Why we Glitch: process, meaning and pleasure in the discovery, documentation, sharing and use of videogame exploits

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Glitching is a mode of play where instead of observing the game rules and goals, the glitcher aims to find, document, share, and ultimately exploit weaknesses in game code. It is a practice predominantly conducted upon unmodified videogame systems, and any glitches discovered should be replicable on any equivalent system and often across platforms. Glitchers, those who willingly identify with this mode of play, or those that have been labeled as such by the playerbase, are almost always configured as malign, destructive and antagonistic within mainstream videogame communities, the game press, and frequently game studies literature. They are considered a problematic influence that justifies active management in order to protect the intended experience of a game. This framing of glitching as destruction foregrounds the authorial intent of the designer and the primacy of the game as product, yet it has meant that little importance is placed upon the practices, meanings and pleasures attributed to glitching and therefore very little is known about it as a gameplay experience.

Based upon ethnographic study of the chaoticPERFECTION and MapMonkeys glitching groups on the Xbox360 platform and glitchers more generally, this article aims to offer first-hand insight into the meanings of glitching: what pleasures are attributed to glitching by glitchers; how glitches are discovered; the ways in which glitches are documented and shared; and the communities and practices that glitching facilitates and sustains. In doing so it is hoped that this article challenges the reductive reading of glitching as a solely destructive practice, instead presenting it

as a significant mode of engagement and player productivity, and a locus for complex negotiations related to ownership, visibility, game production and the role of the player. Glitching creates artifacts, such as the videos that document it, the communities it sustains, the community knowledge and sophisticated practices used to find glitches and the hierarchies and meanings therein. Glitching can be conducted on any videogame environment, whether single-player or multiplayer, however within multiplayer spaces glitching becomes especially problematic and divisive. Within single player games the player decides whether to exploit a glitch (e.g. to progress through a game in a faster or different manner), whereas in a multiplayer game the use of a glitch may confer unfair advantage on the protagonist while others attempt to play conventionally. In a multiplayer context glitches bend and break the rules unilaterally, and this imbalance opens up the reading of glitching as destructive and disruptive. Yet, while potentially disruptive and destructive to the intended experiences of a game, glitching is a practice that enables a diverse range of outcomes and gameplay experiences that are not necessarily motivated by the intent to disrupt.

The framing of glitching as destructive and malign is understandable from a commercial perspective. Glitching has the capacity to significantly damage the experience of a game, making it unfair, unenjoyable and even unplayable. Glitches can radically alter the balance of a competitive multiplayer FPS by making glitchers invisible or invulnerable, virtual economies may destabilize and hyper-inflate due to the duplication of rare high-value items, or enable the player to selectively renegotiate their progress through a game. This damaging potential is reflected in the ways that publishers discuss glitching, such as Activision's definition as 'player behavior that violates the spirit of the game', the penalty for which ranges between 48 hours and thirteen-and-a-half years of exclusion from the game (Activision, 2011). This has become the prevailing rhetoric within player communities, the gaming press, development cultures and game

studies, where counterplay and glitching are regarded as almost entirely destructive.

The framing of glitching as destructive game-abuse exposes that play is subject to a binary 'normalizing gaze' (Foucault, 1977: 25), which separates it into distinct configurations of good and bad play, and good and bad players (Myers, 2005: 15). While there are a number of terms that are applicable to unexpected or challenging modes of play this article will adopt counterplay (Dyer-Witheford & de Peuter, 2005) as the universal term, and regard practices such as glitching as specific located manifestations.

Within game studies literature counterplay tends to be addressed in two divergent ways: with it regarded as either an undesirable product of flawed game design (e.g., Yan & Choi, 2002; Yan & Randell, 2005; Parker, 2007); or conversely, as an organic feature of play as a cultural practice and social activity (e.g. T. L. Taylor, 2003, 2009; Flanagan, 2009; Consalvo, 2007; Kücklich, 2007, 2008; Dyer-Witheford & de Peuter, 2005, 2009). The opposing stances inform whether counterplay should be actively managed and discouraged, or studied in order to inform a broader understanding of play (and potentially introduce new game design features as a result).

Literature that aligns with the former approach supports the view that counterplay is incompatible with the spirit of play. A mean-spirited and hollow rejection of the lusory attitude that signals '…a retreat from the demands of the new, [and] …a disposition that does not want to be performatively challenged' (Malaby, 2007). In contrast those that approach counterplay from a more sociological perspective regard it as part of a rich continuum of instanced and temporary modes of play. One approach prioritizes the designer as author, the other the (counter) player as author. Yet, while the interaction between these two stances has extended the perspectives from which gameplay experiences are theorized, relatively little is known about the grounded processes, pleasures, meanings

and significance attributed to counterplay forms by those that engage in them. Little is known of why or how we glitch.

Who discovers glitches – and why?

Developers encourage players to report any glitching that they encounter, which, if substantiated, is negated by the release of mandatory software patches, warnings to any perpetrators, and the occasional high profile invalidation of player accounts. These are the ways in which the game ecosystem polices glitching. Through intelligence gathering, counter-insurgency work, the expulsion of violators, and jubilant reporting of the victory to the playerbase. Glitchers are othered – separate to good players, to be castigated. This is attitude towards glitching is reflected in the following tweet, released by David Vonderhaar, multiplayer gaming design director at Treyarch, the developers of the Call of Duty: Black Ops (Treyarch, 2010) series (henceforth BLOPs):

> We are disinterested in making mini-celebrities out of douche-bags. You better think twice before you glitch. You never know who in your game doesn't like glitchers who reports you …and tells us about it.
> (Vonderhaar in Watts, 2010)

Yet those who embrace glitching as a mode of play encounter a diverse range of gameplay experiences and outcomes: exploration, where they are able to access unintended interactions and areas of the gamespace; productivity, where the potential uses of the game are transformed, such as enabling the creation of new grassroots game modes; renegotiation, where game rules are circumvented or renegotiated in order to progress; and domination, which confers competitive advantage over conventional players, which depending on how deployed and perceived, may be configured as harassment and grief-play.

Glitching communities

Both chaoticPERFECTION and MapMonkeys were founded in 2006 and have become regarded as the two primary glitching entities on the Xbox360 console. While other smaller teams and individual glitchers exist, the chaoticPERFECTION and MapMonkeys sites, YouTube channels and forums tend to act as the locus of much glitching discussion and community engagement. ChaoticPERFECTION exclusively utilize YouTube and social media tools to host and publicize their glitches, while MapMonkeys initially developed MapMonkeys.com as a video archival and sharing platform before moving to YouTube delivery in early 2012. Prior to the move to YouTube MapMonkeys.com hosted more than 3,500 glitching videos and over 130,000 registered users. By October 2012, the MapMonkeys YouTube channel hosted 93 glitch videos that had been viewed over 19 million times, with 45,000 channel subscribers. At the same point, chaoticPERFECTION's YouTube channel (their third due to copyright claim related account suspensions), hosted 200 videos with 900,000 views and 2,500 subscribers.

The two entities have different core remits: ChaoticPERFECTION is a glitching team that focuses upon the creation of high-end releases by verified team members (of which there are currently eight), 'as a form of education and entertainment' (xRyan350x cP, 2011); by contrast MapMonkeys adopts a community approach, enabling registered users upon MapMonkeys.com to submit, catalogue, and share their own glitches. The differences also inform the ways that they engage with their audiences: ChaoticPERFECTION seeks to engage with the widest possible audience – whether glitchers or members of the public; while MapMonkeys is steadfastly for glitchers by glitchers.

This offers some indication of the scale and significance of glitching as a productive practice, and a brief introduction to the central communities studied. In turn the sustained engagement in this fieldsite, interacting

with hundreds of glitchers over eighteen months enables the discussion of the pleasures and meanings that underpin glitching.

Glitching in context

One of the core principles of glitching is that it is conducted on unmodified videogame hardware and is therefore replicable on any equivalent system. On this basis glitching focuses upon exposing interesting or exploitable flaws within a videogame that have been missed by Quality Assurance teams, and other glitchers. Within such a context glitching becomes a race to identify exploits or anomalies, and in doing so those that find glitches assert superiority over others who have failed to discover the flaws. Yet, despite the inherent competition within glitching, it is a collaborative activity, best conducted in flexible and close-knit teams. Therefore overt competition between glitchers is often suspended if it is likely to facilitate the development of a new glitch. While this forms bonds among fellow glitchers and acts as a way of inducting new glitchers into the community and practices, it is also a pragmatic way of responding to the time required to effectively identify, develop and document a glitch. The more glitchers willing to work on the same task, the more likely that the glitching session will be successful and a glitch identified.

When a glitch is discovered it is typically documented as a video with a voice-over tutorial that explains its replication. This is then uploaded onto a video sharing website for distribution and eventual consumption by other glitchers and members of the public (a term repeatedly used to describe and differentiate conventional players). In addition to the implicit pleasures associated with the identification and use of a glitch, glitchers enjoy the vicarious pleasure as it is exploited by the public, and then if it is recognized and eventually patched by developers. This recognition and use by the public and developers is also paradoxically a source of significant consternation amongst glitchers, many of whom are concerned about the impact that publicizing the glitch may have upon its

longevity and availability. Those glitchers that feel this way are opposed to the widespread use of glitches within highly visible spheres, such as public matches, due to the reputational damage and frequent defensive initiatives that such behavior invokes. Put simply, glitch use raises the stakes of glitching across the board, and as a result some glitchers believe that glitches should be saved for private game modes, the consensual, and the occasional descent into misrule. This is not to imply that glitchers never utilize glitches for domination, but that the risks and rewards are made so much more apparent by an awareness of the temporal investment required to identify and release a glitch.

Therefore glitchers recognize the capacity of a glitch to damage a game, but also the implications and pleasures associated with that damage. They therefore spend time negotiating the space between visibility, use, and censure, and some glitches are withheld by glitchers until they have tired of their exclusive use. In practice the duration of this withholding is short, as each day that a discovered glitch is not shared the greater the risk another glitcher will discover and release it, or even worse attempt to claim attribution for it. Therefore sharing a glitch is a simultaneous act of asserting ownership of an exploit and altering the understanding of a gamespace.

Glitch significance

While each glitch is protean, reflected in the various uses or outcomes that it affords (exploration, productivity, renegotiation and domination), glitchers appear to additionally rationalize glitches two continuum: advantage, and visibility. Advantage is the glitcher benefit, the extent to which it facilitates exploration, productivity, renegotiation or domination, while visibility is simply how disruptive, conspicuous, spectacular or replicable it is. Through rationalizing glitches along the advantage-visibility continuum the significance of a glitch can be categorized as trivialities, strategies, glitches and game-breakers.

Glitches that are neither advantageous, nor visible, are trivialities – of interest to (some) glitchers, but not the public, and therefore rarely necessitate response from developers or publishers. Glitchers still document these as every glitch discovered indicates glitching skill, and seemingly trivial glitches may unexpectedly contribute towards the development of much more potent glitches.

Glitches that offer little advantage but are highly visible – i.e. are particularly easy to do or are spectacular in their deployment – are often regarded by players as strategies that are adopted throughout the playerbase as part of the repertoire of play. Examples of strategies include Call of Duty franchise (Activision, 2003-current) reload cancelling where players interrupt the weapon reload animation by sprinting at a specific point after the ammunition count has been reset, but before the animation has completed. This enables the glitcher to be ready to attack sooner and constitutes a considerable advantage. Strategies are not generally subject to widespread censure, indeed some may be institutionalized as legitimate moves and reconfigured as knowledge that betrays player expertise e.g. FPS rocket jumping.

Glitches that confer advantage but are difficult to conduct, and are therefore restricted to the dexterous practiced minority, are configured as glitches proper, and if observed by the public these are likely to be regarded as unfair grief-play and 'game-abuse' – resulting in developer or publisher intervention. Glitches include 'Out of Maps' (OOM) those that allow the glitcher to exit the conventional gamespace for exploration and domination.

Where a glitch is both highly advantageous and visible it is regarded as a game-breaker. These are highly potent glitches that result in almost immediate and escalatory intervention from institutional stakeholders. The Call of Duty: Modern Warfare 2 (Infinity Ward, 2009) Javelin glitch is a salient example. It is conducted in the competitive multiplayer FPS

through priming an explosive charge that is immediately substituted with a Javelin rocket launcher. When the glitcher is eventually killed by an opponent the primed explosive detonates alongside the equipped Javelin rocket payload. The cumulative explosion engulfs an enormous radius killing all in reach – and a game based on twitch-timing, muscle-memory and skill is reduced to a chaotic game of chance. The Javelin glitch spread across virtually all public multiplayer matches after discovery and the game became a farce. This disruption necessitated a mandatory patch deployed fewer than two-weeks after the glitch discovery at a cost of $40,000 excluding the development cost and any lost sales due to reputational damage (Stuart, 2012). These four glitch types: triviality, strategy, glitch and game-breaker illustrate some of the complexity of meaning so lacking in the conceptualization of glitching as solely destructive, and this contrast becomes more pronounced when glitcher attitudes towards game-breakers is explored.

While some glitchers expressed reticence regarding the distribution of game-breakers, it was generally agreed that they constituted the most desirable glitch discovery. This was not due to the implicit pleasures of their invocation, or the immediate subversive damage that they cause, but often the secondary symbolic dialogue that they enabled between institutional stakeholders and glitchers.

Rezzzo, one of the MapMonkeys glitchers who had contributed to the initial adoption of the Javelin glitch, (his glitch video had been viewed more than one million times), felt little culpability regarding the damage attributed to the game-breaker. Instead he rationalized the glitch as a service to the game developers, whom he regarded as core members of the glitching audience. This perspective was shared by many glitchers interviewed, who suggested that any response from the developers, such as patching a glitch, constituted a kind of interaction that recognized glitching skill, showed that the glitch was valued by developers and motivated continued glitching.

Glitches are fun to discover, enjoyable to document, amusing to use, but also hold the potential to establish reputations within glitching circles and beyond, and instigate (symbolic) dialogue. Yet, while game-breakers or the destructive over-use of glitches represent the most effective way of gaining attention it also has the greatest capacity to undermine each of these pleasures, resulting in patches, bans, and ultimately the swift removal of the glitch. While certainly echoing some of the mini-celebrity status so ridiculed by Vonderhaar, glitchers valued the social capital and opportunities that the glitch generated. Interestingly very few of the glitchers that I spoke with had any issue with Vonderhaar's vitriolic statements (or those released by other development teams). Instead they tended to reiterate the notion of glitching as service. In addition there was general consensus that the threat wasn't really aimed at those who discovered exploits – at authentic glitchers – but that it was a warning to those that indiscriminately used and abused glitches.

Glitching is after all an illicit activity that is contextualized by the risks attributed with being reported to a platform live team e.g. invalidation of player accounts and game bans. This risk colored the practice of glitching, becoming part of its attraction and a contributing factor to the understanding of the mastery or skill of a glitcher. Not only had glitchers discovered exploits that professional QA teams had not, but they had done so while simultaneously eluding detection and censure – the perception is that glitchers are therefore much better than the QA teams employed directly by the developers. Glitchers would naturally make ideal members of development teams, would be valuable to the developers, and that this betrayed the flimsiness of Vonderhaar's statement. Glitching was regarded not simply as antagonistic to games and their consumption, but as viable means of entering employment within the games industry.

A concrete example of the value attributed to glitching by developers is that of Infinity Ward's utilization of MapMonkeys glitchers during the development cycles of Call of Duty: Modern Warfare 2 and 3 (Infinity Ward,

2012). Robert Bowling, Infinity Ward's creative strategist described MapMonkeys glitchers as '…a great addition to an already rigorous QA process …here at Infinity Ward' (Bowling in Ivan, 2011). While MapMonkeys' work with Infinity Ward was mutually beneficial (the glitchers received payment and were able to feel included in the development of a franchise they cared deeply about) this public recognition is unprecedented and understandably it became part of the motivational folklore that colored many of the discussions of glitching that I experienced. Yet, despite Bowling's apparently positive statement, less than three months later he was publicly denouncing both glitching and glitchers:

> *Any attempt to cheat, hack, or glitch in #MW3 will not be tolerated. 1600+ bans issued....Every ban unique to the level of douchiness of the offense. The greater the douche the greater the length. PermaDouche possible.*
>
> (Bowling, 2011a, 2011b)

Once again this was seen as a necessary response to minimize glitch abuse by the public. Despite the relationship between glitching and game development, it would be unfair to suggest that employment was the prevailing motivation for glitching. The majority simply regarded glitching as the most accessible way to explore and deconstruct games, any opportunity to engage further with games, such as through employment, was simply an additional benefit. Glitching enables a more profound experience and understanding of a game, something that appeared to resonate with a (potentially misplaced) sense of fascination and seduction with a game rather than a willingness to disrupt and destroy.

Glitches, and their public release therefore impact significantly on a range of stakeholders: the public, developers, publishers, and glitchers themselves. Yet, instead of a simplistic position of negation and destruction these examples already indicate the complex and significant meanings of glitching. Further differentiation and complexity can be seen when the form that glitch documentation takes is explored.

Exploring glitch videos

I click on the glitch video on the chaoticPERFECTION YouTube channel, it opens with a slick animation introducing the team: 'BRINGING YOU GLITCHES AND TRICKS WITH VOICE AND TEXT TUTORIALS… chaoticPERFECTION' (chaoticPERFECTION, 2011), and then it acknowledges the glitcher who found and documented the glitch – Nickncs cP – before fading to black. The opening drum beats and melody of Noah And The Whale's L.I.F.E.G.O.E.S.O.N (2011) strikes up. The Duke Nukem Forever (3D Realms, 2011) loading screen is displayed briefly and as the lyrics begin we watch as Duke drives his monster truck across a desert highway. Charlie Fink begins to sing about Lisa the Rock n' Roll survivor and the Monster Truck smashes into a rock tunnel wall and abruptly flips up and through it instead of being stopped – this is not what should happen. The player leaves the conventionally playable game area and enters the strangely rendered space beyond the boundaries of the game. One piece of scenery appears to have 'Fake Background' written on it – a secret message left by a developer. The player continues to explore, focusing on other interesting or striking locations. After about two minutes the music fades and the video dissolves to black and stops. This is an example of a high-production-value glitch video, carefully recorded and edited to offer information and entertainment, while simultaneously managing and developing the chaoticPERFECTION and Nickncs cP brand identities.

By contrast, the following MapMonkeys glitch video adopts a far more instructional approach. The glitcher conducts the glitch step by step in a conversational tone without titles, music or motion graphics:

Hey MapMonkeys, it's your boy Sewerwaste here. On Dome you're going to come to this part of the map. You're going to do this kind of strafe-jump up there. Then you've got to jump around the corner and crouch at the same time. I recommend being on default button layout because you've got

to crouch immediately after. Once you're up here you can just hang about, climb all over the dome, [and] stand on those little red bars. It's a good spot for infection if you guys play that… (MapMonkeys, 2011)

The chaoticPERFECTION glitch, devised for the single-player Duke Nukem Forever campaign, is of no competitive advantage, but instead allows the glitcher to explore the materiality of the gamespace, and as a corollary to learn something about the game's construction. The chaoticPERFECTION glitcher acts as something between a tour-guide and archaeologist, digging into digital terrain showing the viewer the fascinating constructions and artifacts beneath. The glitch prioritizes the material construction of the game. Rather than destruction, the glitch appears celebration of the game and the medium. By contrast the MapMonkeys glitch prioritizes the game function, presenting a method of accessing a specific location on a multiplayer map with competitive advantage. This may be conducted like the chaoticPERFECTION glitch, to explore, but as it takes place on a multiplayer environment, it also enables domination.

Both of these videos were uploaded onto YouTube as public listings. In November 2012, eighteen months after the chaoticPERFECTION video was uploaded it had received just over 1,000 views. By comparison, the MapMonkeys glitch had generated 120,000 views in two-thirds of the time. The difference in views may be largely attributed to the popularity of the games, but other considerations include the utility of the glitch in question – the advantage that it offers the glitcher and its visibility within the game. It will be seen by others, replicated by others, and it is likely that (at least at first) these glitchers will perform better than the public – it is therefore of more value to most.

These example glitch videos offer some insight into the range of productivity within glitches, the varying forms that glitch productivity takes and the resultant different meanings. Glitch videos are produced in different ways for different audiences, and that in-turn they are differently valued.

What is also of note is that the glitch videos are not necessarily destructive, some, such as the Duke Nukem Forever example, can be reasonably attributed to a sense of seduction with the game and medium, allowing glitchers to explore the game as one might a heritage site, or a classic car engine. Yet, in both instances by releasing the glitches to the wider public the glitch can then be utilized for unpredictable and therefore potentially damaging purposes.

Identifying a glitch

As glitches exploit flaws within game code, they have the capacity to reside almost anywhere within a game experience. As a result of this glitchers must enter gamespaces in an investigative and opportunistic mode, observing, noting and developing anomalies and proto-glitches whenever and wherever they become apparent. Despite this need for responsiveness and flexibility, glitching sessions are generally conducted in groups with focused intent, primarily, but not exclusively, seeking out one type of glitch that has been agreed on prior to entering the game. The following example on BLOPs Rezurrection (Treyarch, 2011), sought to primarily identify barrier glitches, in particular seeking to get Out of Map (much like the Duke Nukem Forever example), beyond the playable gamespace. While the practices here are directly related to the discovery of navigational and barrier glitches, the processes adopted remain consistent and applicable to glitching more generally.

I was invited to join some of the team on a 'mammoth glitching session' on the BLOPs Rezurrection DLC. Building upon the franchise's popular 'Nazi Zombie' mode, Rezurrection relocates to a low-gravity cold-war moon-base, where, taking the role of Richard Nixon, Robert McNamara, John F Kennedy or Fidel Castro, players must cooperate to survive successive waves of Nazi zombies. In Rezurrection, players must dispatch successive waves of the undead, which become progressively numerous and dangerous. Each zombie is naturally attracted to the closest player,

and the player need only be bitten a few times for the match to end. The zombies spawn in successive waves comprising of weak 'normal' zombies and powerful 'boss' zombies that explode on destruction, sending players flying into the air if caught within the blast. A new wave of zombies is only released once the final standard zombie has been destroyed. These core mechanisms were quickly understood and exploited to facilitate the search for glitches. I was instructed to download the DLC immediately upon its release in the UK and to wait online for other glitchers to join. My role was to primarily create a safe 'beachhead' to enable glitching, which was conducted through zombie herding.

In order to glitch we orchestrated a game state where only one slow standard zombie and one boss zombie remained within the map. Following initial exploration it was decided that the boss zombie would be lured to an apparently low staircase barrier and destroyed. It was hoped that the resulting explosion would send any nearby glitchers up into the vacuum, over the map barrier and 'Out of Map' (OOM) It was my responsibility to lure the final standard zombie away from the other glitchers, who in turn herded the boss zombie to the staircase. I had to remain close enough to the weak zombie to maintain its attention, leading it to locations that it would find difficult to navigate, at which point I would sprint back to observe and help with the glitching. Over the course of four hours we cycled the roles, and in periodic lulls we interrogated the space independently, looking for other anomalies that could be explored later.

Aside from the boss zombie hypothesis our systematic interrogation took the form of paying particular attention to the gamespace. We focused upon: inconsistently shaped level objects; differently textured surfaces; any location or edges that protruded and might offer unintended footholds; and for places where the glitcher felt something odd happen – such as their avatar sticking, catching, or 'popping up' during movement. Whenever this occurred we would call for another glitcher to observe, replicate and develop the glitch.

After twenty minutes and five restarts of the map the boss zombie glitch was conducted. The explosion launched the glitchers into the air. One slammed into a doorway, while another was propelled too low to test the barrier. Undeterred, the process was repeated. Eventually the glitch was conducted precisely as intended. The glitcher sailed high above the visible wall, only to highlight the existence of an invisible barrier. That particular glitch did not work at that point. We selected another location and began again.

The reputation of chaoticPERFECTION within glitching circles and the close glitch community meant that glitchers were constantly willing and available to substitute others as they left the match. As the hours wore on glitchers took breaks, went to sleep, went to work, and carried on their day-to-day business – all the while the glitching session continued. In addition to our match there were a number of simultaneous glitching sessions being conducted on other Rezurrection instances, with progress and leads reported periodically via Xbox Live and other messaging services. As a result there was a sense of communal competition and progress, contributing towards a growing knowledge and development of glitches. An hour after the release of Rezurrection we had a team of approximately fifty glitchers rapidly deconstructing it and building a constantly expanding knowledge of its idiosyncrasies and potentially exploitable vulnerabilities. After four hours of glitching I retired from the match and was kept up-to-date with periodic messages (while I slept).

Despite our best efforts the Rezurrection glitching session had failed to identify a replicable glitch, however, one of the glitchers known to both chaoticPERFECTION and MapMonkeys was successful in finding a glitch using a similar technique but in a different location. A boss zombie was lured and destroyed, the explosion propelled the glitcher into the air, but instead of going OOM they landed on the edge of a shipping container out of reach from the zombies. From here they were able to attack the zombies without fear of retaliation, and almost immediately after release the Rezurrection leaderboards were dominated by the use of

this glitch. Later, within the same glitch release video, a refined technique was presented. Instead of using the conventional boss-explosion process the glitcher performed a running jump, 'laying prone' whilst in the air (a 'dolphin dive' animation jump, a technique used to do other glitches on earlier Call of Duty games), and reaches the ledge independently. This illustrates the progressive and iterative nature of glitch development, that even within a single video a glitch may be refined and improved. The discovery and documentation of glitches becomes a productive process, spanning individual glitchers, motivations, platforms and even releases.

Conclusion

This article set out to challenge the reading of glitches as solely destructive acts, presenting them as significant productive gameplay experiences that sustain a complex range of motivations, meanings and interactions. While this does not temper their destructive or disruptive potential against established perspectives of authorship and consumption, it highlights that these processes are anything but as simple as the rhetoric of destruction implies. Examples of the complexity presented in this article include:

• The range of outcomes and uses of glitches - exploration, productivity, renegotiation and domination;
• The ways in which the potency of glitches is rationalized through the advantage / visibility continuum – trivialities, strategies, glitches and game-breakers;
• The risk and reward negotiations that inform glitch publication, and the symbolic dialogue with developers that glitchers often value above the use of the glitch itself;
• The range of productive outputs, including videos, websites, channels, community knowledge and the communities that these sustain;
• The social and collaborative construction of glitcher communities, whose overlapping ties facilitate glitching as a practice;

• The iterative and reflexive methods adopted during glitch discovery – including a glitching knowledge spanning releases, platforms and genres;
• And finally, a motivational generalized seduction with the materiality and production mechanics of the videogames and desire to get closer to games and development through glitching.

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