work as an operating system to run other software. MITS secured a non-exclusive license with Micro-Soft (as it was known then), but the software was more commonly distributed by hobbyists who bought, copied, and shared the paper punch tapes the software was written on. The biggest contributing factor to the spread of Altair Basic was the defective RAM that came bundled with the Altair system, causing anyone who was serious about having a properly functioning machine to purchase most of the parts from MITS, buy the RAM from a third party source, and "borrow" BASIC from a friend.

In response, Gates drafted the "Open Letter to Hobbyists" in 1976, addressed to all computer hobbyists (but in particular, the Homebrew Computer Club) and mailed out to all major electronics magazines. In it, Gates reinterprets consumers sharing software and not buying through MITS: "One thing you don't do by stealing software is get back at MITS for some problem you may have had [...] Most directly, the thing you do is theft" (Gates, 1976). Most stinging was how Gates decried and undervalued the peer production of hobbyists in general by saying, "What hobbyist can put 3-man years into programming, finding all bugs, documenting his product and distribute for free? The fact is, no one besides us has invested a lot of money in hobby software" (Gates, 1976). Jim Warren, Homebrew Club member and editor of Homebrew's newsletter, as well as the computer programming magazine *Dr. Dobb's Journal,* responded in the July 1976 ACM newsletter, *Programming Language,* "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 for it than to duplicate it,

then it won't be ‘stolen’” (Warren, 1976). In the article Warren advertised the Tiny BASIC project, a version of BASIC initiated by Dennis Allison at Stanford University, and openly published to People’s Computer Company newsletter, which received incredible attention in the form of comments and improvements by readers. The PCC Newsletter was renamed *Dr. Dobb's Journal of Tiny BASIC Calisthenics & Orthodontia: Running Light Without Overbyte* in order to facilitate and track the peer production and implementations of Tiny BASIC. Many more hobbyists were drawn to the project as a reaction to Gate’s open letter, fueling what would become the start of the Copyleft, creative commons, and Free Software movements.

Despite all the work that went into the manufacturing and distribution of computer hardware, computers like the Apple II, Tandy, or PET, came packaged with some sort of operating system, but were devoid of useful software. Much like the meanings of use constructed from user protocols at the dawn of HAM radio, the users for the personal computers would come to define and be defined by the software that was eventually created for it. This opportunity for creators made a space where “the barriers to entry into personal-computer software were so low that literally thousands of firms were established—and their mortality rate was phenomenal.” (Campbell, 242). A similar phenomenon had been observed just a few decades before in the television studio boom and collapse during the 50’s and 60’s.

It is a regularly repeating fact of history that corporate capitalist entities only oppose regulation or government interference when it negatively impacts their production and positions of control. Capitalist corporations are in fact the first to call upon the regulating force of the government to stifle the spread of information and suppress

competition when new media and technology democratize the means of production. Such was the case in the sudden appeal of major American publishers in the 1890's for international copyright enforcement when smaller domestic publishers began to republish cheap international novels royalty free as the corporate publishers had been for years, suddenly cutting into a market share that they would rather dominate through pricing others out. Professional legitimacy, therefore, has more to do with the ability of large corporations to dominate a cultural market space, regardless of how peer production has developed or could benefit that space.

The reaction that Gates had to his BASIC program being shared is indicative of an anxiety that is more about authority (and profit) than what is fair, just, or best for the programming community. The mass sharing of Altair BASIC, like most media consumption construed as "piracy" was not actively driven by malicious intent, but by a basic lack of access for consumers. Gates and Jobs' real achievements are in the world of business, because they were only ever, at best, pretty good programmers. More distinctly, they could never be better programmers than the communities of peer production and authentication that they benefited from as individuals. Changing the power dynamic in that relationship from being a part of the community, to being a dominating force was the effect of commercial culture rather than technical culture, which resulted in the privatization of information production organized under industrial corporate control, hegemony under the "divine right of property", rather than the free association of the networked information economy.

The amateur's instability as an actor across various technological and social contexts reveals a field of cultural production characterized by a technological culture of

practice in opposition to gatekeeping mechanisms and totalizing control of the mainstream, either commercial or “professional”. Organized under a free association with locals and strangers connected by an interest in technology and conveyed through a network of shared texts, the non-market activities of these hobbyists have proven to be instrumental in the public conception and end-user manifestation of hardware and software. Gates ends his Open Letter to Hobbyists with “Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software” (Gates, 1976), yet much more software could have been produced had his priority been enabling millions in methods of peer production instead of employing developers to make software for him to sell and profit from.

Chapter Three

Games and Gaming Publics:

The Technical Virtuality and Sociality of Games

Introduction

Imagine you are playing your favorite game, or a game that you're very familiar with. Picture that you are playing that game in front of your friends or family, in front of a new player to introduce them to the game, or a master who is much more familiar, or a crowd of strangers. Imagine now that instead there is a camera sending out a live feed of both you and the game, and that it is all being recorded to be seen back later. How would the way that you play the game change? You might try to play seriously and conservatively, slowly while explaining each decision and the state of the game, you might try to play the game with a flourish or with reckless abandon to showboat. You might even play poorly deliberately. Even in private, and even in single player games, the act of play is never entirely separate from publicness in how play and performance are related to games as public texts.

The intersection of interest between the background that I have provided in the previous two chapters and livestream gameplay as my subject is in how broadcasting and communication technologies are shaped by publics of users and technical cultures. The first chapter illustrated how industrial roles and standards of radio and television broadcast were created through a combination of government initiatives, inter-corporate relations, and consumer trends towards more individual control and customization over their devices and programming. The second chapter took a closer look at how hobbyists

and amateurs form technical cultures of practice by identifying with technological engagement and by circulating media about that technology, which organizes social groups and standardizes user protocols. Chapter Three turns to examine the mechanical and textual aspects of games that proliferates discursive (public forming) media and highlights the usually invisible component of media that is made up of user reception and interaction.

I am most interested in games as explicitly played media in both the sense of play as instrumentalized performance and also as a process of negotiating rules and structures. Understanding play as the generative and enacted quality of games demonstrates how games are both interactive and intertextual as a function of their negotiated structure to process and produce media. However, an integral component of interrogating the critical aspects of video game live streaming as a technical culture involves also interrogating games as a form of communication technology that itself involves ingrained cultural protocols, functioning somewhere between a type of proto-language or a form of printing. This is particularly salient in the context of essentializing play as an aspect of games, where without play games are inert semiotic systems in a potential generative state. It is when players (like hardware) engage with the semiotic systems of a game (like software), that a game is fully realized and a game text emerges. Game texts have features that can be analyzed like narrative texts, audio/ visual media, or physical/ digital artifacts, but cannot be overlooked as their own media form.

Gameplay, as a form of cultural production, transforms and reproduces games as discursive texts of their technical culture. What follows is not an attempt to construct a

singular or essential definition for games, but rather to demonstrate the shared, functional characteristics of games from the contexts of various scholars.

What's in a Game?

Games are a type of technology and have unique technical qualities manipulated by cultural user protocols and likewise spawn technical cultures of practice. Games are also discursive texts, made so by intervening technical cultures through the interplay of three main components of games: play, rules, and goals. There are other terms one might use: *performance, structure*, and *motivation*, or *input, processing*, and *output*. Each are instructive in their own way and emphasize different characteristics of games, but I am going to use play, rules, and goals here because they are formal ludological terms and the relationship between them are not as intuitive (therefore neutral).

Through syntopic analysis we can construct a larger context in which the reciprocal interactions of these three components are understood as a performatively designed act of cultural production. Syntopic analysis is a common practice employed in games studies, especially when defining games, for reasons best explained by Sutton-Smith and Avedon in their anthology, *The Study of Games*:

> Each person defines games in his own way - the anthropologists and folklorists in terms of historical origins; the military men, businessmen, and educators in terms of usages; the social scientists in terms of psychological and social functions. There is overwhelming evidence in all this that the meaning of games is, in part, a function of the ideas of those who think about them. (438)

In the next section, the "ideas of those who think about [games]" will be expanded to include the larger, general gaming public, but for now considering the perspectives of

various scholars and how they define games will construct a common context through which the functional and dynamic characteristics of play, rules, and goals can be observed and understood.

If games are a form of communication media, then play is a form of communication. This is a relationship backed by contemporary research and practice among childcare professionals who recognize the importance of play in children's language development (Weisberg 2013). There has also been an ongoing hypothesis that play was a major factor that predicated the evolution of human language itself (Langley 2019). This evidence gives us a foundation to interrogate how "play is like language: a system of communication and expression" (Sutton-Smith 220).

While all games are played, not all play activities are games; play has a role as a component of games but is also a distinct phenomenon that functions as a variable form of expression. For Sutton-Smith & Avedon, "Play is an exercise of voluntary control systems," while "games are an exercise of voluntary control systems, in which there is a contest between powers, confined by rules in order to produce a disequilibrial outcome" (Avedon p. 405). Their definition is useful for distinguishing between games themselves, the act of playing games, and less formal play activities which manifest in non-game and even non-human environments. It is in respect to this variety in the environments of play that Sutton-Smith identifies play as a variable process:

> In looking for what is common to child and adult forms of play, to animal and human forms, to dreams, daydreams, play, games, sports and festivals, it is not hard to reach the conclusion that what they have in common, even cross culturally, is their amazing diversity and variability. The possibility then arises, that it is this variability that is central to the function of play throughout all species. (221)

Adaptive variability is metaphorically employed by Sutton-Smith to describe how play models the variable range on a normal curve of adaptive evolutionary expression. The "voluntary control systems" of play function as a structuring mechanism with the capability of reflexively encoding and expressing all possibilities within an environment, revealing internal inefficiencies or mistakes and incorporating advantageous mutations and transformations. Play behaves in this fashion because it is reflexive, repeatable, or like in organic evolution: reproductive.

Play, like language, has a defined, finite structure that can generate expressions beyond that structure. This can be demonstrated through an example of combinational game theory. In 1950, Claude Shannon calculated a conservative range of possible chess games in order to illustrate the inefficiency of programming computers to solve chess through "brute force". The lower bound of his calculation estimated around 10^50 possible positions, a figure commonly compared to the amount of atoms in the universe (10^40). The potential of play is like the brute force of a system and can be seen as a complete expression of its environment's structure while realized instances of play are expressions of an individual in that environment. This is the same semiotic relationship as with individual text and cultural text.

"Intertextuality", as originally formulated by Julia Kristeva, expresses a fundamental characteristic of language as a system of signs and signifiers based on a dialogic citability which always refers to and incorporates other texts. Like text, play is a system of signification that relies on a relational structure of pre-existent social meaning: play's environment, which is equivalent to the full expressive potential of play. Any individual instance of play is a derivative of another past or potential play just as "any

text is constructed as a mosaic of quotations; any text is the absorption and transformation of another" (Kristeva 1980: 66). The control systems of play are always in dialogue with all alternative configurations of play, just as it is with text, and is an identifiable expression, like the genotype of an individual organism in its environment.

Another way to understand this process is as an employment of rules. In order for play to communicate it requires a context from which to derive meaning. There are no instances of play without a context. This context manifests as spaces, objects, narratives, or behaviors for players to inhabit, explore, and manipulate. Rules are formal and explicit contexts in ways that the environment of animal play, make-believe games, or even reality cannot be. Play actions continuously refer back to the context to construct meaning, operationalizing the free movement of play from within a more rigid structure. Thus the "voluntary control systems" of gameplay can be considered the operational component of game rules whereas the underlying mechanical logic-structure describes the constitutional rules of the game. Operational rules are the kind that are usually found in the instruction manuals or rulebooks of games (which guide or direct play), while constitutional rules are embedded in the logic of those rules, manifest in a physical representation of the game, or are included in detailed and governing game documents. For example, instructions for chess will explain how a knight moves but will not describe all of the moves a knight may make, nor usually specify that the game must take place on an 8x8 board, which otherwise would radically change the game of chess.

We can employ the work of yet another mathematician to demonstrate how the ecology of a game is a reciprocal relationship between operational and constitutive rules.

John Casti describes how formal mathematical systems identify and manipulate objects within that system:

> Given a particular kind of mathematical structure, we have to make up a dictionary to translate (i.e., interpret) the abstract symbols and rules of the formal system into the objects of that structure. By this dictionary-construction step, we attach a meaning to the abstract, purely syntactic structure of the symbols and strings of the formal system. Thereafter, all of the theorems of the formal system can be interpreted as true statements about the associated real-world objects. (Casti, p. 123)

Constitutional rules function as a formal system where operational rules make up the syntactic structure and interchange between the symbols and rules in the dictionary-construction process. Play is the assembly of a theorem, expressing or producing discernible information or an aspect of an object within the system. Play can be seen as a form of input which is interpreted and processed by the two interacting levels of rules, defining what is and what is not possible within a given environment, revealing a function as primarily productive structures.

Clark C. Abt is considered to be the father of the serious games market and discipline from his likewise titled book "*Serious Games"*, which denotes games that "have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement" (Abt 5). For Abt, the most valuable qualities of games are in the functional study of motivation, communication, and the ability to relate learning environments more closely to the real world for both educational and military applications in the public and private sector (Abt 120). He defines a game as "an activity among two or more independent decision-makers seeking to achieve their objectives in some limiting context." (Abt 6).

Abt's definition has a few interesting overlaps and departures from Sutton-Smith's. While Sutton-Smith uses the phrase "powers" to generalize and disembody the possible entities that could possibly inhabit a game, Abt describes players as decision makers, or individuals presented with decisions (the operational rules) that must be made in order to achieve their objective (producing a specific outcome). Abt also shies away from the adversarial "contest" in favor of objectives that belong to individuals. However, Abt's definition shares a key characteristic with Sutton-Smith and Avedon's, which is the framing of rules as a "constraining" or "confining" element. However, defining these contexts as "confining" obscures their productive function. Compare to how Bernard Suits describes the purpose and stakes of rules and what it means to play a game:

> To play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favour of less efficient means, and where such rules are accepted just because they make possible such activity. (p. 34)

Suits contrasts play with work or labour which supposedly prioritize utilizing the most efficient means, whereas in playing games inefficient means seem to be the necessity. Rules, specifically constitutive rules, enable games to happen and to happen according to specific criteria as a "pre-lusory goal" of a game (Suits 49). It would be far more efficient for a player in a game of golf to ride across the green and drop the ball in the hole, or for a boxer to draw a gun on their opponent in order to achieve the desired endgame state, but in reality these actions would not produce the same end at all. Instead, there are prelusory goals that players must achieve, which traditionally distinguishes between a player and a cheat.

Abt is in agreement with Suits that playing is always a creative yet procedural act of performance where "players take on a motivated role as reason for action" and "the

exciting uncertainty is that of identity rather than conflict outcome" (8). Consider how Abt relates abstraction, structure, and play to learning Shakespeare in the classroom:

> The abstract representation of real life in games form does not render the game any less capable of teaching 'true' knowledge, One does not have to be Shakespeare to understand his plays (which are, after all, monumental literary games), but acting in the plays can yield a more vivid and lasting view of Shakespeare than would a teacher's reading of the plays to a class.(Abt 12)

Characterizing the works of Shakespeare as monumental literary games is a useful way of illustrating how Abt's "decision-makers" take on a motivated instrumental role like roleplay or play-acting. Playing is then an enactment of a reflexive structure where the script contains operational structures while the media form itself is intended to be fed through the extended constitutional context of theatre. This demonstrates how the structural mechanisms of rules is a processing device in a motivated system of production which is itself both a means and end in accomplishing goals.

Another useful concept for elaborating further on this interactive relationship between the play-rules process is Salen and Zimmerman's "Meaningful Play":

> Meaningful play in a game emerges from the relationship between player action and system outcome; it is the process by which a player takes action within the designed system of a game and the system responds to the action. [...] Meaningful play occurs when the relationships between actions and outcomes in a game are both discernable and integrated into the larger context of the game. (ch3 p4)

Like the previous authors, this implicates the act of play as the key defining element of a game. Play is not just a function of the game itself, but also of the way that players interact with the game in order to play it. In other words, "the board, the pieces, and even the rules of Chess can't alone constitute meaningful play. Meaningful play emerges from the interaction between players and the system of the game, as well as from the context in which the game is played" (ch3 p 3). The board and pieces as physical artifacts merely

help to track the interaction and represent the constitutional rules of chess: the 8x8 board, 6 different types of pieces, and 32 individual pieces in play at the start. The meaning of an action in a game arises from the relationship between that action and the outcome it generates, which must be reasonably knowable and impact the procedure of the game and ultimate result.

What is illuminating about the approach taken by Salen and Zimmerman is their focus on game *design*. The utility of gamifying non-game fields or phenomena does not factor into these scholars' consideration the way it does for the others, as Salen and Zimmerman are invested in the idea of games as their own kind of media. They define games as "a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (ch7p11). Not only does this approach serve as a useful heuristic for distinguishing games from not-games, but highlights how games are designed to intentionally generate tangible results, which can actually lead to a transformation of the game itself in order to accomplish its goals. Salen and Zimmerman emphasize the value of an iterative design approach where "the game designer becomes a game player and the act of play becomes an act of design" (ch 3 p4). There is simply no way for a designer to completely anticipate how a game will play, especially after many repeated instances across a growing distribution of players, which can lead to game-breaking consequences or the appearance of emergent gameplay/systems. Two very different examples are the destruction of *Ultima Online*'s virtual ecology, and the creation of virtual computers in *Minecraft*.

In the case of the original iteration of *Ultima Online* (a fantasy MMORPG), three years had been spent creating a virtual ecology where carnivores (which would drop

quest-relevant material on death) would prey on herbivores (which were mostly useless to players). The developers had not anticipated that players would choose to kill anything and everything regardless of whether they would gain resources or not, crashing the ecology and making quests involving carnivores incredibly difficult to complete. In the end, the code and system for the virtual ecology had to be ripped out completely and abandoned (Edens, 2017). In *Minecraft*, players have created fully functional virtual computers, complete with virtual quad-core CPU, using the in-game red stone circuit system to engineer and compile logic gates (see Images below). The implication arises that if play has a reflexive and enacted relationship with game structure in actualizing a game, isn't all play an act of design? If so, the relationship between play and game is very similar to the read-write culture of technical cultures of practice. Games can be operated and manipulated to process and produce information not unlike a physical machine or software with the player acting as both operator/programmer and the hardware that runs the game's semiotic system-structure . An identification with these processes among users forms the technical culture of practice, regardless of whether it is a general engagement with games-at-large or the obsessive focus of playing a specific game in a specific fashion (such as speed running Mario 64). The "goal" component of games is not just the end result, but the achievement of player-dependent prelusory goals and the relationship between a player's motivated operation of a game with the constitutional logic of the system in order to achieve those goals.

The way Jasper Juul defines his "classic game model" clearly highlights how the intentions of players interacting with the games system critically affects its meaning:

> A game is a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are optional and negotiable (Juul 36)."

Juuls admits that the classic games model was already obsolete or imperfect at the time of writing with skill-based games of chance and open-ended video games being the central omissions (37). Games are essentially open-ended and open to the interpretation of the Player, the trifler, or the cheat, all of whom, Bernard Suits explains, try to accomplish their own goals: the cheat tries to accomplish an illusion of the winning endgame state without any interest in the prelusory goals, the trifler abides by the formal logics of the system, but with differing and even more individual objectives, and the player works within the scope of the game with clearly defined and explicit goals (26). In all of these cases, the systems of play, rules, and goals come together to form the communication technology that we call a game. Like a ham radio, the operator constructs and acts upon mechanisms which transform those actions into legible and transferable forms of communication.

Games, by nature, are open-access public texts where meaning is always contested; the conflicts that players engage with are manufactured, but this does not exclude them from being real in that players experience them psuchologically, each having their own contingent investment in the objectives or narratives constructed through playing the game. Conflicts and resolutions as experienced in game contexts may be simulated or performative, but since the player chooses to perform the motions of the game and engage with its logic, the game simply mediates a real cognitive conflict. This symbolic engagement with objective-hunting or narrative is particularly salient to the topic of video games as always-revisable public texts. Games need reason. Not

necessarily an answer to “why play?”, but a motivation in the game itself (for which sake the structure is created). Games need meaning, which can only be brought about through the mediation between the player and the game system through play. There is a *motivation to accomplish something*, even if that’s not what the structures being used as a game system were initially intended for. Games and the process of playing games can be compared to software or manufacturing: the input of raw resources and information (play) are processed/encoded (operational rules) and synthesized/interpreted to create more complex finished products (goals).

Magic Circle and Public Sphere

Huizinga’s anthropological analysis in *Homo Ludens* proposes that “in culture we find play as a given magnitude existing before culture itself existed, accompanying it and pervading it from the earliest beginnings right up to the phase of civilization we are now living in” (Huizinga 4). The title *Homo Ludens* is a suggestion by the author that humanity can be described as the “Playing Human” or “Human that plays” in the same way *Homo Sapiens* describes “Wise Human" or “Human that knows”.

Up to this point, only the structural components of games have been closely addressed. This section turns to an understanding of play and games as a discursive cognitive activity, as opposed to play as merely a prescribed element of technical game design. I will overview the concept of “paratextual production” to describe how games become a nexus through which various publics can emerge and interact, deriving meaning from the collective expression of all users. Michael Warner’s conception of

publics will be used not only to demonstrate that games produce publics, but also to show that these publics have their own unique sets of characteristics which differ from the discourse of primarily text-based publics. Games challenge linear or static forms of interpretation and authorship, working in the public sphere as an example of discourse and as cultural objects around which discourse can be ordered and produced. Games are a useful paradigm for interrogating the evolution of the social life of texts and technology due to games having a general (public) form of address, but specifics of identification and norms are mediated at a local social network level. The effect of this inter-networking has only become more pronounced since its introduction to the internet.

Participation in a game requires a cooperative cognitive state that formalizes the interaction with the game system. This mechanism, referred to as the "Lusory Attitude" (Suits 20, Salen ch4 p2, Huizinga 9), is a recognition or investment of meaning into the rules of the game. The expressive instrumentation of play is simultaneously an identification with and reification of the game's structure. Participation is prerequisite to entry into the game, asserting that the meaning of the game is a reproduction rather than a representation of reality that is more theatrical than representational:

> All play moves and has its being within a play-ground marked off beforehand either materially or ideally, deliberately or as a matter of course[...]The arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc., are all in form and function play-grounds (Huizinga 10)

Huizinga envisions game space as a boundary that delineates the microcosm of the game physically and cognitively from ordinary reality, so that the meaning and authenticity of a game experience is derived from players' contingent interactions with the more rigid overarching contexts of the game throughout the course of play. Salen and Zimmerman adapt the concept of "the magic circle" from this idea, describing it as the "special place

in the time and space created by a game" which "defines a powerful space, investing its authority in the actions of players and creating new and complex meanings that are only possible in the space of play" (Salen ch9p3). Games are invoked and organized through the discourse of gameplay in the same way that "a public might be real and efficacious, but its reality lies in just this reflexivity by which an addressable object is conjured into being in order to enable the very discourse it addresses" (Warner 57). The game creates a shared understanding where expression through the system is also an identification with the system. The magic circle comes to be like a social contract, governing behavior through both explicit and implicit structures, which are not entirely closed or temporary.

There is a psycho-social aspect to games where the magic circle can seem to linger after the conclusion of the game, guiding or informing behavior, socialization, and perception. The feeling of winning or losing can persist long after a game and extend outside of the game world, with opposing players, teams, or fans developing into full blown violent factions as observed in Roman chariot racing or modern football clubs. It can also be intensely psychological such as the case with Game Transfer Phenomena or the Tetris effect, where a person's prolonged experience with a game can alter their mental state (Ortiz de Gortari, 2019). Symptoms include altered visual or auditory perceptions, tactile or kinesthetic sensations, and feelings of unreality or automatic behaviors patterned by game content (Ortiz de Gortari, 2019). In a much less extreme example this phenomenon is most visible with social groups, clubs, and online communities where facets of the game and the lusory attitude become ways to relate to the world and one another. At the forefront of this phenomenon is the primacy of stranger sociability in a person's imaginary uptake of their social world and their background

assumptions about how information circulates. This is the same phenomena of " self-understanding that makes [..] publics thus resemble the model of voluntary association that is so important to civil society" (Warner 80). Rules present a common understanding, and gameplay presents a common experience around which discourse emerges along with a willingness to imagine oneself as involved in society with strangers as contemporaries. The lusory attitude leverages play, rules, and systems to cite and rewrite in the same way that members of publics refer to their interpretation and citation of texts within a shared imaginary uptake that constitutes the world they understand. Games are psychologically virtual, almost liminal entities with an active imaginary uptake as their threshold of belonging, citing and rewriting textual contexts and properties that can become additive and sometimes transformative to the central text in a way best understood as being paratextual.

Paratext is a bibliographic concept explored in Gerard Gennette's *Paratexts: Thresholds of Interpretation.* It is a way of distinguishing the unique features of texts in order to identify a singular textual artifact. Anything that is not the explicit text makes up a transactional threshold external to the text, which Gennette describes as "a fringe of the printed text which in reality controls one's whole reading of the text" (7). The paratext consists of the peritext and epitext. The peritext is anything that comes attached with an edition of a text that is not explicitly or just "the text" of a book and are usually the additions or alterations made by individuals who are considered to have formal authority to do so: the authors, publishers, and editors. The peritext comprises the author's name and where it appears, titles, prefaces, pagination, the font, the cover, forwards, dedications, epigraphs, or whether it is available in hardcover, paperback, or digital

(Genette, 16). Epitext is “any paratextual element not materially appended to the text within the same volume but circulating, as it were, freely, in a virtually limitless physical and social space” (Genette 344). This consists of media that orbits further out from the book, like advertisement, publicity, interviews, and author’s letters, but also includes reviews both professional and amateur and the responses that readers have to the reviews. These elements create a layered framing device which describes the material conditions of a text’s production, transmission, reception, and interpretation by the public, where “every context serves as a paratext” (Gennette, 8). Whereas under the broadcast model of printing the reception of a text was asymmetrical, granting authors and publishers exclusive authority and control over the media and messaging surrounding a text, the networked public sphere has as many points of transmission as there are reception, and each point of reception is in communication with each other. A public can then be imagined as a discursive production space where paratext is created, circulated, and contested; where the social history of a text is made. This is even more the case with games than with print text, where playing involves the authorization of the rules on the part of the goal-oriented player, creating a discourse though its configurative and procedural systems, framing how a game is perceived by the player and how it can come to be perceived by subsequent players.

One example from chess is the concept of brilliancy which originated out of a method of annotating and evaluating chess games at tournaments. Orthographically, Brilliant moves are marked with double exclamation points, good moves are recorded with a single exclamation point, bad moves with a question mark, and very bad moves with double question marks. It denotes “a game that contains a spectacular, deep and

beautiful strategic idea, combination, or original plan" (Silman p. 429) or "a move that knocks your opponent out of their chair: aesthetically beautiful or shocking, very difficult to spot, and backed up with deep concrete calculation" (r/chess). Brilliancy came into the vernacular of the larger chess-playing community from the commenter's table at chess tournaments played by the most popular and talented players (such as Kasparov vs. Topalov, Wijk aan Zee 1999 or Byrne vs. Fischer, New York 1956). The circulation of these games and their commentary drew attention to "brilliant" games and the study of them, along with a wider adoption of the analytical notation by commentators, chess analysis software, and as a part of the way playing chess is evaluated by its players. This is despite quantitative contradictions between "strategic" and "backed up with deep concrete calculation" with "beautiful", "shocking", or "aesthetic". It's worth remembering that these annotations are for a game in progress, making the evaluation highly contextual to the game and the state of the board leading up to the move. Other alternative notational conventions use the same symbology but describe brilliancy as "hard to find" among the more predictably available "good moves" (Matanović 1973,Nunn 1992). Grandmaster Robert Hübner's approach, however, inadvertently reveals how brilliancy and chess annotation/commentary itself are paratextual social developments:

> I have attached question marks to the moves which change a winning position into a drawn game, or a drawn position into a losing one, according to my judgment; a move which changes a winning game into a losing one deserves two question marks … There are no exclamation marks, as they serve no useful purpose. The best move should be mentioned in the analysis in any case; an exclamation mark can only serve to indicate the personal excitement of the commentator. (Twenty-five Annotated Games, published by Edition Marco, Verlag Arno Nickel, Berlin, 1996, pp. 7-8)

All forms of recording a game are paratextual, but especially commentary and evaluation. As a form of reporting in its most public and marginalia in its most private, recordings are a production and frames the reading of the subject. At its core, the attention to "brilliancy" is a series of social citations that make up just one way in which players read and therefore experience chess. A better way of understanding brilliancy is as a collection of social experiences that others can read and relate to, where a player finds a move that was better than they thought or radically changes the state of the game, a sort of realization that can change a player's or spectator's perspective in that moment and makes them go "whoa". Brilliancy serves as an example of how media in a social media ecology can frame meaning and how the meaning of games can be understood as paratextual, or trackable through a critical and textual method in the material and social lives of these games. The commentary and their annotations, the symbology, variant methods, the meta-discussion on brilliancy including in-jokes (see Image), and in general the configurative and procedural aspects of games at large can all be understood as being paratextual and a part of the discourse of chess.

However, only a specific public within the larger chess-playing public are aware of the media and resulting discourse surrounding brilliancy. Most casual players may never encounter the term and many experienced players would only know it for the social value understanding jargon provides (like for jokes). For the more experienced player, what becomes the central area of concern is the ongoing and procedural interaction with the mechanisms of the game. Playing well, or playing a good game becomes more important than winning or losing and what that means to a player varies according to the unique conditions of their media ecology and how that frames their perception of the

game. Alternatively, there can be a disappointing disconnect when a much more experienced player is facing a much less experienced player, as there is a partial breakdown in communication. An inexperienced player doesn't have the same grasp of the game, isn't "in the know", unable to construct play with deep meaning and unable to read or recognize the meanings in the play performed by someone more experienced. An example of this is when in the middle of a game the players realize one of them doesn't actually know the rules. A gulf opens up between the individuals as they register the difference in how they understand the world they inhabit and their relationship to it and each other. If you have ever been on the receiving end of having rules explained to you in this situation, it can very suddenly change your perception from being in a good situation to a bad or more tedious one. Games as a paradigm for the study of textual discourse in the public sphere emphasizes how members of the public and adjacent media affects how a text is received and interpreted through social changes and material conditions. This is a discursive process where there is a response to the shape of the public that a text assumes in its address.

> Public discourse says not only "Let a public exist" but "Let it have this character, speak this way, see the world in this way." It then goes in search of confirmation that such a public exists, with greater or lesser success - success being further attempts to cite, circulate, and realize the world understanding it articulates. (Warner 60)

The introduction of the internet fractured the illusion of a cohesive mainstream public sphere, constructed and constrained by the limitations of broadcast, print, and electronic culture. The change to the networked information economy critically challenges the incumbent structures of broadcast media and reimagines public life and publicness in terms of networks and networked media ecologies. Not only have publishers lost the

power to limit the number of competitors and variety of content in a market where the lines between author and audience are easily crossed and blurred, but they have also lost authority in determining the boundaries, dimensions, and magnitude of paratextual production. Games as a paradigm for textual interpretation forces the study to look outward into the interpretation and reception of a text through discursive citation and reconfiguration.

A similar paradigm shift has occurred within the field of textual studies, from a sustained attention to "the text itself" (underwritten by "the death of the author") to a new school of thought that recognizes that texts are social, collaborative, perpetually reconfigured and reinterpreted in the public sphere. Warner's conception of various open publics called into reality through a series of texts and citation according to a domain of common concern perfectly adapts away from the broadcast model of media as it does in criticizing the similarly bourgeois public sphere. However, the texture of public life has not only come to be thought of more often in terms of networks instead of publics but also in terms of live communities instead of passive audiences. Social media in Web 2.0 has critically impacted the way in which "publics act historically according to the temporality of their circulation" (Warner 98). Here games fulfil a critical function as media that match the scope of study that focus on what Mcgann calls the "totality of cultural expression" of a work (102). As we have covered, the activation of a game is in the playing of it, and playing always takes place in the social world as a mediated experience. Henry Jenkins' description of online fan communities and collaborative cultures matches equally with Warner's description of a publics as "self-organizing groups focused on the collective production, debate, and circulation of meanings,

interpretations, and fantasies in response to various artifacts of contemporary popular culture" (Jenkins, 148). Cultural expression is a dynamic paratextual transaction where each instance of media is a possibility space, which may orbit and around which orbits another possibility space that negotiates meaning and is a form of media itself as Steve Jones describes:

> The meanings of games are not essential or inherent in their form (though form is a crucial determinant), even if we define form as a set of rules and constraints for gameplay, and certainly not in their extractable "stories" (though the fictive storyworld matters in most games), but are functions of the *larger grid of possibilities* built by groups of developers, players, reviewers, criticisms, and fans in particular times and places and through specific acts of gameplay or discourse about games" (Jones 3, emphasis added)

The world-understanding that games articulate in their social life create a "quantum poetics" in which texts are "not discrete phenomena but are non-self-identical events that include the position and engagement of the scholar" (Mcgann 9). For example, reading a poem produces a text that is different and separate from the poem, as is every consecutive re-reading. Regarding the social text as dynamically constructed at this quantum event horizon, where there is an affective engagement with the text in space-time, acknowledges meaning-making and interpretation as always a social act in a series of semantic and semiotic social constructions. McGann advocates for this method as a way to develop new tools and approaches for "exposing the fault-lines of interpretational methods that implicitly or explicitly treat any part of the study as fixed or self-identical", claiming that these methods and tools "descend to us through our culture in games and role-playing environments" (164). It doesn't matter if a single player is aware or not of the points in the larger grid of possibilities which make up the constructed meaning, just like you don't need to have even played Mario or Chess to be counted in their publics

through “mere” attention (Warner 10). Games are perfect models for the nature of all textual interpretation (especially in contrast to a mass media ecology dominated by broadcast reception) in how they demonstrate that interpretation is always an ongoing series of reflexive, meaning-making social acts, adding credence to Huizinga’s original assertion that our species can be understood as “The Human that Plays.”

Conclusion

This chapter has employed a formal syntopical breakdown and definitional review of the philosophy of play as communication, and a variety of examples of game mechanics and cultural game ephemera to demonstrate that games are a form of communications media that model the development of texts and discourse in the public sphere. This games media perspective helps explain how games become public texts, as well as how paratext and other games-orbiting popular or technical culture can be interpreted through a ludological lens. The following chapter will proceed through case studies of a cross-platform and collaborative Internet game and a Twitch channel live stream watch party of the Trump Impeachment Trial to apply the theory in this chapter and demonstrate the political significance of this games-communication lens.

Chapter Four

Finally talking about video game live-streaming

Introduction

Games, especially video games are quickly becoming the most pervasive media form, not only because of the massive and diverse population of players, but because of how gaming sits at the center of a transmedial convergence in the networked information ecosystem. As the last chapter revealed, games operate as a technology on a semiotic level. While this can be partly attributed to the relationship that video games and software have to simulation and the ability digitality has to incorporate mixed media, it is based in the discursive characteristic that games have in their relationship with a rules-play-goals system of signification. The advent of digital broadcasting technology enabling users to transmit gameplay and connect with others from their own home is just one phase in a progressive gradient of phases stretching back over hundreds of years of overlapping technical cultures playing, tinkering, and communicating.

This chapter will tie the content of the previous chapters together to demonstrate how media and technology are transformed by technical cultures and the autonomy of the user to practice, develop, and share their own techno-social protocols. The highly participatory (and as a consequence customizable and niche) nature of video game live streaming follows the same commercial trends of increased user choice and control observed in the broadcast industry while also providing a space that encourages the creation of technical cultures. Video game live streaming is useful as a template for critical literary and technological practice, not just because it is interactive or that the

interactivity is distributed, but also because the interactions and associations among strangers in those media publics are highly visible; they are inextricably linked to the production of the text itself and the sprawling superstructure of the paratext, where users can be aware of and deconstruct the systemic authoritarian notions of centralized or total control. In the wide dissemination of culturally relevant, original, and remixed information there is a tension between an authentic identification with technological practice and the proximity of market/political forces that video game live streaming as a digital culture shares with social media in general. The ways in which media and technology products can be remade into various forms of cultural expressions and then translate or extend into different media types across platforms is pertinent to the study of social and digital media in an increasingly convergent technological ecology that fluctuates between decentralized, partially nomadic internet groups and the homogeneous mediaocracies that control the various platforms.

The term "convergence culture," coined by Henry Jenkins, refers to the intersecting and overlapping relationships within new media as a result of similarly convergent technology. This phenomenon was partially covered in chapter one with the discussion of screen dominance and transmedia: media produced using mixed methods of distribution. According to Jenkins, the key to the concept of convergence culture is the interoperability of diverse technologies and how transmedial production has been popularized as an accessible media infrastructure for independent creators and political movements:

> Convergence culture is throwing media into flux, expanding opportunities for grassroots communities to speak back to the mass media....That's why it is so important to fight against corporate copyright

> regimes, to argue against censorship and moral panic that would pathologize these emerging forms of participation, to publicize the best efforts of these online communities, to expand access and participation to groups that are otherwise being left behind, and to promote forms of media literacy education that help all children to develop the skills needed to become full participants in their culture. (Jenkins 2006a, p. 259)

Jenkins and other scholars agree that the need for increased media literacy extends beyond children and educational institutions, needing to be maintained through practice at every age as media continues to evolve (Jenkins 2009, Bulger 2018, Mason 2018). It is especially important now, with the double edge of convergence culture in the era of web 2.0 and now web 3.0 being the continued encirclement of the internet by monolithic corporate platforms, that users are active in building tools to describe their cultural media space. The alternative is to have it described for them through a continued abstraction of user action. The future of digital media and access will continue to be described in extremes of either owning and operating your own personal slice of the internet, or having all of the hardware outsourced to corporate cloud processing where consumer tools are just limited access terminals. As Jenkins observes:

> Too often, we have fallen into the trap of seeing democracy as an 'inevitable' outcome of technology change rather than as something which we need to fight to achieve with every tool at our disposal. (Jenkins 2008, pp. 294)

Media literacy is then an important political tool for actualizing user autonomy and resisting oppressive authoritarian narratives and systems of control. It is the interaction with the systems and narratives of games that provides the best media with which to develop reflexive critical practices to oppose authoritarianism and improve media literacy. As we will see in the following case studies, media literacy enables the dissection and transformation of media by those who receive it.

The first of the three sections in this chapter provides a background for analyzing stream-texts and games media: it lays out fundamental characteristics to be aware of when addressing new media and explaining the critical roles that both live-streamers and audiences of these technical cultures play in production. The last two sections are both case studies which apply and expand upon the critical fundamentals to illustrate how information is re-mediated and transformed by these streaming publics. The first case study is an analysis of The Templin Institute's livestream and YouTube series *Stellaris Invicta*, as the community builds and navigates the fictional authoritarian military industrial complex of The Greater Terran Union. The second case study is a close look at a specific day of the December 2019 Congressional House Impeachment Committee on the impeachment of then President Donald J. Trump, streamed and rebroadcast by video game streamer Shaun Hutchinson, known as Hutch. He and his audience watched and commented on the entire impeachment proceedings, reshaping the political event in the way it was consumed. In both case studies the respective communities leverage the political power of the media literacy gained from technical culture practices to confront and apprehend oppressive authoritarianism.

Media Literacy and Paracinema: more than mere attention or marginalia

The best way to understand the amalgam of video game live streaming is as a mass of intertextual social layers supported by interwoven technical layers. While the game that's played is an important component of the production, close observation reveals various critical sites: media infrastructures at the corporate, streamer, community, and individual levels which all contribute to the development of a live stream broadcast.

As was demonstrated in the first chapter, it is easy for corporate control to obscure media infrastructures or mythologize them and as a result for user protocols to become invisible or abstracted. However, the technological and cultural practices of video game live streaming leverage media literacy to articulate unique methods of production and distribution which are normally sublimated and estranged from traditional media audiences. The central fundamental characteristic in video game live streaming is a social engagement with technology, specifically games, as a form of communications technology and media practice. User agency manifests as critical socio-technical practice that Lawrence Lessig calls "read-write", which in opposition to "read-only" cultures, prioritizes the freedom of information (transmission and creation) by encouraging the broadening of the public commons, open-source production, and the creation of derivative works. The economies and exchanges in these communities utilize combination, alteration, and customization in order to improve upon, integrate, or specialize existing work and materials to make something new, viewing community, peer, or outside derivative production as a resource instead of a threat. The reciprocal relationship between producers and consumers becomes more prominent and distinguished with the ability for participation, cultural practice, and ideas to spread fluidly. Despite the tools that publishers and authors use to maintain the illusion of control, such as copyright, DRM, paratextual framing, and myths of author exceptionalism, when an information product is distributed, reception permits the transformation of that information into a repurposable resource. Ultimately, the identity of producer and consumer becomes equally fluid in a dialogic discourse.

The dimensions of user agency and the traditional boundaries between producer and consumer are a function of access to information and the ability to make and transmit changes. This ability can be understood more generally as a form of media literacy. The U.S. National Association for Media Literacy Education (NAMLE) defines media literacy as "the ability to access, analyze, evaluate, create, and act using all forms of communication." Media literacy is more than just receiving and decoding information; it is also an understanding of media structures, tools, and production methods involved in a variety of mixed and disparate forms, and the ability to answer back and be a speaker themselves.

The work of Habermas has demonstrated how important access and the ability to engage with the production and distribution of political ideas in the form of newsletters, broadsheets, and pamphlets were to the emergence and organization of political power in the bourgeois public sphere (1989). Habermas conceptualizes the struggle of a competent citizenry with a theory of "communicative competence," which argues for the necessity of media literacy in order to recognize manipulation when communication is systematically distorted by uneven power relations (1970). While Habermas's communicative competence theory is a valuable contribution towards media literacy education, it has been criticized for a preoccupation with the legal preconditions of democratic deliberation without consideration for the pedagogical preconditions for a deliberative democracy (Calabrese, 2001). As a result, responsibility for the manipulative effect media has on democracy and the public is placed on the individual citizen, instead of on institutional support structures or the forces of manipulation themselves.

Bulger and Potter note that what often forms the basis for media literacy curricula, absent from the rhetoric of the mainstream access/content paradigm, is a focus on the interpretive responsibilities of the individual, rather than the roles of the community, state, institutions, or developers of technologies (2018, 2019). It is revealing that creators and publishers push to capitalize on all aspects of a media product and diminish the integral role of audience interpretation except when it comes to taking ownership over the negative and damaging effects the industry produces, laying the cost and risk on the individual citizen first, and then the state. There is frankly no substitution for state funded institutional support for media literacy, even if the quality and content varies radically within the same region and doesn't provide continuing adult education in media literacy. However, Social institutions and communication structures that arise from the formulation of clubs, groups, and associations surrounding media and technology can provide opportunities to engage critically in practices that can augment media literacy education. Renee Hobbs has expanded on definitions of media literacy to include social media practices that are fluidly individual *and* communal, that function not only to resist negative messaging but empower citizens to engage critically with media (Hobbs, 2010; Hobbs, 2016). As a way to analyze this engagement with video game livestreaming and all other media I will turn to Jeffery Sconce's concept of paracinema.

Described as a "particular reading protocol, a counter-aesthetic turned subcultural sensibility devoted to all manner of cultural detritus", the genre of paracinema specifically seeks out niche, excluded or neglected media that would otherwise be invisible, from sword and sandals epics to corporate training videos. Movies such as the *The Room* (2003), *The Rocky Horror Picture Show* (1975), and anything produced by

Troma Entertainment are examples that are sought after for active (and many times social) viewing with fans riffing on and berating the media as a central component of paracinematic reading protocols. *Mystery Science Theater 3000* (MST3K) is emblematic of this form of critical engagement with media, with the paracinematic commentary running along with the superimposed silhouette of the movie goers over the film screen on the Satellite of Love.

While the word paracinema obviously denotes cinema as its media of focus, the term is extremely useful as a way to make visible the transformative qualities that always occur when media is interacted with. Even before the advent of social or digital media there has always been commentary on media, whether critical or casual. If media literacy education makes visible what are often times invisible structures, then paracinema is the appropriate tool for observing the qualities and effectiveness of media literacy practice. As Sconce explains:

> By concentrating on a film's formal bizarreness and stylistic eccentricity, the paracinematic audience, much like the viewer attuned to the innovations of Godard or capable of attending to the patterns of parametric narration described by Bordwell [in *Narration in the Fiction Film*], foregrounds structures of cinematic discourse and artifice so that the material identity of the film ceases to be a structure made invisible in service of the diegesis, but becomes instead the primary focus of textual attention. It is in this respect that the paracinematic aesthetic is closely linked to the concept of 'excess'. (Sconce, 1995)

This textual attention to excess, the practice of paracinema itself in its reflexivity, is reconstructive and is itself a form of textual production. The “excess” to which Sconce refers, the meaning and value that can be extracted in a paratexual sense, is also related to the larger grid of intertextual possibilities (Jones 2001). It represents a space of semiotic play. Following Beth Bonsetter, we can argue that productions such as MST3K and video game live streams can function like interlocutors or facilitators to employ paracinematic

techniques of postmodern media awareness (in terms of industrial structures and narrative conventions), intertextual riffing strategies, and parody (2012). This is a highly active form of engagement which can be instructive in media literacy education and truly highlights the dynamic relationship between media production, reception, interpretation, and reproduction. Paracinema paints a vivid picture of the interaction and the transition from creator to consumer and back, while conceptually following a vector of industrial and cultural media trends.

The historical overview in Chapter One charted the various cycles that radio and television underwent from the network era, channel era, and post-network era. Each phase was accompanied by a shift in available access to distribution, creating new opportunities for a greater and more diverse environment of content creators who shoulder the brunt of economic risk (deficit financing). The effect in every case has been a fracturing of general audiences, a continued increase in demand for niche content and user control (eg. remote control, vhs, dvr, on demand, subscription channels), and the financial ruin of production companies trying to balance that demand with the financial priorities of access providers. The advent and contemporary development of the digital content era follows the same industrial trends where massive corporations (such as Youtube/Google and Twitch/Amazon) gatekeep the access to distribution technologies while offloading risk to content creators, simply at a different rate and scale. Consumer habits are on a similarly historical trajectory with more content than could ever be humanly watchable constantly available in forms that are not only niche or targeted, but interactive, customizable, and social. Video game live streaming as a media form, from both a consumer and industrial perspective, epitomizes the extremes of these trends. The

low-barrier access to distribution has led to a massive population of diverse content creators producing what is essentially on-demand, live, and interactive entertainment that facilitates opportunities to engage cooperatively with media and technology in a social and community-based environment.

Video game live streaming as a form of production and as a technical culture utilizes a broad variety of technology and techniques emerging from a combination of DIY, community learning, and self-taught expertise. Just as with ham radio and computer hobbyism, the technical culture of streaming has generated an economy of professionals and amateurs alike who create both open and private products and services. One of the most important tools that has been developed for streaming and digital content is Open Broadcaster Software (OBS), a free and open-source, cross platform screen casting and streaming application. While the process of streaming has become simpler and more accessible, it is never a static or automatic process and usually evolves in sophistication over time. The program is able to organize and broadcast gameplay, facecams, and commentary, scaled up to performances that require configuring multiple computers, consoles, lights, cameras, microphones, greenscreens, switchboards and all of their assigned inputs and outputs, along with almost every type of conventional theatrical equipment. In a digital production space where simply capturing footage off a computer or console monitor used to cost thousands of dollars, OBS is equivalent to the advent of the Gutenberg press.

Knowing how to set up and produce a stream is only one facet of media literacy in video game live streaming. While many streamers are competent gamers, how the game is played is in service to the stream, modifying the outside variables that affect the

interdependent nature of the play-rules-goals paradigm of game structure explained in the last chapter. A lot of entertainment and theatrical value can be had by the streamer immersing themselves strictly behind the roleplay of the magic circle, blatantly reframing the spectacle of the game past the fourth wall and into the meta-game space, but more often than not traversing between or inhabiting multiple dramatic registers at any one time until the logics of the worlds inside and outside the game begin to mix, if only for the duration of the stream. And of course, there is a social component to all of these various layers and sites of analysis in video game live streaming, while also constituting a layer in and of itself. Within the practice of paracinema there is a preoccupation with personality:

> [R]ather than explore the systematic application of style as the elite techniques of a cinematic artist, paracinematic culture celebrates the systematic 'failure' or 'distortion' of conventional cinematic style by 'autuers' who are valued more as 'eccentrics' than as artists, who work within the impoverished and clandestine production conditions typical of exploitation cinema. These films deviate from Hollywood classicism not necessarily by artistic intentionality, but by the effects of [comparative] material poverty and technical ineptitude. (Scone, 1995).

Most streamers employ a stream of consciousness or think-aloud method as they interact with their system. This running narration is often accompanied with physical expressions and gestures or exaggeration as a form of theatrical punctuation, able to communicate humor, frustration, suspense, and achievement. However, for an experienced streamer an almost equal amount of attention is paid in a form of crowd work to the audience directly, becoming an integral interactive feature of the experience that emerges from the game. This type of relational labor can be another form of theatrical or creative play for the streamer and audience, but for many it is also an opportunity for authentic connection: observing who may be in the channel to welcome newcomers, greet regulars, inquire

about how they are or how their day is going, and often noticing when someone returns after an absence. These forms of engagement are not just simple niceties or characteristics of a stream. To borrow how Nancy Baym defines relational labor, tit is "the ongoing, interactive, affective, material, and cognitive work of communicating with people over time in order to create structures that can support continued work" (16, 2015). These are techniques that strengthen social bonds and build communities. As T.L. Taylor observes, "Language is often rooted in forms of care and attention. Offering recognition of '"follows' (when someone favorites a channel), donations, and subscriptions forms an important part of the work that broadcasters do to enfranchise their viewers" (100). Acts of relational labour are also taken up by the audience in various forms of encouragement and affirmation, and also importantly between members in chat. The communities that form around these structures are a cooperative effort defined as much by the intimacies and intricacies of the audience as by the technological mediations of the streamer.

There are multiple reasons to participate as an online audience member, many intersecting and varying from person to person, and as with any relationship, the reasons evolve and change with the progression of the viewer's experiences. For some we can observe an ambient sociality not unlike our traditional relationship to television, with streams being played as background noise or a comforting companion to other tasks, evoking the publicness of "mere attention" (Warner 70). Others are intensely involved in an educational or creative mode that engages with technological cultures of practice and borrows from traditions of improv and community theatre (Taylor, 103). These instances reveal that the audience side of video game live-streaming is equally complex as, while

also integrated into, the formal production side. The live chat feed, as an important example, inhabits a space of real-time dynamic exchange, not only between the streamer and audience, but between audience members themselves. While much of the unique labour of hosting the stream, playing the game, and performing is centered on an individual streamer, a considerable amount of labour is distributed out into the audiences and communities of the live streams. Interactions that don't directly pertain to gaming or Twitch find themselves embedded in an otherwise unique media subculture, where contemporary discourse becomes the dominant mode of action and a characteristic of the forming community. Other times chat becomes less a conversational space than an expressive space filled with all caps, exclamations, rows of emojis, memes, and jargon, becoming what Colin Ford has termed "crowdspeak." This space displays "practices of coherence that make massive chats legible, meaningful, and compelling to participants" (2017). These are audiences that are defined by their commentary, an act of witness rather than simple spectatorship, repurposed (remixed) across various media types and digital platforms such as highlight reels, community forums, and fan wikis. Participating in this type of cultural production requires self-activated community-based learning in order to read the various technological and textual signals and to then try reproducing them in their own way. This is the holy grail of "engagement" that is sought after by media marketers and advertisers that contradicts the rhetoric of the passive audience and is a part of a greater tradition of interaction that fans, audiences, and especially technical cultures have always had with iterating the *up-take* of media. These media practices push back on and often transform industrial and political logics, testing and expanding individual autonomy in the face of much larger hegemonic regulators.

Stellaris Invicta! Do you want to know more?

Stellaris Invicta is a Canadian series of live gameplay streams and youtube videos produced by Marc Gerst and Larissa Thomspson under their channel The Templin Institute. The channel's mainstay content covers the fictional histories of the characters, settings, and events from primarily sci-fi and fantasy media, including books, movies, television shows, comics, and video games, in a documentary style format. Once a week from June 2018 to March 2019 Gerst and Thomspson live streamed gameplay of Paradox Interactive's real-time grand strategy game *Stellaris* on Twitch, playing an original space-empire voted for by the channel's Patreon subscribers in a galaxy populated by other NPC empires designed and submitted by viewers.

The staging and performance of the game featured dramatic and comedic scripted content, special guests and collaborations with the game developers, as well as a border framing the gameplay to display the live chat, polls, donations, subscriptions, and other viewer interactions as they cooperatively participated in the play and storytelling. At the end of each month the gameplay was dramatically summarized in a historical retelling of how a near-future earth was torn apart repelling hostile alien invaders (an insectoid hivemind called The Tyrum) and the brutal process in which the surviving population coalesced into the global, and then galaxy-spanning, authoritarian military order of the Greater Terran Union, ready for vengeance and prepared to make sure they would never be threatened again.

For the purposes of this case study the series will be read textually with a specific focus on the critical production elements that made the world building and narrative creation possible. What I want to call attention to are the cooperative and reflexive layers

of structure present in this production. The game has its own structures and functions, extrapolated on through the structure of the stream produced by the streamer, who performs/ facilitates a structure collaboratively with an audience, producing an outward spiral of structures looking in on itself. The Templin Institute's *Stellaris Invicta* series utilizes forms of paracinematic production that provide opportunities for media literacy practice while confronting and deconstructing notions of authoritarianism such as nationalism, xenophobia, militarism, and fascist propaganda through intertextual riffing, parody, and roleplay (especially in regard to Paul Verhoeven's 1997 film *Starship Troopers*). This process also challenges notions of authorship and authority as the "official" collection of gameplay and related videos rubs up against various competing layers of commentary, private/collaborative note taking by the audience, the development of fan-wikis, and the extended discussion which has taken place decentrally across internet platforms.

The game of *Stellaris* itself at the time it was played, as a major production component of the series, bears only a passing visual resemblance to a contemporary version of the game due to regular updates and expansions that the developer, Paradox Interactive, have released over the years to increase the number and complexity of intersecting mechanics. This has earned the development studio a reputation for games (*Stellaris* especially) that are very difficult to learn, but very expressive in the way players can emulate a world with interactive social histories or political and economic functions constructed from the bottom up. The main idea of the game essentially remains that the player is in control of, or represents the collective will of, an interstellar civilization, using real-time strategy components to facilitate a world-building, sci-fi

roleplay experience. Besides scripted hostile entities and events, the game's conflicts are over differences in ethics, alliances, and the resources to preserve or enforce those ethics and alliances. The official win conditions and how they are calculated vary from version to version and can be satisfying to complete in their own right, but they can also be ignored to satisfy win conditions of the player's own design, created not in the software of the video game, but in the player's imaginary uptake of the game. In fact, losing can be just as fun and rewarding as winning. While ultimately the society and culture in the game is just a representation produced by and functioning like a clockwork simulation, the unconventional exposure of the game to cooperative and public play complicates the function and representation, making it more elaborate but also entangled. A brief overview of the diverse and decentralized methods used to record and produce projects like *Stellaris Invicta* reveals how the elaborate entanglement of video game live streaming complicates, even challenges, notions of centralized authority over the form and meaning of media.

Stellaris Invicta's gameplay was featured live on Twitch.tv and then summarized into another video product and published on Youtube. However, the gameplay was also saved to a separate Youtube channel (The Templin Archives) where it could be re-watched. Pumping out a live digital stream (what Twitch does) is an infrastructurally different technology and service than video hosting (what Youtube does), resulting in the vast majority of content on Twitch not being preserved, with older temporary recordings being slowly replaced to make room for newer ones. Even if a live stream is recorded and archived on a video hosting platform, the live chat from the stream is hosted through an IRC messaging system embedded on the website. That is to say it is not in the visual

presentation of the digital broadcast itself unless the streamer designs a way for it to be. The result is that even streamers who make a point of recording their performances fail to save the chat logs. Fortunately, that is not the case with Stellaris Invicta, which was designed with a frame that displays the running chat log, live poll results, and viewer interactions such as donations, subscriptions, or follows (see Appendix figure 3). While most live chats are moderated, a live streamer cannot really control or anticipate the content of their chat or the ultimate result of the stream. The chat's influence is not only magnified by its incorporation into the visual display of the stream, but also becomes a mechanism of approval that encourages even more interaction.

The audience was also encouraged to take notes in order to keep track of events that could appear later in the end-of-month summary video. Note taking happened both privately and collectively through a group document where viewers ultimately created over 1600 entries detailing the history of the campaign as it happened, including information on each of the GTU's planets and sectors. This peer-produced document assisted in writing the script for the monthly videos and would then go on to make up the content of the *Stellaris Invicta* wiki. Chris Comerford notes that the fan-production of wikis plays an important but uncredited role in contemporary media development for industry pitches and show bibles (2022). What would otherwise be an un-assessable deluge of information and detail that make up the structural and narrative consistency of a media product is tamed by small armies of dedicated fan laborers. In every case the construction of a wiki is a form of textual production. Creating fan wikis in particular functions as paratextual production, interfering and wresting control over the framing of media properties from centralized commercial authorities. In *Stellaris Invicta* the

contributions of viewers are brought to the forefront, which particularly highlights how media production and reception are interdependent and co-creative variables that complicate boundaries of interpretation. Sconce explains this phenomenon in the context of paracinema:

> [P]aracinematic attention to excess, an excess that often manifests itself in a film's failure to conform to historically delimited codes of verisimilitude, calls attention to the text as a cultural and sociological document and thus dissolves the boundaries of the diegesis into profilmic and extratextual realms. It is here that the paracinematic audience most dramatically parts company with the aesthetes of academia. Whereas aesthete interest in style and excess always returns the viewer to the frame, paracinematic attention to excess seeks to push the viewer beyond the formal boundaries of the text. (Sconce, 1995)

The audience participation assumes a lusory attitude and a writerly disposition across various dramatic registers in order to construct and explore a view of the world. This participation includes roleplaying as citizens of the GTU, playing the larger dramatic meta-game of the story, and also commenting as viewers. The game itself provides a set of signs and signifiers that function within the mechanical logic of the game but are then, through the public playing of the game and attention to that structural meaning, reworked at another order of signification. Through videogame live streaming, this process is externalized in a way that the discursive public of the fictional GTU can be simulated in the public of the Templin Institute's viewership. This view of the world becomes a *review* of the world and commentary is stacked atop meta-commentary until irony becomes a structural surety and irreverence becomes a critical positionality. There is a deconstruction of a priori meaning that occurs during an annihilation of meaning through repeated reference without the coherence of an authorial cannon, producing a perspective that ultimately must treat every component of the study as equal. However, both Sconce and Bonnsetter agree that media practices such as paracinema do not guarantee a critical

engagement with media and can instead create echo chambers or excuses to indulge in the often violent, ethnocentric, and misogynistic power fantasies common to badfilm[8] and media portrayals of authoritarianism. There remains an opportunity for reflexive media literacy practice that registers on a textual and paratextual level as subversive to notions of homogenous or total media control and interpretation. Essentially, reflexive media points to levels of engagement on a semiotic level that distinguishes between the meaning that a media object attempts to transmit, the structure creating that transmission, and the possibilities of greater motivations, contexts, and meanings behind that structure.

Service Guarantees Citizenship

Intertext is the paracinematic fuel of interaction and interpretation, with various references to media and generic conventions forming a type of language based on various outside contexts of signification. Other than overt reference, intertext is often expressed through roleplay and parody. *Stellaris Invicta* pulls from an expansive list of sci-fi texts and genre conventions, the most prominent and important of which (to this case study) is in the emulation and reference to Verhoeven's 1997 film *Starship Troopers*. A sci-fi parody of fascist propaganda, *Starship Troopers* frames and guides the tone of the GTU's historical metanarrative in the roleplay of the audience. This does not mean that *Stellaris Invicta* is also a pure satire; in fact, my point is that the various competing voices defy genre and anchor the text in the social and material. However, it helps to contextualize the action of the chat as constantly riffing. The two main stylistic (if not ideological)

[8] A genre of bad or cult cinema that is watched for its incompetence or failure.

references pulled from the film are the mortal crisis of being attacked by the all-consuming alien other (packed with cold-war symbolism) and the valorization of a tiered civilian and pseudo-egalitarian military meritocracy structure where service in the federal government (the armed forces having the most upward mobility) is prerequisite to citizenship rights. These two ideas become complicated when The GTU are themselves in a position to dominate and annex other alien civilizations and lifeforms which then become a part of that military apparatus. The military state functions as the core of a civic religion whose mores are played out as a crisis and contention over identity in terms of who is "us" and "the other," expressed in the chat through impromptu dramatic dialogues, critiques, and observations by some, which contrasts amid a persistent (usually xenophobic) belligerence by other participants.

While roleplay very clearly has a deliberative and discursive function as a form of media literacy practice, the chat here should not be mistaken as a forum. The chat in *Stellaris Invicta* is more appropriately seen as a stage or performance space, albeit a chaotic one, that plays out and experiments with socio-cultural codes. This theatrical space can support persistent communication and interaction, but normally individual utterances are on-screen for only seconds, so the space encourages various forms of shorthand, bricolage, and voicetaking. Voice Taking occurs when various individuals in chat "join into a single voice, representing a common perspective or approach. Or, the inverse may occur, where the same individual adopts multiple voices, switching positions and roles as conversation unfolds." (Ford, 2017). These voices are shared communicational roles, marked by the use of repetitive phrases and emotes (small pixel-based pictures that fit into a line of text), where participants assume congruent

viewpoints, syntactic styles, and vernaculars. In *Stellaris Invicta* the various voices of the chat can be belligerently xenophobic, fanatically militarist, but also benevolent and compassionate, which often resolves into positions of critical or cynical analysis. Much of the time there is reference to the constructiveness and manipulation of media as a function of propaganda. Participation is at once constructive and deconstructive, playing with the elasticity of media's ontological world-logic of inner themes supported through multifarious outward references, which highlights and contributes to a critical mass of paracinematic excess. So much that can and is contributed by the chat in a live stream complicates any illusion of a homogenous media artifact under the control of a central creative authority. Under the weight of that interpretive spectrum the live stream collapses into a cultural and sociological document, essentially based on the same material identity but in manipulation of it instead of the other way around. The manipulation, but especially the awareness of metanarrative and metagame lends itself to more opportunities to engage (perhaps more critically) with media as a practice of media literacy.

The main example I want draw from is the treatment of the Wesari, an early space-aged civilization of porcine humanoids that randomly generated near GTU space at the beginning of the game, coincidentally mirroring humanity's technological progress when Earth was invaded and decimated by their alien antagonists, The Tyrum. Deciding whether or not to land armies and forcibly colonize the Wesari homeworld, and then needing to decide what the citizen rights and living standards would be for the Wesari (if they were not to be expelled entirely), generated a flurry of discussion on the part of the audience (see Appendix figure 4). What jumps out immediately, and is a running theme

of the chat, is the persistent, belligerent din of "kill/eat/purge/destroy the xenos!", which becomes somewhat like background noise or particularly obstructive set-dressing that frames multiple interactions pointing out how the choices of the GTU are dishonorably similar to that of their sworn enemy, victimizing others as they have been. Other voices reinterpret the obviously nefarious actions of the GTU to mesh with the psychology of a militant population that sees itself as the heroes and represents the invasion and enslavement of the Wesari as "saving them" from other more dangerous aliens. So while there is a visually troubling current of xenophobia, real or feigned, throughout the production, these are voices that shift, change hands between users, and ultimately support the opportunities for greater practices of media literacy where users can deconstruct the media they are consuming and also employ literary narrative strategies. The treatment of the Wesari was not purely a product of roleplaying xenophobic human supremacy, but was also a choice made on an extra-narrative level. It forced a situation where the GTU is confronted with its own hypocrisy, leading to the existence of a civil movement in the narrative that would not have happened if the Wesari had been displaced from their homeworld and therefore the story of *Stellaris Invicta*. Ultimately, over the course of the game campaign the Wesari become a symbol of social progress in some ways and a tool serving the pervasiveness of the GTU's militant authoritarian views as a model minority in others. The identity crisis that results from the GTU guilt of the same defining atrocities perpetrated on them leads to the GTU formally abandoning xenophobia thirteen episodes later and prompts the roleplayed dialogue found in figure 5 (see Appendix).

Figure 5 depicts an interaction between two users, one taking up the voice of a xenophobic human national (a right-wing stooge) and the other the voice of a Wesari (a systemically oppressed minority). While this dialogue takes place in the science-fictional year of 2414, the conflict over the social and moral identity of the GTU's fictional metanarrative smacks of tonally familiar socio-cultural codes from the contemporary (Western) political atmosphere. We can see the audience participants reworking political themes relevant to their own lives in references to military intervention as a justification for prejudice or to justify the authenticity of a particular view of the nation or citizenship. Complaints about state welfare, insincere politicking, and "fake news"-type media propaganda such as one participant implying that the other's character thinks the way they do because "That's what the your (SIC) media has been telling you?" are intertextually imported as a way for them to work though the narrative of the production in ways that make sense in their socio-political frame of reference. While the result in chat is not exactly a polished work of literary fiction (there are plenty of typos and nonsensical phrases), there is an important difference from traditional visual media in that the structure of video game live streaming encourages an active and self-aware comportment on the part of the viewer. Instead of being pulled passively into the narrative, the main point of interest for the viewer is in observing and manipulating the structures that are telling the story.

Because of how it was created and how it was preserved *Stellaris Invicta* usefully demonstrates the various intersecting layers through which streamers and their audiences process and create unique narratives. The multiplicity of the ultimate media artifact that is created can be enjoyed as a homogenous or consistent narrative originating

from a single authorial source, but also much more clearly as a social and cultural document that records the audience's material and temporal interactions with its ludological and narratological structures. This case study has examined the cooperative production of a fictional political narrative, which will contrast against the following case study in examining the deconstruction of a very real political narrative.

Hutch streams the (first) impeachment of Donald j. Trump (12-9-19)

The contemporary digital era of media production has not created a fragmentation of the public sphere, but instead reveals how what is thought of as the public is actually a constitution of various *publics*. While the internet and digital technologies have disrupted information and media markets on a different order than the innovation of industrial and electronic technologies (in terms of space and time), the myriad of information sources and their interoperability with social media spaces (especially in terms of leisure and entertainment) have expanded our daily public experience with media, and the need for deliberative media literacy. Gaming publics sit at an intersection of technology, information, and sociality that is hyper-exposed to other audio/visual media, incorporating media artifacts as reference material and indexing the world-understanding that they create as a part of a game's interactive framework. The high interactivity and intertextuality of these publics rely on media literacy and on the free exchange of information and expression of a deliberative democracy, which can create a space and opportunity for political activation with the ability to stop the advance of and interrogate fascist ideologies that would otherwise limit access and acceptable forms of interpretation.

The focus of this case study is a live stream of the House Intelligence Committee Impeachment Inquiry into (then) President Donald J. Trump, broadcast by internet personality and Twitch partner Shaun Hutchinson (known as "Hutch"). The Impeachment inquiry held five public hearings from November 13th to November 21st, 2019, capped off with Presentations from the House Permanent Select Committee on Intelligence (HPSCI) and House Judiciary Committee (HJC) with articles of impeachment passed the next day. Each session was between eight and ten hours. Hutch streamed, watched, and commented on all of them along with a steady audience of about 1500. The presentations from the HPSCI and HJC, which occurred on December 9th, 2019, and which functioned essentially as a summary of the results from the November sessions, will be the central event for consideration here. The stream was privately recorded by me. There doesn't seem to be any other recording of this Twitch live stream, which places it in stark contrast to the well preserved *Stellaris Invicta* streams, so I include it for reference with this thesis.

This case study asks, "What happens when you get a bunch of media and gaming fanatics together to watch a political event?" Utilizing the lusory attitude and paracinema as a critical observational lens reveals how Hutch and his audience identify and resist authoritarian arguments, tactics (which seek to disrupt democratic deliberation), and propaganda attempts (specifically the conspiracy theory that Ukraine, and not Russia, interfered in the 2016 US presidential election). I will use the play-rules-goals paradigm from the previous chapter to organize my analysis and demonstrate how the psychology of the lusory attitude lends itself to an accessible and critical practice of media literacy.

Play: who are the players and what do they do?

American presidential impeachment works as a two-step process. First, articles of impeachment are drafted by the House as a form of indictment, then the Senate holds a trial and rules on the indictment. The process is both a legal and political trial which can result in the end of a political career even if the official is acquitted and not removed from office. In this case the House alleged that President Trump abused the powers of his high office in order to solicit the interference of a foreign government in the 2020 United States Presidential election. Through a scheme that withheld critically needed and bi-partisanly approved congressional military aid, President Trump sought to pressure Ukraine and President Volodymyr Zelensky into publicly announcing investigations into the Biden family that would benefit Trump's reelection. Trump additionally used the powers of his office to obstruct congress by blocking the testimony of key witnesses into the investigation (190 H.R. Res. 755, 116th Cong. 2019).

The Committee on The Judiciary House of Representatives for the Impeachment Inquiry consisted of a majority counsel of 24 house Democrats and a minority counsel of 17 house Republicans. Of particular note to this case study are Chairman Jerrold Nadler - New York (D) and Ranking Member Doug Collins -Georgia (R), Barry Berke as special oversight counsel to the committee (Majority), Daniel Goldman of the Intelligence Committee, and Stephen Castor representing the Republicans on the judiciary and intelligence panels. Each of these members were allotted 30 and 45 minutes for oral testimony. Collins and Berke essentially functioned as Defense and Prosecution respectively with opening statements outlining each side's argument. Castor and Goldman acted as Summary Witnesses. All council members were also allotted five

minutes to question the witnesses. In this way the proceedings took on the character of a courtroom drama rife with dramatic excess and paracinematic opportunity for Hutch and his live-stream viewers to work with.

In the recording, Hutch's role as streamer is part news anchor and part sports commentator while he engages with and moderates the chat. Superimposed in a window in the upper right corner of the screen, Hutch provides a running commentary along with links and references to relevant information that comes up during the proceedings. He is the ultimate authority over the display of the stream, able to fully interrupt, replay, navigate away, or add images and sounds to the stream. In a video titled *How I Got Into Politics,* Hutch explains his personal interest in politics and political events while relating it to spectator sports:

> It's like on Superbowl Sunday when, to non-sports fans or something like that, when they see nothing on their [social media] timeline but recaps of some game that's going on or statistics or pontifications about certain teams' prospects of winning or something like that. I feel totally in the dark when those things happen, but I also understand why people get enthusiastic about it and I make no judgments whatsoever, and it just turns out that for me I am as interested in the current political climate and world history and U.S. history. I am as interested in those things as many people are in the Superbowl. So if I don't judge you for getting really excited about a sports game, I would turn around and ask you not to judge me for being very curious and invested in what is going on right now. (7:58)

Hutch's mentality towards politics can be characterized as being a part of the tradition of amateur and hobbyist fan-cultures of technical practice, which rubs up against his identity as a gamer. His political attitude gives us a window into the production of the stream and how the handling of the political event's imaginary uptake is approached with a paracinematic and lusory attitude. Games and playful strategies have been used in the publication of news online and in print. Newsgames such as *Darfur is Dying* (2006) or *The Voter Suppression Trail* (2016) communicate and educate players by inviting them to

explore the nuances of complex geopolitical issues. Puzzles and quizzes integrated into articles or features that track points for spending time and interacting with site content have been experimented with by both large and independent news outlets (Foxman p13-14). Many of these features are already a part of the Twitch experience and used by news companies like The Washington Post. In much the same way, viewers watching Hutch stream the Trump impeachment are invited to engage with the proceedings in a constructive manner that aids in comprehension. Hopefully, in that way, "the conditions can be laid for not only a project of truth-telling and answerability but also a narrative of remembrance in which crimes can be revealed and the stories of the victims heard" (Giroux, 2021). The lusory attitude creates a world-understanding that makes a cohesive sense of the impeachment's mechanics while paracinematic production is the access that engages with those mechanics in a way that the impeachment can be processed into a narrative by Hutch and his audience. Both critical commentary and mockery in reaction to the impeachment proceedings recharacterize and narrativize the event, wresting authority away from both the elite politicians running the impeachment and the corporations broadcasting it.

One of the ways in which Hutch and the audience control the narrative of the impeachment inquiry is through an awareness of the publicness and constructiveness of the proceedings as a media broadcast. In some cases, the paracinematic grounding in the material realities pokes fun at or simply takes note of the physical communicative strategies inherent to argumentation in this environment. A few different times at the beginning of Goldman's opening statement, and especially as he is overviewing the fact that the crowdstrike conspiracy theory and interference in the 2016 U.S. presidential

election on the part of Ukraine had been debunked, the powerpoint presentation with the direct quotes that Goldman is referencing as evidence lag behind his oral presentation and cause him to pause or wait for whatever staff member was in charge of working the powerpoint. The chat jokingly takes the unfortunate execution of the powerpoint presentation to mean that the staffer is a deep state agent, a Russian infiltrator, or simply an anarchist. One commenter jokes, "The right just prints out their slides on posters, the left made a big mistake" (See Appendix, Figure 6), referencing a collection of posters that the minority Republicans use to decorate their side of the council chamber, such as a milk carton with Representative Adam Shiff's picture on it (See Appendix, Figure 7). Both technical issues in presentation or mawkish hokeyness in execution are marked by their failed excess as thresholds of interpretation for paracinematic play which allows an opportunity for the audience to take stock of the tools being used to persuade and argue.

Being aware of the material realities and publicness of the proceedings also enables the audience to recognize that the event will be viewed and reviewed by others and in other formats, which makes the confusing and at times inappropriate behavior of some council members interpretable. Often the Republican council members do not use their time to ask the witnesses questions or develop the investigation in any meaningful way and instead make irrelevant statements or go on buzzword-filled diatribes. Most Americans did not watch the entirety or even whole days of the impeachment inquiry and instead only received editorialized soundbites and clips in segments by mainstream news outlets. The audience in chat are aware of this and know that the members of congress are similarly aware. A group of users observe that "the republicans won't ask questions. none of them have asked anything," that "the republicans [are] using their five minutes to have

mini opening statements," and that "this lets repubs get soundbites to drown out conversation" (See Appendix, Figure 8). During representative Reschenthaler's five minutes, in which he goes on a diatribe praising Trump, promoting conspiracy theories, and demonizing the left for their "radical agenda" to nationalize healthcare and supposedly ban airplanes, the chat realize that Reschenthaler is using his time during the impeachment inquiry to campaign as the congressional primaries were underway in his home-state of Pennsylvania (See Appendix, Figure 9). The paracinematic lens and lusory attitude foregrounds a realization that media and its meanings are an artificial construction, inviting the audience to deconstruct as a form of play and making manipulation much less effective and more obvious.

Watching the stream together, the audience is able to deliberate on singular points of argumentation and evidence in ways that are untypical of how broadcast is traditionally viewed, latching onto repetitive themes, interrogating the content, and returning to answer back in order to participate in and expand the activity of discussion. One of the themes of the Republican defense, besides obfuscation, is asserting that President Donald Trump had legitimate reason to want investigation done in Ukraine because of supposed interference in the 2016 election. This is despite the fact that Trump name-checked the even-then-debunked crowdstrike conspiracy and that he wanted an investigation, not into Ukrainian officials, but into Brisima, a private holding company based in Ukraine where Hunter Biden had been employed. The crowdstrike conspiracy and origin is an amalgam of many more confusing conspiracy theories, which while not confirmed to be started by Russia, tries to obscure Russia's role in hacking the Democratic National Committee in 2016 by asserting that the Democrats actually

conspired with Ukraine to hack their own serves and fake the connection between Trump and Russia that was confirmed in the Mueller Report. Based on the idea of Ukrainian election interference (something that the conservative cult of Donald Trump is already primed to believe) the Republicans built their own propaganda smokescreen which claims Ukrainian officials publishing negative opinions about Trump constitutes election interference. Hutch and the chat both point out the weakness of this argument during Castor's opening statement when he says:

> I'm not saying that it was Ukraine and not Russia. I'm saying that both countries can work to influence an election. A systemic, coordinated Russian interference effort does not mean that some Ukrainian officials—some Ukrainian officials—did not work to oppose President Trump's candidacy, did not make statements against President Trump during the election [...] In August 2016, the Ukrainian ambassador to the U.S. published an op-ed in The Hill criticizing candidate Trump. Other senior Ukrainian officials called candidate Trump a clown and other words. (53-54) 1:29:17,(1:31:32)

The chat clocks the disingenuousness of asserting that Trump and the Republican defense consider Ukrainian interference to be both a real threat and that the assertion is unrelated to the conspiracy shielding Russia from blame. The most appropriate response comes from one user saying "they can, but they didn't" while others recognize the moving goalposts in the minority argument (See Appendix, Figure 10). Commentary such as "omg they called him other words" or "oh no a clown?" along with the opportunity to come up with other responses that could describe President Trump underscores the ridiculousness of labeling public criticism of Trump as election interference (See Appendix, Figure 12). These are times where the audience can interrupt or interject paracinematically in essentially the same way as when badfilm audiences feel that their intelligence has been similarly insulted.

As Castor continues, he references, as do many of the Republican council members, an out-of-date 2017 Politico article by Kevin Vogel and David Stern wildly miss-titled *Ukrainian efforts to sabotage Trump backfire*. The content of the article opaquely explains that Ukrainian relations with the Trump administration were damaged due to the very reasonable collaboration between the DNC and Ukrainian officials concerning Trump's ties to Russia and especially Trump's former campaign chairman Paul Manafort, who would be imprisoned in June 2018 for witness tampering during the Mueller investigation, conspiracy to defraud the United States government, and obstruction of justice due to undisclosed connections to Russia by working as a pro-Russia lobbyist in Ukraine. Despite that, the article does two things for the Republican argument: the title says that Ukraine tried to sabotage Trump, even if the article itself states that "[t]here's little evidence of such a top-down effort by Ukraine," and the article links the DNC to that effort, hitting the same narrative beats as the Crowdstike conspiracy (Vogel, 2017). Hutch uses his ability as the one hosting the stream to temporarily mute Castor and explain the Ukrainian motive and perspective. What is dressed up as conspiracy and intrigue by the Republicans is instead revealed to be simple and understandable anxiety on the part of Ukraine in reaction to American foreign policy:

> That's so ridiculous. Like, three government officials, you know, like, a member of parliament, they wrote angry op-eds. And [the Republicans] are like 'yeah, that means Ukraine meddled'. [...] Trump changed the Republican party platform right before the convention to be more Putin-friendly, more adversarial with Ukraine, more neutral. A lot of Ukrainians didn't like that. (1:30:35)

The repetition of the talking point of Ukrainian interference and also the reference to Vogel's Politico article become opportunities for the audience to participate by recognizing and refuting the Republican council's attempt to spread propaganda. Some

users directly address the Politico article and minority argument by looking at the evidence and encouraging other users to do so as well, others participate by simply calling out whenever Republican council members use the Politico article as a slanted reference to play upon the Crowdstrike conspiracy (See Appendix, Figure 11 & 13). These voices are able to ruminate and build on each other to critically analyze a tactic that is being used by Republicans to actively mislead the Impeachment inquiry and the American public.

Rules: why does the system matter?

Most of the forms of play that have been discussed in the previous section are based on what can be considered to be the constitutive rules of broadcasting the impeachment inquiry. While broad in application, the constitutive rules are finite and physical in referring to the production and staging elements. There are also operational rules internal to the proceedings themselves: voluntary control systems refereed by the chairman that determine who can speak or do what and when in a legal and parliamentary sense. Rules, and recognition or adherence to system and structure, are the shared psychological element of the imaginary uptake in the sense of paracinematic theatrics, the lusory attitude, and that of a public (whether that be a national public or a technical culture).

> The arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc., are all in form and function play-grounds, i.e. forbidden spots, isolated, hedged round, hallowed, within which special rules obtain. All are temporary worlds within the ordinary world, dedicated to the performance of an act apart. (Huizinga, p.10)

Tremendous insight can be gained by active spectators such as Hutch and the chat by understanding the internal mechanisms of the rules, but an even more dramatic effect happens when the rules are violated or abused. On four separate occasions at the end of each speaker's allotted time, the Republican minority interjected with either a privileged motion for a thirty minute break or with a procedural complaint in order to force Chairman Nadler to make a ruling (any ruling) that could be appealed, forcing Nadler to then table the appeal according to a vote. All of these votes are then subjected to a roll call (forced by the request of the Republican minority) where the council clerk vocally confirms every council member's vote. The ordeal very effectively stops the action and flow of the impeachment inquiry for a few minutes each time. The motion to break or suspend on the part of the Republican minority and then conduct a roll call is specifically intended to obstruct the proceedings. On three of the four occasions the minority called for recess and roll call despite some minority members being absent from the proceedings and therefore unable to call in favor (the vote could not have won).

There is a critical difference between how the chat reacts to the behavior of the minority council during the question period and when there is a roll call. While the question period and the performance of the minority council can be criticized for being irrelevant to the proceedings, the roll call is a complete disruption of the proceedings. Even if the minority question period was filled with incoherent rambling, it provided something for Hutch and the chat to respond to. During the roll call, all the chat can do is point out that there is nothing going on, say that they hate it, and for Hutch to at one point play waiting music over it (1:30:23). By repeatedly hitting the 'pause button" the

Republican's attitude towards the operational rules reveals them to be triflers at best and cheats at worst.

Goals: what is the motivation?

So is this or is it not a game? It may certainly seem a stretch by traditional definitions. The impeachment inquiry is certainly a rule-based formal system, but other than the abstract effect that a viewer may have as a part of a voting body, the chat does not have direct access to that system and the best that Hutch can do is stage and re-stage the event. Apart from formal moderation, the rules guiding the actions of the chat are as abstract and psycho-social as is casual discussion. It could seem that the application of a play-rules-goal paradigm to this media may only be in service of the playful qualities inherent in paracinema. However, the paradigm is useful in connecting that playful action to internal motivations that characterize the relationship between the player and their environment, in this case a Twitch chat during a stream of the Impeachment inquiry.

Those that speculated that the US senate would not remove Donald Trump from office and would essentially dismiss the proceedings entirely were proved right, making it seem as though the inquiry was essentially meaningless. Throughout the stream questions are repeated that echo from the mainstream: "What is the point of having the inquiry?" "Why watch, be a part of, or even do this at all?" The answer is part endurance and part resistance in recognizing that for many asking those questions "[t]he point is to spoil [online discussion about politics], to create the atmosphere of hate, to make [online discussion] so stinky that normal people won't want to touch it" (Sanovich, 2015.) These

communication tactics are particularly salient and highlight the partisan nature of American politics, which leaves many with negative emotions about the political system and making it subsequently more likely for some to drop out of political discussions. Policies of erasure, disinformation, and discouragement damage the historical consciousness of a nation and blunt the critical capacities and sense of context in the public. However, playfulness and playing together can help to mitigate frustration and serve as an act of moral witness where democratic ideals can find life through interactive deliberation.

> [T]he historical record can become an object of critical inquiry, culpability, and the rectifying of moral injury. Such reckoning can also serve as an educational and learning project in which the lessons of the past can create the conditions for connecting education to democratic values, relations, goals, and a redemptive notion of equity and inclusion. (Giroux, 2021)

In this way the feelings of political disenfranchisement can be met with organization, opportunity for collective action, and a cooperative resistance to the bombardment of the public sphere by authoritarian messaging strategies and propaganda.

Conclusion

These case studies are examples of participatory production on the part of e-cultures that are part technological, and part textual, if not completely technological and textual equally. As more and more we come to think of networking as the texture of our public lives, ordered by systems, the lusory attitude becomes an important way to imagine oneself as being co-involved with strangers in the construction of our social and political lives. Paracinema is useful for indexing the interaction of media reception and interpretation. As a practice or form of production it is also usefully applied to all forms

of media in recognizing the *cooperative theater* that contextualizes the material confrontation between a person and media. Taken together, what becomes apparent in these forms of media production and consumption is a heightened awareness on the part of the audience and an increased willingness to engage with the formal structures and systems of the media as a component of the message, putting more (but still distributed) authorial control in the hands of those on the receiving end of media and making manipulation less likely. Disillusionment with the political system and corrupt officials hiding behind the constructiveness of their public address finally collapse into a realization of their material performance as is the reveal of a badfilm's monster to the paracinematic audience:

> The swamp creature, intended to be a startling and menacing cinematic revelation, is, in the last analysis, simply an overweight actor standing in weeds with ping-pong balls attached to his eyes on a hot day in Dallas in 1966. For the paracinematic community, such moments of impoverished excess are a means toward collapsing cinema's fourth wall, allowing the profilmic and the extratextual to mesh with the diegetic drama. The 'surface' diegesis becomes precisely that, the thin and final veil that is the indexical mark of a more interesting drama, that of the film's construction and sociohistorical context. (Sconce)

Conclusion

Game Over: Play Again?

If this thesis suffers from anything, it is my own feeling of a need to provide extensive context for the interrelated histories and characteristics that make up the technical culture of video game live streaming. However, my purpose was never to delve deeply into video game live streaming as an isolated phenomenon, but to demonstrate how the study of video game live streaming can be used as a model for the study and analysis of all media (but especially digital social media) and the communities that consume/reproduce it. This thesis has covered the history of broadcast, how the incumbent structures of broadcast media are dominated by an access provider-content creator-user paradigm, where corporate preoccupation with profit initially empowered and encultured user agency (especially in terms of consumer choice and access), exponentially driving up the demand for niche content and exploding into a proliferation of user communities surrounding amateur content creation. By looking at ham radio and computer hobbyism I have underlined how the users of technology are the driving force of technological change, and how these hobbyist publics are as textually social as they are technologically social. We have looked at the psycho-social and technological aspect of games through a play-rules-goals paradigm that addresses the media structures of game and also the social structure of games which can be applied to other, less explicitly interactive media forms. Finally, we took a few pages to actually talk about video game live streaming and how the social exhibition and remediation of games and gameplay can

have profound political meaning by reframing media as a historical and material social text.

This thesis has demonstrated that video game live streaming has shared and inherited characteristics and modes of use/consumption that are common to most if not all media, but more work could still be done. Looking forward, there is much that could be learned by focusing an in-depth study of non-proprietary or open-source/ common code games and games of shared fantasy that are played to produce broadcast media, such as table-top roleplaying game podcasts and live streams by the likes of Critical Role, or The Glass Cannon Network. Even more interesting, perhaps, are the small groups of total amateurs who shyly share their content, examples of the everyday, casual and social interactions that normal people have with media and the meaning it produces.

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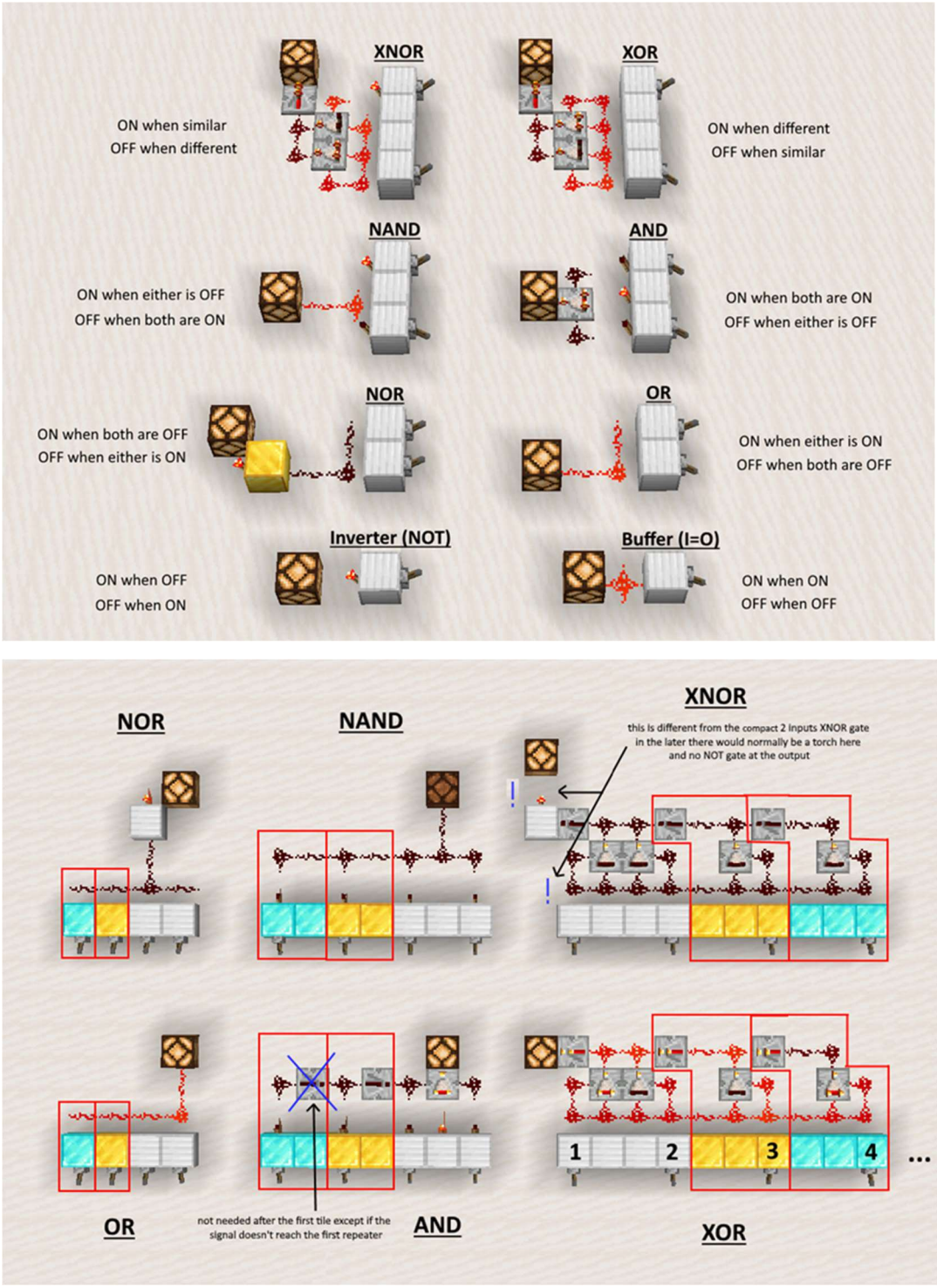


Figure 1: (Images courtesy of u/Pixel_Wedgem, Entitled "Compact and flat Logic Gates") In Minecraft, redstone is binary (on or off) and so computer systems which work off a binary action can be engineered using the mechanics of the game elements.

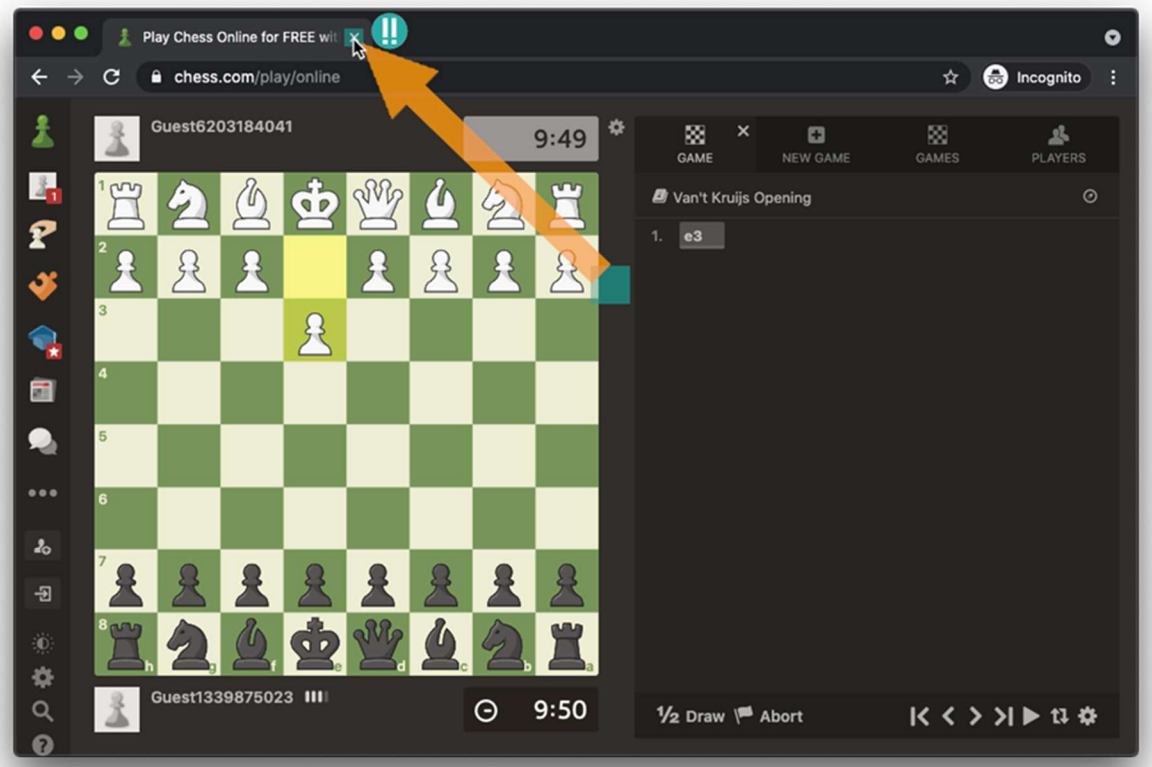


Figure 2: (Image courtesy of u/eatdacarrot, entitled “Just got my first brilliant move on chess.com!”) The joke in this image is that it has been edited to look like chess.com’s analysis is marking the player’s decision to close the chess.com site and leave the game as a brilliant move. Explaining a joke in this fashion is probably the best way to ruin a joke. However, you the reader have now been initiated into some of the jargon and symbology of chess and are now a member of the public that can read this joke.

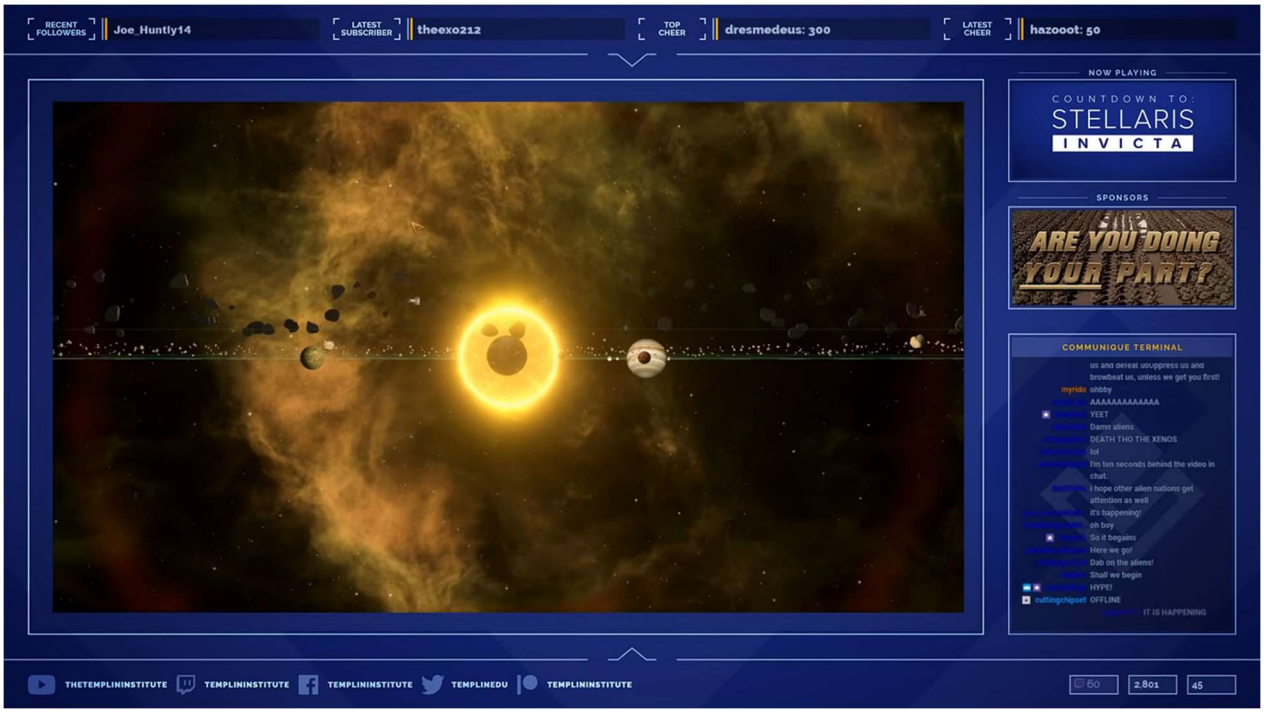
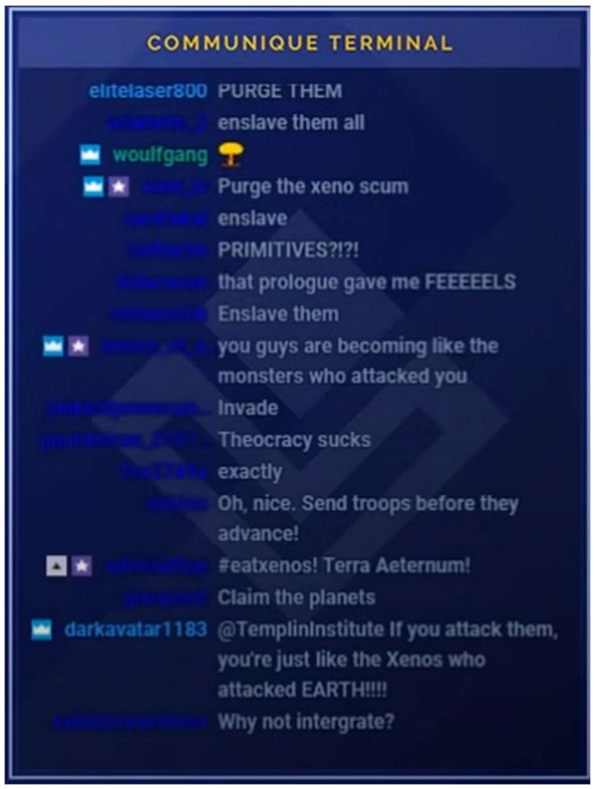
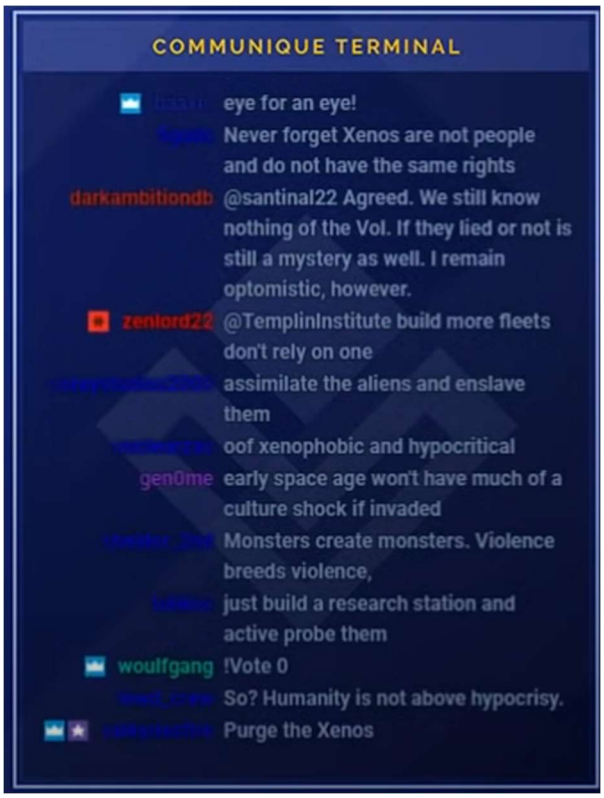


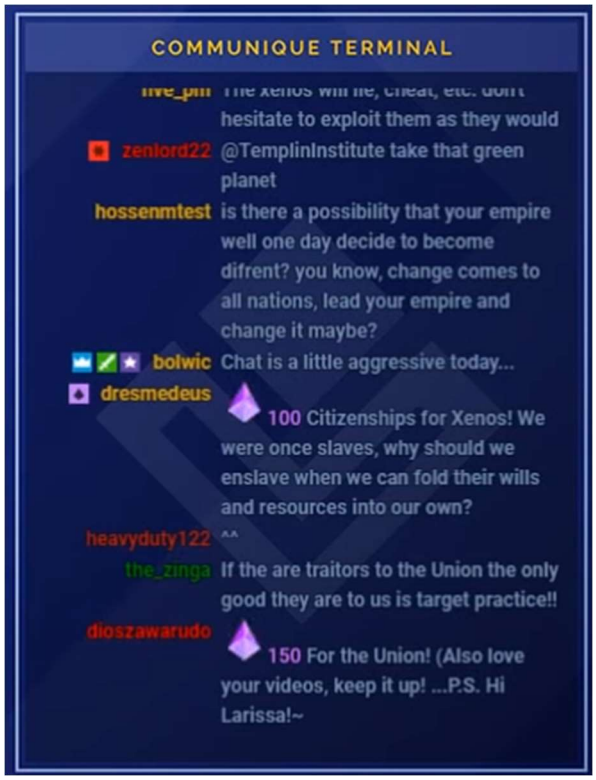
Figure 3: An example of the window and border that frames the gameplay of Stellaris and houses the chat, current viewers, and references to other sci-fi properties. [Part 1] Leading the Greater Terran Union to the Stars! | Stellaris Invicta Live Stream (00:00:21)



[Part 1] Leading the Greater Terran…1:43:12



[Part 1] Leading the Greater Terran…1:44:02



[Part 1] Leading the Greater Terran…1:46:48

[Part 1] Leading the Greater Terran…1:47:12

Figure 4 :Four screenshots across four minutes

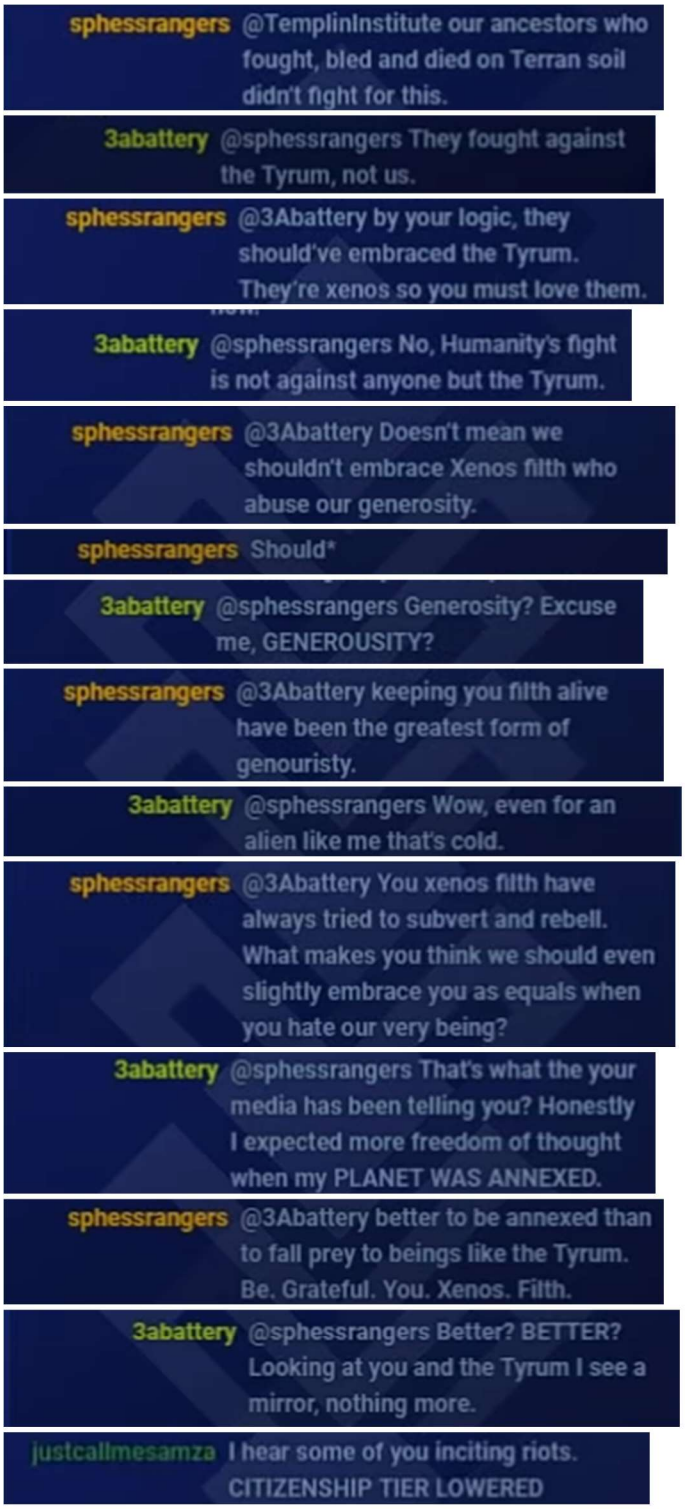


Figure 5: Two users from the audience engage in an impromptu dialogue concerning the xenophobe ethic being dropped from the GTU [Part 14] Slaughtering Ancient Space Creatures and Fighting Wars 9:13-21:53

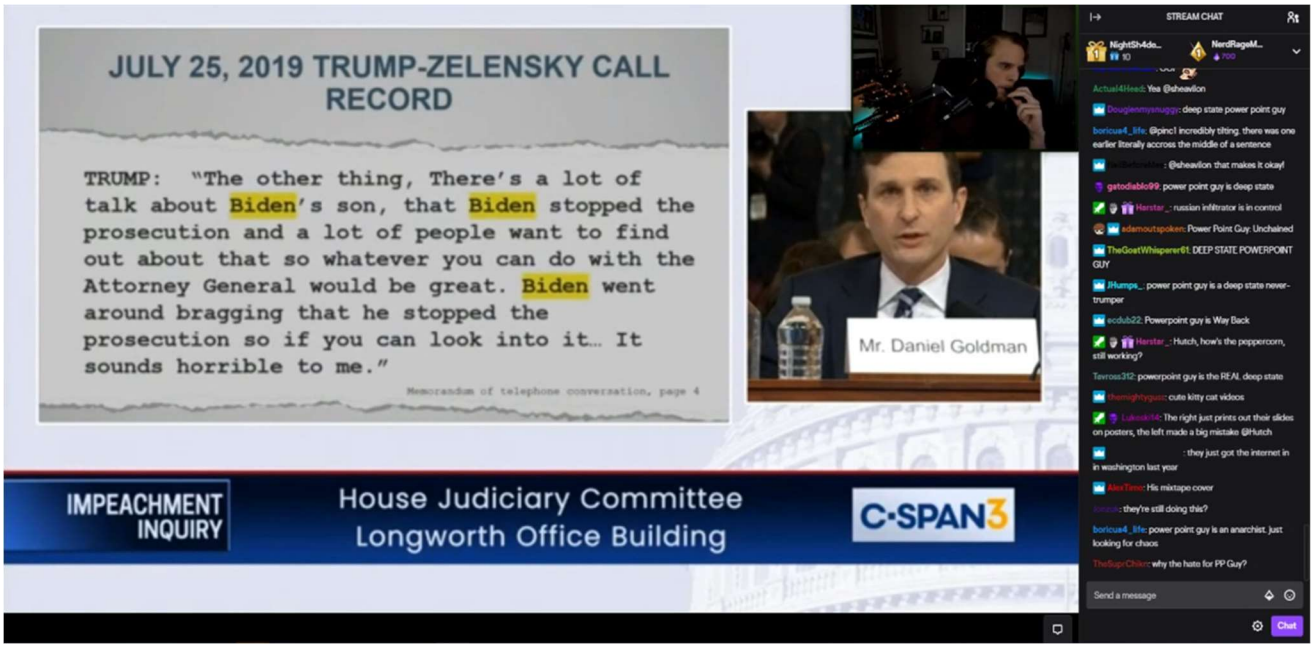


Figure 6: Daniel Goldman tries to get through his opening statement despite technical difficulties. The Chat make fun of the staff member operating the powerpoint. (00:19:00)

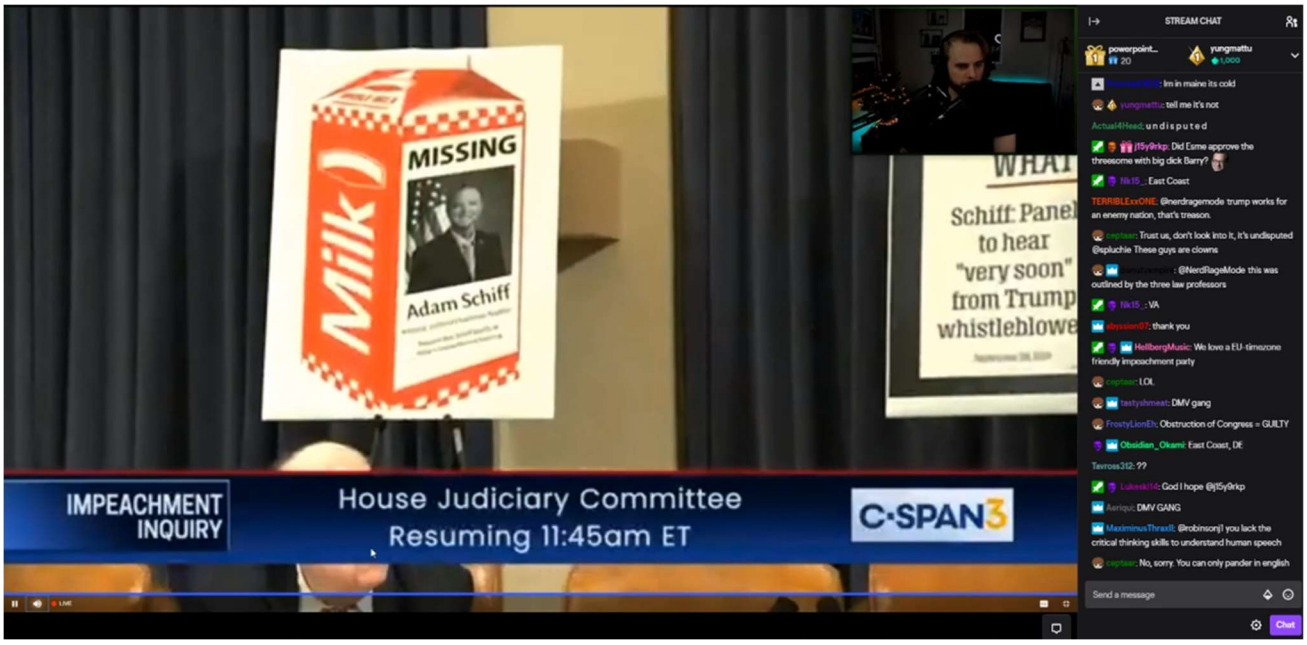


Figure 7: One of the posters that the Republican minority have set up on their side of the council room (01:00:35)

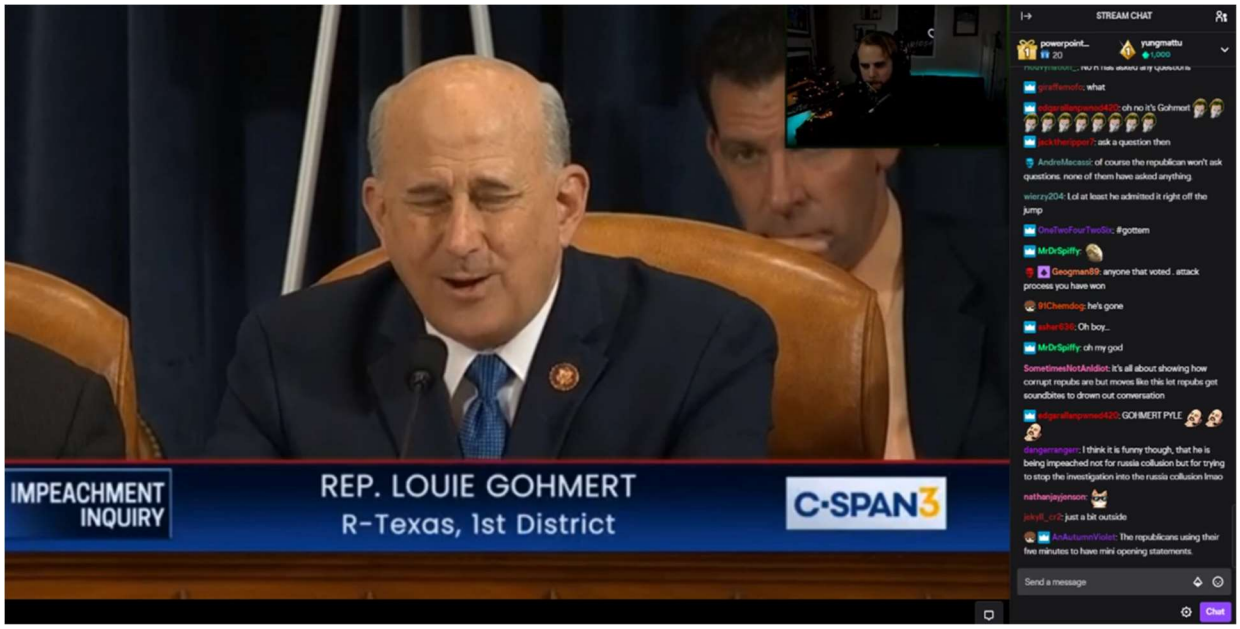


Figure 8: Republican minority council member Louie Gohmert and the chat's reaction to his 5 minute question period without questions (04:50:23)

Mr. RESCHENTHALER. Thank you, Madam Chairwoman.
You know, in the Navy we had a saying, BLUF, which is bottom line up front. Let me give everybody the bottom line. We are here because Democrats are terrified that President Trump is going to win reelection. That's really what this all comes down to.
Let me get into the specifics. We are here dealing with impeachment because Democrats don't want to talk about the red hot Trump economy. They don't want to talk about the fact that we have the lowest unemployment rates in 50 years.
We are dealing with impeachment because Democrats don't want to talk about how the President has worked to protect American companies from Chinese aggression, how he's renegotiated trade deals to benefit American workers, how he's eliminated burdensome regulations that hurt the economy and that help job creators.
Congressional Democrats don't want to be reminding the American people that the Democrat agenda includes such laughable ideas like banning airplanes, giving illegal immigrants taxpayer-funded healthcare, and taking private health insurance away from the American people.
That's really why we're here. This whole process is just a distraction. It's an attempt to hide the far left radical agenda.
So let's talk about the facts. Schiff's report claims the administration froze military aid for Ukraine without explanation. Yet the facts are that President Trump gave more military aid to Ukraine than President Obama. President Obama gave Ukraine well wishes

and blankets. President Trump gave the Ukrainians Javelin missiles. That's the difference and those are the facts.
Let's go over some more facts. House Democrats want to claim it's a conspiracy that Ukrainian officials attempted to interfere with the 2016 election, yet Ukrainian attempts to interfere with the 2016 election are well documented by Politico, by The Financial Times, and The Hill. There was an attempt to influence our elections, and that's troubling, and that's why President Trump brought it to the attention of President Zelensky. Again, those are the facts. (636-637)

Excerpt 1: From the Trump Impeachment transcript

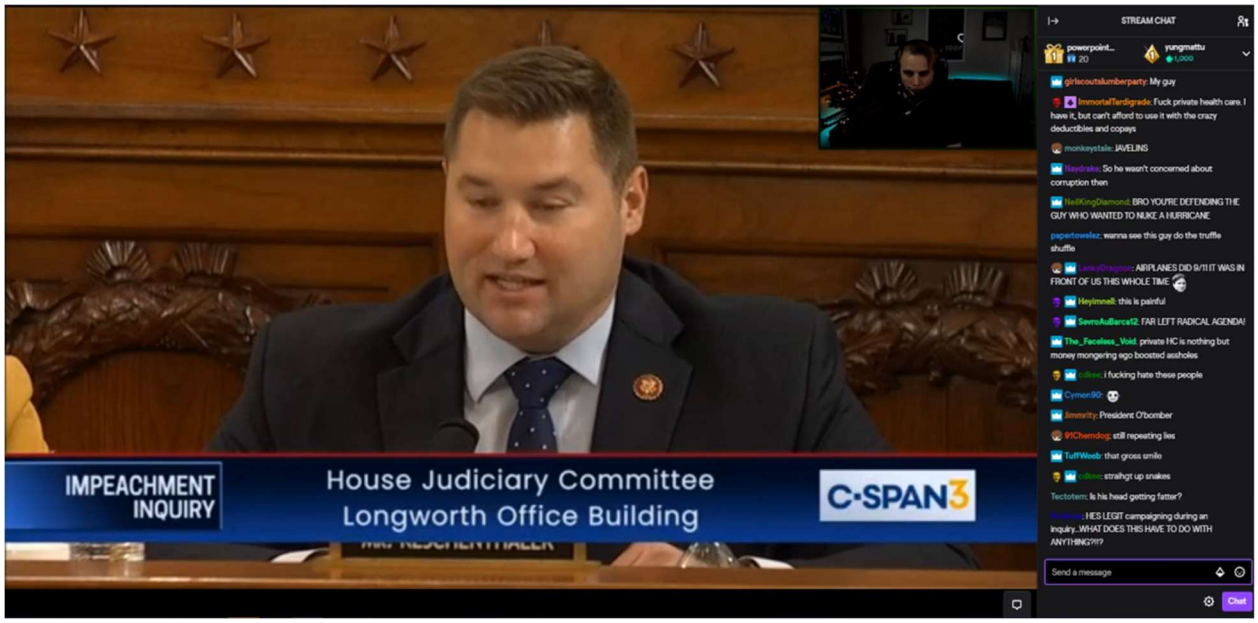


Figure 9: Republican representation Guy Reschenthaler and the chat's reaction to his campaigning diatribe. (06:34:22)

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Mr. CASTOR Ambassador Volker testified in his public hearing that it is possible for more than one country to seek influence in U.S. elections. Dr. Hill testified likewise at her public hearing.
Contemporaneous news articles in 2016 noted how President Trump's candidacy led Kyiv's wider political leadership to do something they would never have attempted before—intervene, however indirectly, in a U.S. election. In August 2016, the Ukrainian ambassador to the U.S. published an op-ed in The Hill criticizing candidate Trump. Other senior Ukrainian officials called candidate Trump a clown and other words. They alleged that he challenged the very values of the free world. One prominent Ukrainian

parliamentarian explained that the majority of Ukraine's political figures were on Hillary Clinton's side.
A January 2017 Politico article lays out in more detail efforts by the Ukrainian Government officials to oppose President Trump's candidacy. The article notes how Ukraine worked to sabotage the Trump campaign by publicly questioning his fitness for office.
The article detailed how a woman named Alexandra Chalupa, a Ukrainian American contractor, paid by the DNC, and working with the DNC and the Clinton campaign, traded information and leads about the Trump campaign with the staff at the Ukrainian Embassy in Washington. Chalupa explained how the Ukrainian Embassy worked directly with reporters to point them in the right direction.
Witnesses in the impeachment inquiry testified that the allegation of Ukrainian influence in the 2016 election was appropriate to examine. Ambassador Volker testified that he thought it was fine to investigate allegations about 2016 influence. Ambassador Taylor said, for example, that the allegations surprised and disappointed him.
On this record, I do not believe that one could conclude that President Trump had no legitimate basis to raise a concern about efforts by Ukrainians to influence the 2016 election.

Excerpt 2: from the Trump Impeachment transcript

Figure 10: The Chat's reaction to Stephen Castor's claim that both Ukraine and Russia interfered in the 2016 U.S. election (01:29:17)

Figure 11: A member of chat points out that Castor's position and the idea that Ukraine meddled in the 2016 U.S. election has been debunked (01:30:42)

Figure 12: Chat reacts to Castor's claim that disparaging comments made about Donald Trump by Ukrainian officials qualifies as election interference. (01:31:22)

Mr. BUCK. And Mr. Castor, I want to ask you something. Have you seen this article from Politico, dated January 11, 2017?
Mr. CASTOR. Yes, I have.
Mr. BUCK. And the title of that article is Ukrainian ‘‘Efforts to Sabotage Trump Backfire.’’ Is that correct?
Mr. CASTOR. Yes.
Mr. BUCK. I want to read you the second paragraph.
Ukrainian government officials tried to help Hillary Clinton and undermine Trump by publicly questioning his fitness for office. They also disseminated documents implicating a top Trump aide in corruption and suggested they were investigating the matter, only to back away after the election, and they helped Clinton’s allies research damaging information on Trump and his advisers, a Politico investigation found.
Isn’t it true that President Trump had a legitimate reason to request help from the Ukraine about the 2016 election? And I’m not suggesting for a minute that Russia didn’t interfere. Of course they interfered. But the Ukraine officials tried to influence the election?
Mr. CASTOR. Yes.

Excerpt 3: from the Trump Impeachment transcription

Figure 13: Chat call out Republican representative Ken Buck for using the Vogel Politico article to reference anxieties around the Crowdstrike conspiracy and claim that Ukraine meddled in the 2016 U.S. election (05:13:43)