From Controllers to Cogeneration: Visions of Reality Mediated by the Video Game

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Abstract

The video game, that maligned, scorned, celebrated, and above all misunderstood cultural artifact, is the defining form of lived experience in postmodern society. By expanding what we consider to be a video game, and what is expected of them, we can begin to formulate a compelling image of future media and their implications for life in a virtual 21st century. Gaming is quickly becoming a lens through which the world is understood and defined. As video games supplant more traditional forms of social entertainment, and as they become ever more "real", their various languages will not only shape ever more of our lived experience, but become tools for imagining, designing, and implementing radically different worlds, far beyond current conceptions of play and gaming. The cogeneration between machine and player at the core of play equips players with not only the understanding required to navigate an increasingly algorithmic world but the ability to conjure and synthesize new and alternate realities. From this ability emerges a nascent, imaginative vision of the future, born from and molded by gaming, a vision which begs to be liberated from the myopia of the terms "video" and "game".

Keywords

Video games, postmodernism, digital culture, new media, indie games

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1. Introduction

What we consider now to be a "video game" in fact is merely a sliver of current and future interactive experiences, and as they supplant more traditional forms of social entertainment, becoming ever more "real", their various languages—informatic, aesthetic, design—deserve to be critically reexamined. In recent decades, a movement has begun to recognize games as interactive art, distinguishing them from their traditional, almost derisive categorization as vulgar pastime. But the snobbish nebulousness of the designation “art” implies a false dichotomy of art games and lesser, non-art games. The movement to regard video games monolithically as “art” fails to understand that in contemporary culture, “art” does not have any stable or unified meaning other than its positioning and designation as such. All games, not just games positioned as art, suffer from the same mundane consumerist topologies, the same restrictive and unimaginative language and thinking which relegate games to the realm of leisure and commodity.

Video games are reshaping the lived experience of the 21st century. Not only are game engines are now being used to understand and design the built environment—Hong Kong International Airport uses the game engine Unity to better model and design foot traffic flow[1]—but they’re being used in lieu of the real world as well. The sets for *The Mandalorian* are not practical sets built through carpentry, metalworking, etc., but instead were created in Unreal Engine and displayed live as a backdrop, even updating in real time to camera movement and accurately modeling lens characteristics, focus, and lighting.[2]

As video games quickly become the missing "third places" in the modern landscape, they increasingly provide spaces to meet, socialize, find and make love, and war, and all else in between, doing so not only through screens but shockingly realistic virtual reality. As these advances facilitate greater and greater simulation of reality, moving the social sphere into the virtual realm, new paradigms and frames of reference must be constructed and adopted to fully appreciate and understand the fundamental shift they drive. What we experience now as video games and their disruption are just the beginning; they hold a critical position as the first breaking wave in a coming ocean of blended virtual and real realities.

Existing literature which seeks to dissect the defining aspects of the video game often appeals to the relatively recent addition of video games to a vast and storied history of play across cultures. The goal of such thought is to erase the conceptual gap in the popular imagination between video games and traditional games or play. While examining video games within broader understandings of play is a noble pursuit aimed at de-alienating new media, it is reductive and unsatisfyingly past-, not future-, facing. These discussions of games and play often rest upon Huizinga, who believed play was the defining characteristic of humanity, driving its creation of civilization.[3] He died before Allies liberated the Netherlands from the Nazis. Similarly, cultural criticism and neo-Marxist critique often draws on the likes of Adorno, Foucault, and Baudrillard, who, although often prophetic in

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[1] Alita Sharon, ‘HKIA Develops Digital Twin’, *OpenGov Asia*, 2019 <https://opengovasia.com/hkia-develops-digital-twin/> [accessed 28 April 2021].
[2] Jay Holben, ‘The Mandalorian: This Is the Way’, *American Cinematographer*, 6 February 2020 <https://ascmag.com/articles/the-mandalorian> [accessed 28 April 2021].
[3] J. Huizinga, *Homo Ludens, a Study of the Play-Element in Culture*. (Oxford, England: Roy, 1950), p. 210-211.

their descriptions of postmodern culture, all did not live to see the advent of the smart phone and with it the ushering in of a new information age. This is not to say that their perspectives and ideas are incorrect or to be avoided; on the contrary, this work shall draw deeply upon their writings to frame and contextualize modern video gaming, and owes a great amount to that work which came before it. It owes an equal amount, however, to the voices and games of modern-day practitioners, of the varied and eclectic group of game designers, developers, and artists, who often hold all the above titles. Their games shape and reform gaming paradigms in surprisingly monumental ways, and their voices deserve to be listened to and presented in the same footing and on the same pages – practitioners, shoulder to shoulder with theorists.

Academia tends to consume modern games slowly—here, I intend to closely examine several recent independent games and attempt to understand the modern landscape of gaming, and show how the Information Age is mediated by our gaming experiences. The Information Age, the Digital Revolution, New Media—whatever name this contemporary moment chooses to go by, it deserves to be understood through its contemporaries, through the artifacts it produces and the people who consume and create them. It is precisely from this new generation of often indie game producers and their audiences that a new cultural understanding of games emerges, one which begs to be liberated from the myopia of the terms "video" and "game".

2. The “Game”: A critical redefinition

When we use the term video game, we typically mean something very specific. Video games are well understood systems – they have rules, they have players, they have goals and victory conditions[3]. Are any of these truly necessary to the form? Are they inherent, endemic to digital interaction and virtual worlds? Even though one *plays* a game, there is no reason video games must be *played*; there is no reason that we must understand what we currently refer to as video games as games, that is, essentially, spaces limited to play. The labeling of game on video games severely limits the imagination as to the ways in which one should interface with video games, what to expect out of the experience, and the language of these experiences. Traditional, that is, pre-digital understandings of the game, à la Chess, or Go, or Hopscotch, serve as crutch through which we model and interpret our digital experiences. This perspective severely limits and deforms the experience of the modern video game, priming users and ultimately robbing them of the agency which interactivity promises to provide.

Already there exists a large body of work, often most excitingly within modern independent video games, which question, either directly or through embodiment of innovative new forms, the idea that video games are games, that they adhere to such rules, and that they must be played. *Dwarf Fortress* is a not so much a game as a civilization building simulator, complete with self-generated histories and ecologies, character biographies, etc., and its many inhabitants and interconnected facets are not so much played as tended to and nurtured[5], much like an obsessive gardener watering an eccentric

collection of plants. When we say played, we often mean controlled, and when we say game, we often mean a virtual world. What, then, is a better term for what we mean by game? In its place, Galloway suggests the term "action-based medium", opting to avoid the word interactive entirely (active audience theory would say that the novel and indeed all texts are "interactive").[4] To free the action-based medium from preconceived notions of entertainment and pleasure, Galloway proposes that the operative verb be "operate", and the individual who enacts it the "operator"[5]. The key constituent pieces of such an action-based medium further include a computer, which enacts an algorithm, and an architect, or team of architects, who designed said algorithm. Within such a broad and admittedly amorphous definition of video games, we can now more easily admit recent games which have challenged existing taxonomies. Robert Yang's *The Tearoom*, in which penises are represented by firearms as a commentary on LGBTQ+ visibility and the normalization of the implements of violence, highlights the absurdity of the routine acceptance of guns and killing as core to the language of gaming entertainment.

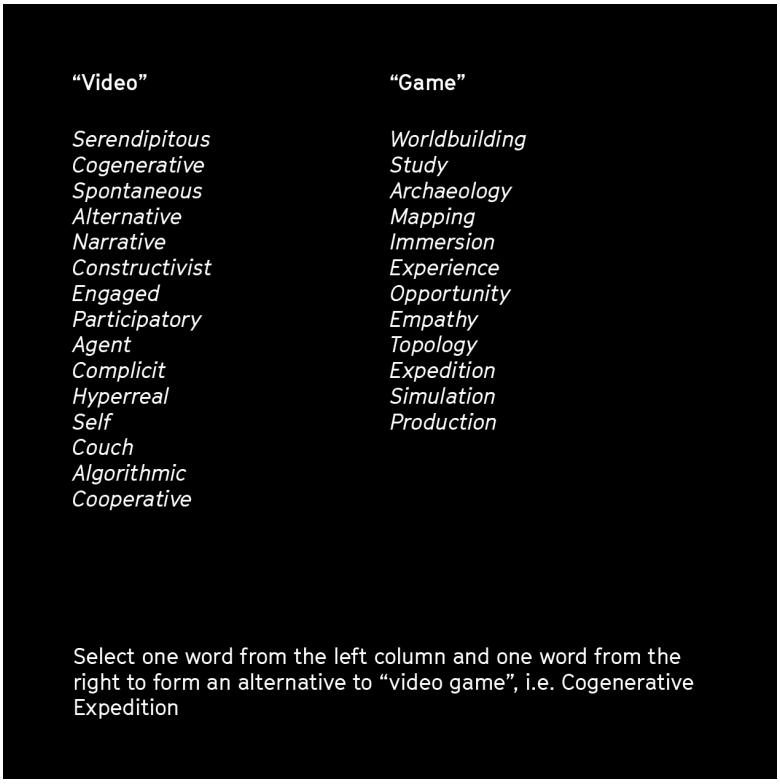


Figure 1: Alternative Terminology for "video game"

The Stanley Parable, a metaphysical struggle between the archetypal game narrator and the player[5], is almost criminally unimaginatively placed into a category of games

[4] Alexander R. Galloway, *Gaming: Essays on Algorithmic Culture* (Minneapolis, MN: University of Minnesota Press, 2006), p. 3.
[5] *Ibid.*, p. 5.

dubbed “walking simulators”. The difference between the narrative bending, deceptively Euclidean space of *The Stanley Parable* and the entirely pedestrian nomenclature is a striking example of how terminology limits the mind. There's a moment early on where the player, the titular Stanley, enters a room with two doors.

Figure 2: Two doors[6]

Until this point, *The Stanley Parable* is not unlike a typical game, presenting spaces to the player in a path that, though branching slightly and meandering here and there, ultimately is linear in nature, fulfilling the game designer’s intentions of visiting room A before room B to find X to use against Y. This intention is further driven home by the omniscient narrator, dictating Stanley’s every move: "Stanley entered the room.", "Stanley looked blankly at the mug on the desk.". But here, *The Stanley Parable* diverges. The player enters the room and faces two doors, and the narrator calls out confidently, "Stanley took the left door.", and there's this incredible moment as the player realizes, *I'm Stanley. I don't have to take the right door.* Suddenly the illusion of the game world is shattered as the cardinal sin of immersion is broken: the player realizes this is a game whose internal reality does not have to be respected. Take the right door, and *Stanley Parable* continues to surprise: there's an MC Escher-style hallway with 3 consecutive turns that does not self-intersect, violating the implicit mapping we all make of our understanding of reality and its physics to the game's physics, and yet again reminding us that just because games seem to be allegorical miniatures of our reality, doesn't mean they have function like they are. Where

[6] *Two doors room,* <https://thestanleyparable.fandom.com/wiki/Two_Doors_Room?file=Two_Doors_Room.jpg> [accessed 29 April 2021]

Stanley Parable lacks in playtime, it more than makes up for in the strength of its ideas, questioning assumptions of virtual spaces, pushing the boundaries of interactivity and what we define as "gameplay", and leaving many more questions behind than answers. But above all, it demonstrates that if we discard our anthropomorphic frames of references and relinquish our reliance on physical analogues to understand virtual space, not only are new varieties of digital experiences possible, but the entire interface between person and virtual can be re-informed and reimagined. These nascent, imaginative forms of being will be the definitive experiences of life in a virtual 21st century, and in this brief moment of transition, we still call them by the simple name “video games”.

3. Consumption metastructures

Perhaps the limitations placed culturally on what a game is and is not stem from the altogether unimaginative name “video game” itself. A brief tour of any one of a multitude of online gaming communities (Twitch, Discord, Steam, YouTube) quickly reveals many a comment containing a fervent fundamentalist defense of what video games can, and therefore cannot, be – that a game can’t be a “game” because no one wins, that a game isn’t a “real game” because it’s too easy, or hard, etc. However overzealous they may seem, these impassioned proclamations on the nature of games share a strange similarity—a myopia concerning gaming—with the academic discourse on video games as it emerged as a popular medium in the 80’s: the idea that games are merely an extension of sorts of cinema and are to be largely dissected and understood as such.

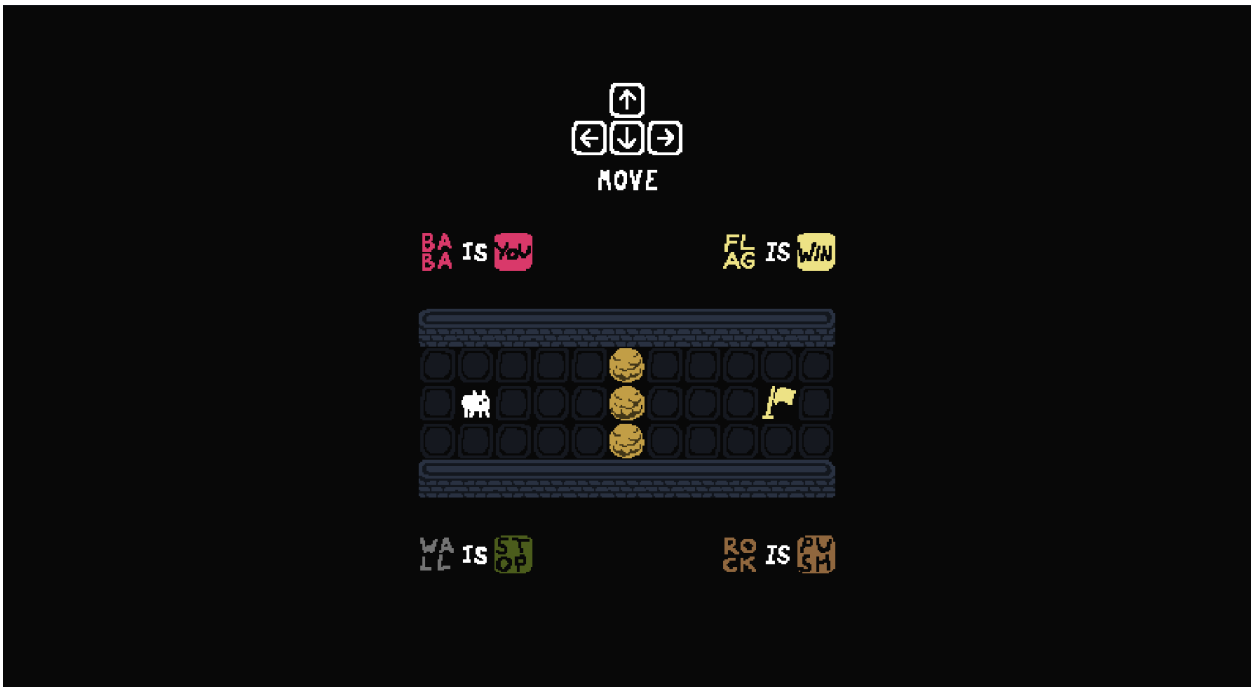
Even the idea that “game” part of the “video game” begins and ends at certain boundaries is somewhat absurd, given the metastructures in which games are disseminated, consumed, and understood. Modern games are introduced through algorithmically auctioned YouTube ads, in-game mobile advertisements, social media word of mouth—a dizzying variety of placements which permeate online existence. They’re often displayed alongside numerous user ratings and relentless sales and price cuts, and even sold in bundles, as the Humble Indie Bundle pioneered. On Steam, the largest digital games store for PC, even before any gameplay is viewed, an interested player might know the aggregated review sentiment, which friends have played and reviewed the game, which bundles the game is in and how well the game matches the users existing library. This ecosystem of discussion, purchasing and collection, rating, and rewards is best understood as the metagame[7], and illuminating its fundamentally game-like nature reveals one way in which video games have already extended beyond the boundaries of play itself. With considerations such as app store chart placings, advertising systems and microtransactions, and the interplay between developers and review outlets all taking

[7] The metagame broadly refers to the set of media, cultural experiences, and digital artifacts which surround games, and focuses on these objects inform and intervene with the sensory and political economies of everyday life. Patrick LeMieux and Stephanie Boluk, *Metagaming: Playing, Competing, Spectating, Cheating, Trading, Making, and Breaking Videogames* (Minneapolis, MN: University of Minnesota Press, 2017), p. 14.

paramount importance in the commercial and cultural success of a game[8], it's become clear that the gamification of games ecosystems is often more high stakes & business critical than design of the games themselves. Nowhere is this more evident than mobile gaming, in which the game itself and its traditionally accepted forms – narrative, video, role playing, player agency, exploration – have been gutted entirely in service of the metagame of microtransactions and the economics of cosmetic changes and upgrades. A modern mobile game is more an exercise in dopamine-fueled economics than anything resembling a game.

As the notion of the metagame blurs the line of reality and the video game by demonstrating all surfaces and interfaces around video games are themselves game systems, the question becomes, are there really games? Or rather do we exist in a media landscape which is a continuum, a spectrum of interactivity and reward? Recommendation algorithms reward players for watching and listening by serving ever more tailored content for users. The modern world is riddled with the logics and power dynamics that video games so clearly display.[9] 21st century life reflects how embedded gamification has become in the modern psyche, begging the question—if everything is a game, then what then do we consider a game?

4. Baba is anti-diegetic



[8] *Ibid.*, p. 15.
[9] McKenzie Wark, *Gamer Theory* (Cambridge, MA: Harvard University Press, 2007).

Figure 3: The first level of Baba Is You[10]

4.1. Diegesis

Even within an individual game, the question of what constitutes the game and what doesn't is of great interest. The word diegetic, used within the context of films, refers to phenomena which occur within the realm of the narrative being presented. The oft presented example is the film's dialogue and soundtrack: both occupy the same auditory plane, but dialogue is present within the world of the film, for characters to hear, produce, and react to, whereas the soundtrack exists outside the film, for audiences to consume and react to. Galloway considered diegesis to be one of the core axes through which games and the actions contained within can be understood and categorized (the other axis being operator vs machinic, i.e., player or algorithm).[11] A core tension within games is the naked contradiction of nondiegetic displays superimposed upon the diegetic, in-world experience. Within the screen of a typical game exists "two layers at play [...] that would seem to contradict and disable each other. The first is the full volume of the world, extending in three dimensions, varied, spatial, and textured. The second is the HUD, which exists in a flat plane and is overlayed on top of the first world. This second layer benefits from none of the richness, dynamic motion, or narrative illusion of the first layer".[12] Whereas a film contains little visual nondiegetic information, save for the opening or closing credits, the video game often exists in a constant state of contradiction. A paper-thin layer of vital nondiegetic information – health, location, gold – is applied upon the expansive possibility of the game world, an almost gaudy veneer applied atop a prized piece of wood. This tension is core to the nature of the game. From the tension between diegetic and nondiegetic arises the act of generative agitation of play itself. To borrow from Derrida's deconstruction, and to grossly oversimplify, an active reading of a text, or the playing of a game, is fundamentally both a constructive and deconstructive act – the meaning of the original text deconstructed, lost, translated, interpreted, and ultimately constructed in the reader's conception as a fundamentally new understanding.[13]

4.2. Ludic tension

Baba Is You is not the first game to nakedly display its inner workings for the player; examples of breaking the fourth wall exist as early as 1998's *Metal Gear Solid*, in which the

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[10] *Island 00,* <https://babaiswiki.fandom.com/wiki/Baba_Is_You_(level)?file=Island-00_Baba_Is_You.png> [accessed 29 April 2021]
[11] Galloway, p. 17.
[12] *Ibid.,* p. 35.
[13] *Ibid.*, p. 28.

player famously loses control of the player character through an adversary's mind control and must plug their controller into an alternative port to continue. In 2015's *Undertale*, the final boss gains the ability to SAVE and LOAD, just as the player has all game, and uses LOAD repeatedly to prevent the player from defeating the boss, much like a player might do upon encountering a difficult boss or portion in a traditional game. In both games, though it may seem that drawing attention to the diegetic barrier would ruin immersion and therefore the experience of the game, it has the opposite effect. By clearly delineating the boundaries of play and of the game world, then suddenly expanding the players conception of the realm of possibility, the game is elevated. In both games, a blurring of diegetic and nondiegetic occurs: In *Metal Gear Solid*, the player is granted agency over the algorithm of the game, by modifying it from outside of the game world; in *Undertale*, the player is robbed of agency over the nondiegetic portions of the game. By revealing and destroying those bounds which constrict the game, *Metal Gear Solid* and *Undertale* appeal to the fundamental generative tension of play, delivering an experience which, although just as governed by the algorithm as each moment which came before it, feels uniquely generated and experienced by the player.

Baba Is You is constantly within this state of superimposed diegesis and nondiegesis. By subsuming the games logic itself into the game world, *Baba Is You* taps into the awe-inducing novelty of blurred diegesis and becomes anti-diegetic. Indeed, there hardly exists a diegetic and nondiegetic world within the play of *Baba Is You*. Whereas many games exist in the comfortable limbo of diegetic tension, smearing the lines between the two once in a while to agitate the player's imagination, *Baba Is You* draws almost no line at all. The rules governing the game are always present within the game world, ready for Baba, or whatever current object "Is You", to modify. Similarly, *Baba Is You* skips the niceties of narrative entirely, providing no core motivation for the player except the game itself; no princess or faltering world is saved when the player successful completes an "Is Win" condition. The "Is Win" is its own end – the game needs no justification to exist; it merely does. By never inviting the player into the world of the game, because no such contrived narrative world exists, *Baba Is You* instead offers an entirely different perspective on and experience of gaming. The player is essentially being offered a place at the table with the developer, almost as if to create it alongside them. It's as if the game were a car, but instead of clean plastic trim and dashboard hiding the inner machinations, they were laid bare, inviting the driver to modify and update them. Rarely has such a collaborative, convention defying opportunity for play ever been presented and it paints a vision of a more collaborative digital future.

There's a clear line between the player led experience of *Baba Is You* and the current movement of co-design and community-driven design. Both seek to invite people traditionally excluded from the creative process and most directly affected by it into the drawing rooms themselves. This is something *Baba Is You* does extremely well—it mediates the players understanding of algorithmic spaces as alterable and tinker-able. It encourages players to not only understand the space around them through the language which creates it, but to test and modify that language, and to go on to not only mod and develop not just games and software but all aspects of computerized life. Broaching the highly complex and interlinked nature of algorithmic spaces playfully provides players with a courage and curiosity to do so further in the greatest algorithmic space of all—contemporary life.

5. Play is Cogeneration

> If photographs are images, and films are moving images, then video games are actions.[14]

The operative word for games is play, but what is play? It's a question without a simple answer. Huizinga, writing broadly on the subject long before 21st century notions of interactivity existed, hits on several key notes: "Play is a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy and the consciousness that it is "different" from "ordinary life.""[15]. Core to this understanding of play is the voluntary and temporary nature of this engagement, and its inherent instability. This tension can be understood as the *ludic contract*, an agreement "on the part of players forgo some of their agency in order to experience an activity they enjoy",[16] or perhaps even more simply and broadly, not simply a pleasurable experience but any experience cooperated with the machine. After all, a game is experienced in lockstep with a machine – to play is to internalize, and thus best, the algorithm; "learning and winning [...] a computer game is a process of demystification: one succeeds by discovering how the software is put together"[17]. The role of the machine, and the designer who created it, must be thought of as equally contributing to the experience, if not dwarfing the player's contribution entirely. In a way, the player and the machine become one as the player maps the machine's algorithm, and the machine presents further and further depth and complexity in the text which the player translates.

In *Don't Starve*, a game whose blunt title clearly outlines its core objective, player survival depends upon the player's ability to demystify the algorithm which drives starvation. The placement of randomly generated resources, the cycle of day and night, the limited rationing of in game time are all hidden logics which dictate the action of the player. The only agency in the hands of the player then is the order in which the various perform-or-perish mandates are fulfilled in. The player, it seems, is at the machine's beck and call. Where, then, is the implied pleasure and free will of the word play, if a game is merely a list of tasks doled out by a machine and taken on by a player?

In the act of operation, the player collaboratively creates the game experience, working with the game's designer and their intentions codified within the structure of the machine. By playing a game, the player augments it, and in the process, the cooperation between player and designer and machine becomes more than just the game or the player together. Sicart introduces an idea of the player-subject, describing the player in contact with the game as "not an isolated moral agent but an agent in constant dialogue, evaluation,

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[14] Galloway, p. 2.
[15] Huizinga, p. 28.
[16] Charles J Pratt, 'In Praise of Spoilsports', *Game Design Advance*, 2010 <https://gamedesignadvance.com/?p=2100> [accessed 19 April 2021].
[17] Ted Friedman, 'Making Sense of Software: Computer Games as Cognitive Mapping', in *Cybersociety*, 1995, p. 82.

and interpretation within the experience of the game situated in a world and in a culture".[18] This contextualizes the player-subject as a new, separate entity who, instead of being subsumed by the ideology of the game by being forced to enact it, generates, challenges, and translates the text.

An interpellationary model of play would claim that games force their value systems upon the player, that play is an act of submission.[19] It assumes too much power on the side of the game, and forgets the players ability to pause, to walk away, and to challenge the games internal systems. The player-subject instead acts as a deconstructivist "type of Derridean reader, i.e. unearthing the game's underlying rules as an object of analysis in order to interact with those rules (i.e. to play) successfully"[20]. In the act of playing the game, the game itself is being deconstructed, translated, and reformulated. Players concoct their own understanding of its algorithms, and inductively prove and test your learned played-game construct against the progenitor game itself. The played-game is unique to the player-subject, experienced through their imperfect translation of signs left for decoding by the developers; as Heraclitus so presciently said, "You can never step in the same river twice".

Within this played-game player-subject translation, the agency which exists is generative. The algorithm of the game is indeed fundamentally limiting in some ways, in the sense that a large part of the entire space of possible experiences has been intentionally designed and foretold. This tension between the limitations of the game world and the generative translation of play is the fundamental defining aspect of the game. The machine is understood to exist within a certain realm, which accepts the player as a form of omni-powerful operator, and respects an internally coherent set of rules, and the player is expected to eke out their experience within these borders. But within the boundaries of the world, the player is given free reign within it.

In *Mario Kart*, where the game is clearly well-defined, contrived, and playable by the machine itself, the machine itself will never truly manufacture something new, outside the realm of its encoded possibilities. But with each play session the narratives spun on top of the specific combination of randomly generated items and track conditions create a novel experience which feels owned by the player – *you* threw that red shell at the last moment, *you* squeezed out the victory over your friends. The implied pleasure endemic to play arises from exactly this: the constructed played-game and its transformations upon the player-subject. The narratives derived from the game and taken by the player and reformed to be their own, uniquely held experiences are the core driving joy of play.

6. The persistent miracle of *Super Smash Brothers Melee*

[18] Miguel Sicart, *The Ethics of Computer Games*. (Cambridge, MA, US: MIT Press, 2009), p. 73.
[19] Lars A.W.J. de Wildt, 'Precarious Play: To Be or Not to Be Stanley', *Press Start*, 1.1 (2014), 1–20, p. 5.
[20] *Ibid.*

Figure 4: The largest Super Smash Brothers Melee tournament to date.[21]

Nowhere is it more evident that story telling is one of the core joys of play than in the thriving community keeping the 20-year-old *Super Smash Brothers Melee* alive. *Melee*, as fans call it, is an anomalistic anachronism within competitive gaming—it's had 3 sequels since its release and its publisher, Nintendo, actively discourages both streaming and competitive play. Whereas other eSports have seen direct cash infusions and support from their respective developers, *Melee* tournaments are run entirely by community volunteers and funded through grassroots means. For much of its life, competitive *Melee*'s tournament payouts were funded entirely through entrance fees for tournament entrants, resulting in pitifully small winnings for its full-time professional competitors. And, being the 20 year old game that it is, *Melee* has to be played on cathode ray tube televisions—the enormous, bulky kind that haven't been commercially sold in almost as long as *Melee* has been around. The material cost of storing hundreds of massive, obsolete televisions and lugging them into venues large enough to fit thousands of player-spectators is an enormous labor of love. The consoles, too, are often difficult to source, as are the actual disks of the game itself. What, then, makes *Melee* so unique, and so worth the gargantuan effort required to sustain it?

The sheer beauty and improbability of *Melee*. Developed in a mere 13 months, *Super Smash Brothers Melee* is riddled with bugs and imperfections. But its identity as a platform fighter, an innovation from Nintendo porting over the acrobatics of *Super Mario* to fighting games, blesses it with an incredible baseline of one of the most expressive movement

[21] *EVO 2016 – Last Match of Melee Grand Finals and Celebration*, <https://www.youtube.com/watch?v=uJiPwY62IhU> [accessed 29 April 2021]

systems ever to be laid at players' fingertips. It has run, dash, walk, jump, double jump, crouch, spot dodge, air dodge, and special recovery moves. Unlike traditional fighting games, which occur on an essentially linear playing field, with players restricted to forward or backwards and the occasional jump, *Melee* is physics-based. And in traditional fighting games, combos are often predetermined by the developers, with precise time windows in which inputs need to be made and explained in either the manual or the pause menu (or both). Combos in *Melee* are entirely based on the physics of the engine itself and the movement choices players make; how quickly the player moves, and how the moves are spaced, and timed all come into account: no two combos are ever the same. *Melee* contains another stroke of genius as well—in a traditional fighting game, once a player is hit and enters hitstun, the state in which their character cannot do anything because they've been hit, input from the hit player ends, and they must watch their character be hit and hit again until the hitting player drops the combo or KO's them. In *Melee*, a player never fully loses control over their character, even when in hitstun. Players have directional influence, or DI, and can control how near or far their character is hit to some small but potentially game-changing degree. This system not only ensures that player never lose connection to their character and are constantly engaged, but transforms being hit and comboing from a straightforward, execution focused affair to a rock-paper-scissors-esque mindgame. DI inwards, and avoid being hit too far off the stage to certain death, but risk your opponent more easily landing a follow up. DI outwards, and avoid an easy follow up, but risk being hit with a strong move that'll knock you off the stage. The freeform, always interactive comboing and the plethora of movement options creates an expressive and improvisational combo system, full of prediction and subversion and above all communication between the players. After all, what is a fighting game but the ultimate exercise in player-to-player communication—reading, predicting, subverting, and styling on the other player, and *Melee* delivers these interactions in droves. Players often can identify other players through gameplay footage alone, so varied and complex is its movement system.

All of that, however, is what is intended in the game, and what's truly beautiful and unique about *Melee* is what was *not* intended. From its earliest days, competitive edge in *Melee* has been a test of its metagame. Like many sports, *Melee* has a metagame, a culture of generally accepted style of play, understood by its community to be the current best path to victory. Basketball has its big men; baseball has its dizzying array of metrics and data analysis. But unlike other sports, *Melee*'s meta often revolves around an arms race of physics engine exploits and correspondingly esoteric game knowledge. In *Melee*, techniques are discovered, and the list of player innovations in the form of physics engine bugs or exploits is a truly astounding listing of successive gameplay innovations: wavedashing, L-canceling, jump cancel grabs, perfect wavelands, pivot forward smashes, shield dropping, PC dropping, ledge canceling, etc. It's unclear how intended by the developers a lot of these discoveries are, but one thing is clear: *Melee* players are willing to pour hours and hours into their game, researching every tiny little feature and mistake of its physics engine, and practicing the exploits they find, just to gain a competitive or even just stylistic advantage. One such technique, moonwalking, allows players to face in one direction while moving in the other direction, and has limited practical application other than style. No central database or document fully documents these new "tech" (short for advanced technique), either—there is no *Melee* bible. Instead, *Melee* is a powerful oral tradition, where complex tech are researched and discovered by the passionate and passed from player to player, from friend to friend by word of mouth and direct person-to-person tutorial. It's this incredible culture of research, of sharing, and of coveted advanced

technologies which elevates *Melee* from mere game to a generative mythos; not only are the stories of players and their accolades a shared narrative, but the literal techniques of playing the game are constructed and disseminated by the players themselves. Only through hours upon hours of learning and practicing these advanced techniques can players master them, and mastery is almost a prerequisite to high level play.

The difficulty of these techniques and the upfront time investment required to execute them makes *Melee* into what can only be described as the platonic ideal of intrinsic motivation within competitive gaming. In *Melee*, when a player performs a technique they had never done before, they didn't gain an edge because they had rote memorized some piece of information about the game, or remembered a quirk their opponent didn't. They literally physically performed a task they could not before, and gained a new ability, now contained within the muscle memory of their hands.

The shared experience of grinding out difficult to execute techniques, the unabated expressiveness of its freeform combat system, and the sheer amount of movement choice presented to the player transforms *Melee* into a game developed and maintained by its players. In a literal sense, *Melee* is also now developed by its players—several successive online matchmaking systems have been developed, the latest of which contains a bespoke latency reduction system which outperforms Nintendo's own offerings. But, in a very real way, the current iteration of *Melee*—the set of techniques and movement options, the styles of play, the stories told about its heroes and villains—are entirely created, shared, and passed on by its players. *Melee* is not played the way developers intended it to be, as a family friendly party game with random chance items spawns and haphazard stages. *Melee* is played how its players want and designed it to be played, a competitive fighting game born from the exploits of a too-quickly-developed Nintendo game, made truly the players own. Every match of modern *Melee* is a celebration of that history, of that ownership, of that vibrant community of players still weaving and discovering new stories to be told about *Melee*.

Melee is a central example of how games have come to not only resemble or simulate real life but supplant and supersede it. The fervor with which *Melee* players approach their game is not a unique one, but on the contrary the quintessential human story. Humans find and discover; they share their findings and they build narratives around them, performing a form of social computation, and they create signs from those things in order to do so, treating the signs as ever and ever more real. The ways in which not only the mythos but the game itself and the experience of playing it are created by the community, through tournaments, game modifications, and documentaries are a compelling image of how players reconfigure and construct postmodern reality.

7. Design for cogeneration

Games which are acutely aware of the intimacy of the cogeneration of play derive their entire memorability or raison d'etre from appealing to the player's urge to internalize and personalize. *Papers Please*, a game in which players examine immigration papers from their desk as a border guard for the fictional authoritarian regime of Arstotzka, contains almost no explicit narrative. Instead, the entirety of the game is experienced through the immigration checkpoint desk the player operates. The game world is gleaned from the

documentation presented to you, and the occasional whispered pleas of the migrants who pass those papers to the player. Explicitly measures of morality are absent; there is no guidance on what is right, or what should be done, and though your actions will have often dire consequences, judgment on their ethical nature is entirely left to the player. It is precisely this void of moral information which allows *Papers Please* to delight and torment the player's sense of righteousness, and to facilitate that construction of the played-game (the emergent narratives) and the player-subject (the learned morality).

Figure 5: The player's view in Papers Please.[22]

On the opposite side of the same coin, moments which prevent players from spinning their own narratives from play, or too heavy handedly force the players towards certain interpretations, impeded this fundamental pleasure of play. This is the greatest criticism of games-as-art games, many of which attempt too seriously to convey a deeper message, or rely too heavily on the language of cinema, wresting control from the player to have important story beats play out in prerendered cutscenes: the strength of gaming is this cogenerative discovery, and even the most basic of acts within a game generates, reveals, and imposes informatic structures. The magic trick of narrative storytelling within modern games is convincing the player that, though the narrative has often been thoroughly planned out and codified well before the player ever steps a virtual foot within the game world, the sequence of events and their causal effects is the players own doing.

[22] *Papers, Please Review*, <https://www.pcgamer.com/papers-please-review-1/> [accessed 29 April 2021]

Schivelbusch writes of the cultural shift occurring after the proliferation of the railroad:

> The empirical reality that made the landscape seen from the train window appear to be "another world" was the railroad itself, with its excavations, tunnels, etc. Yet the railroad was merely an expression of the rail's technological requirements, and the rail itself was a constituent part of the machine ensemble that was the system. It was, in other words, that machine ensemble that interjected it- self between the traveler and the landscape. The traveler perceived the landscape as it was filtered through the machine ensemble.[23]

If we recognize this cultural shift of experiencing the countryside in compressed time framing and through the lens of the machine which mediated it, the train, we might also begin to recognize the cultural shift of experiencing reality though the video game. Virtual experiences which foster this power of cogeneration are slowly enabling those fluent in ludic languages to internalize, process, and recontextualize the algorithms around them. Cogenerative play is not only an exercise in deductive reasoning and imagination, but a widely applicable skill of constructing personalized spaces within rigid algorithmic systems. Taken in the context of the aforementioned metagaming metastructures, this understanding of play implies that players are uniquely equipped within an increasingly gamified world to understand and shape reality itself.

8. Postmodern extromission: visions of a simulated future

> These would be the successive phases of the image:
> —it is the reflection of a basic reality
> —it masks and perverts a basic reality
> —it masks the absence of a basic reality
> —it bears no relation to any reality whatever: it is its own pure simulacrum
>
> In the first case, the image is a good appearance—the representation is of the order of sacrament. In the second, it is an evil appearance—of the order of malefice. In the third, it plays at being an appearance—it is of the order of sorcery. In the fourth, it is no longer in the order of appearance at all, but of simulation.[24]

Writing decades before social media and consumer grade virtual reality, Baudrillard offered a compelling and enduring analysis of postmodern cultural systems—a vision which so eerily predicts or understands the world we live in today that it's difficult to believe the

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[23] Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century*, 1st edn (University of California Press, 2014), p. 24.
[24] Jean Baudrillard, 'The Precession of Simulacra', in *Art after Modernism: Rethinking Representation* (New York; Boston: New Museum of Contemporary Art ; D.R. Godine, 1984), p. 256.

date of publication coincides with the nascent video game industry. Just as arcades were adding their first color sprites and stocking their first cabinets of *Pac-Man*, Baudrillard was meditating on the implications of a society more focused on simulating reality, and experiencing that hyperreal simulation, than reality itself. Video games and virtual experiences have essentially achieved, in the most literal sense, Baudrillard's hyperreality, borrowing from reality (gravity, 3d space), embellishing it (scores, HUDs), and superseding it (VR, AR). But video games are not merely signs and simulacra, and nor either is Baudrillard's hyperreality a passive one. Just as each person who buys into the consumeristic reality production of signs and sign value persists and empowers hyperreality, the act of playing a game both is subsumed by and creates the signs and value systems of the virtual world.

This dual moment of meaning and action is the fundamental postmodern human act; in one stroke, defined entirely by the signs that it is derived from, the hyperreal; and in the other, defining those signs as we go. By operating the virtual experience within a video game, the player subjects themselves to the machine-imposed value systems and logics which are then translated through the metaphor of the virtual world to the physical one. In this sense, games can and should be considered a most invasive form of propaganda, forcing players to enact the beliefs of the designer. And yet, at the same time, the agency of the player-subject to defy, to exit, to pause and to interpret, to cogenerate these belief systems, puts the power into the hands of the player-subject, not the machine. By embodying fully the morality of the game being played, the player gains an intimate and intuitive knowledge of its construction and by extension becomes educated, albeit slowly, in the methods of construction. If games are the ultimate simulacra, if they are simulation manifest, and playing games is the act of internalizing and recreating a mental model of the game logics, then players are gaining the ability to recreate and redefine the simulation of postmodern life itself. This phenomenon I refer to as reality synthesis or extromission, in reference to the ancient Greek belief that the eyes did not, in fact, reflect reality but rather projected it outwards from the mind.

After all, in the 21st century games are reality and reality is a game. LeMieux and Boluk write extensively on how game-based thinking permeates the design of real-world systems,[25] and Wark puts forward that the world is an extended gamespace, a poorly made replica of what is experienced within video games.[26] Studies show that the experiences within a game are often indistinguishable to the mind from reality itself; biophilia, the uptick in psychological well-being associated with exposure to the natural world, ironically is present after exposure to the simulated natural world, whether it be in high definition VR or simply through a 2D depiction.[27]

In a fully simulated postmodern reality, the core struggle of regular existence is the collection and interpretation of the plethora of signs the average life is inundated with. No person is more well suited for this task than the gamer, who not only has been trained through ludic languages of information architecture and game design to quickly and thoroughly recognize the topologies of any given virtual realm, but readily accepts not just a singular simulated reality but a plurality of possible virtual realities. Often, a detachment from reality is cited as a cause of concern for gamers, especially the young and most

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[25] LeMieux and Boluk.
[26] Wark.
[27] Deltcho Valtchanov, Kevin R. Barton, and Colin Ellard, 'Restorative Effects of Virtual Nature Settings', *Cyberpsychology, Behavior, and Social Networking*, 13.5 (2010), 503–12 <https://doi.org/10.1089/cyber.2009.0308>.

impressionable. But it is precisely this detachment from reality that empowers them; many alive today are only faintly aware of the postmodern predicament and its implications for everyday life—the utter void of driving principles and the optimism of modernism, the pervasive cynicism and nihilism, the vacuum of morality which the most self-serving and greedy belief system, neoliberalism, has filled. Postmodern life, by a neo-Marxist account, is a bleak affair. Philosopher Fredric Jameson famously asks, why is it easier to imagine an end to the world than to imagine an end to capitalism?[28] Whereas many grasp desperately for reality and an authenticity which ceases to exist today, gaming is training a generation of individuals ready to discard their already shaky relationship to reality in favor of reality synthesis, in favor of imagining, building, and willing into existence brave new futures, born from a generation of digital natives. It is my hope that these individuals, well versed in the pedagogy of worldbuilding, will conjure many not only new and explorative but truly better worlds for the future to inhabit.

[28] Fredric Jameson, 'Future City', *New Left Review*, 21 <https://newleftreview.org/issues/ii21/articles/fredric-jameson-future-city> [accessed 20 April 2021].

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Appendix A:
Games mentioned in approximate order of relevance

Baba Is You
Genre: Puzzle
Production: Indie
Initial release: 2019

Baba Is You, a 2D puzzle game released in 2019, presents a novel reimagining of one of the most fundamental aspects of games: the algorithms of those games themselves. By allowing the player to alter the game logic directly, Baba Is You enters an almost completely unexplored space of the anti-diegetic: games which draw no distinction between the world of the narrative, the machine's world, and the world of the player. From its ongoing destruction of the fourth wall, its clever incremental level design, and game engine design emerges a compelling challenge to what we call video games today.

The Stanley Parable
Genre: Walking Simulator
Initial release: 2011 (Half-Life 2 mod)
Production: Indie

The Stanley Parable might be one of the most compact pieces of metafiction ever created; a single playthrough to one of its many endings might take as little as a few minutes, but might sit with the player for years. In it, players assume the role of Stanley, an office worker left abandoned within a nondescript office building whose every move is dictated by a seemingly omniscient narrator. Through playful and subversive level design, The Stanley Parable challenges players understanding of virtual realities, narrative, and agency, repeatedly toying with expectations and boundaries with a perceptive and inventive eye.

Super Smash Brothers Melee
Genre: Fighting
Initial release: 2001
Production: Nintendo

A family friendly fighting game turned cult phenomenon, Super Smash Brothers Melee defies convention and even its own creator, Nintendo, to create the most compelling competitive gaming story still being told 20 years after its release. An already expressive movement system is complemented by a dizzying array of player-discovered physics engine quirks and exploits to create one of the most intrinsically rewarding gaming experiences available: advanced techniques are often passed directly from friend to friend, whispered from brother to brother, and developed and honed through hours upon hours of physics-engine-breaking practice. Melee, the piece of software, was developed originally by

Nintendo, but Melee, the game, is a remarkable cultural artifact: a shared text of archaic game knowledge and self-spun creation myths and origin stories, passed on through a vibrant oral tradition and resilient grassroots tournament scene.

Undertale
Genre: Role playing
Initial Release: 2015
Production: Indie

The simplest way to describe Undertale is that it is a role-playing game by classification, but defies several genre conventions. One such convention is uninteresting non-player character dialogue—in this game, through humorous and endlessly playful writing, players actually come to care about the stories of the many inhabitants of the game world. Undertale challenges the framing and language of traditional combat systems of role-playing games as well, and delivers it all in a compact experience chock full of memorable characters and tunes which demands to be played multiple times in order to grasp the full extent of its charming and mysterious world.

Metal Gear Solid
Genre: Stealth Action
Initial Release: 1998
Production: Konami

The Metal Gear series is notorious for its convoluted storytelling and outside-of-the-box play experience. Metal Gear Solid might be the first notable example of playfulness with extending the game world into the real world: a telekinetic villain reads the player's memory card in order to taunt and surprise them by knowing their preferences for other games, and whose mind control can only be defeated by physically unplugging the game controller and plugging it into a different controller port on the console.

Papers Please
Genre: Puzzle
Initial Release: 2013
Production: Indie

Memorable for its oblique narrative and simple delivery, the gameplay of Papers Please occurs entirely from behind the desk of an immigration officer, processing documents for the fictional country Arstotzka. The affair is rife with danger—process documents too slowly or too quickly and be punished or haunted by your decisions for days to come. Through an incredibly simple mechanic players are given a tantalizing glimpse of the greater world which Arstotzka inhabits.

The Tearoom
Genre: Historical Public Bathroom Simulator
Initial Release: 2017
Production: Indie

The Tearoom challenges the archaic and Puritanical value systems embedded within American games rating and censorship by replacing male genitalia with guns, begging the question, why are instruments of death accepted commonplace within games while on-screen sex between men is a revolting and dangerous taboo?

Dwarf Fortress
Genre: Civilization
Initial Release: 2006
Production: Indie

A cult favorite, Dwarf Fortress commands notoriety within even the most dedicated circles of gamers for its obtuse interface, absurd level of detail, and unusually steep learning curve. Unlike most games of the genre, where control over the players civilization is managed on a macro scale, Dwarf Fortress allows the player to view each individual dwarf to a nauseating level of detail, including their personalities. It's well known for its emergent gameplay, down to generating the lore and terrain of the world each fortress is placed in.

Don't Starve
Genre: Survival
Initial Release: 2013
Production: Indie

Don't starve in Don't Starve by collecting food, building materials, and fuel, to stave off starvation and the dangerous darkness of nighttime. In its initial release, it was impossible to win, and success was measured by how many nights spent not starving.

Mario Kart
Genre: Racing
Initial Release: Recurring
Production: Nintendo

A family friendly racing game, released in many different iterations for many different Nintendo consoles, in which players control characters from the Mario franchise and use items to gain an advantage. Similar to Super Smash Brothers in that both are intended as family friendly party games.