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ARTICLE

Improvising through Glitches, Clams, and Deterritorialization in Virtual Reality Games

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Abstract

This paper examines virtual reality gaming as a form of embodied interaction at the intersection of digital mediation, improvisation, and agency. In VR environments, players act through avatars, and their actions are shaped in real time by shifting relations among embodiment, disembodiment, subjectivity, and intersubjectivity. The analysis brings together Gilles Deleuze and Félix Guattari's concept of the Body without Organs, Charles Goodwin and Marjorie Harness Goodwin's work on cooperation and multimodal interaction, and Alessandro Duranti's account of improvisation. Focusing on *Population: One and Richie's Plank Experience*, I argue that improvisation emerges through the unstable relation between the biophysical body and the digital body. Glitches, misalignments, and other breakdowns create moments in which participants must adjust ongoing action spontaneously, thereby destabilizing established physical and linguistic categories. These moments reveal a continuing process of deterritorialization and reterritorialization through which bodies, joint action, and agency are continuously reconfigured.

Keywords: embodiment; gaming; improvisation; response cries; virtual reality

> Man is sick because he is badly constructed. You can tie me up if you wish, but there is nothing more useless than an organ. When you have made him a Body without Organs, then you will have delivered him from all his automatic reactions and restored him to his true freedom. Then you will teach him again to dance wrong-side-out, as in the frenzy of dance halls, and this wrong side out will be his real place.
>
> - Antonin Artaud 1948, 37:18[1]

[1]Deleuze and Guattari's concept of a Body without Organs was inspired by the theatrical philosopher and poet Antonin Artaud (1896–1948). You can listen to Artaud's final radio broadcast that includes the quote above at https://www.youtube.com/watch?v=H7hzdtM0aBE

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Leave the clams in, let 'em know I'm human.

- Bing Crosby, as told to Les Paul,[2,3]

Introduction

Gaming in virtual reality (VR)[4] represents a unique intersection of embodied experience, digital interaction, and improvisational agency. In these environments, players move through virtual spaces as avatars, creating new dynamics in how we understand embodiment, disembodiment, subjectivity, and intersubjectivity. This article examines the theoretical implications of VR gaming as a site for embodied interaction by drawing on Deleuze and Guattari's concept of the Body without Organs (BwO) (Deleuze and Guattari 1987), on Goodwin's analyses of cooperation and multimodal interaction (2008, 2011), and on Duranti's theorization of clams in improvisation (Duranti and Burrell 2005). I consider the relationship between improvisation and embodied subjectivity, including moments when that subjectivity frays or fails, within VR settings. In this account, mismatched parallelisms open the way for on-the-fly modification, while glitches and clams prompt spontaneous adjustments of ongoing embodied action by destabilizing established physical and linguistic categories. Using *Population: One* and *Richie's Plank Experience* as case studies, I explore how improvisation emerges through the negotiation between the biophysical body and the digital body. By using the BwO as a way of describing how capacities shift across physical and digital planes, I show how bodies undergo continual de- and re-territorialization through cross-modal engagement, and how improvisation becomes a crucial site for understanding the relationship between (no)bodies, joint action, and agency. Throughout the analysis, I adapt Deleuze and Guattari's metaphysical vocabulary to the empirical task of tracing how players reorganize their capacities amid technological disruptions and shifting interactional demands, retaining the conceptual force of their terms while grounding them in observable practice.

Theoretical foundations: improvisation, the BwO, and embodiment in VR

Improvisation is often described as the ability to spontaneously adjust to emergent situations in embodied interaction (Schön 1983). Cecil Taylor, the pioneering free-jazz pianist, captures this when he writes that improvisation is "the space where patterns and possibilities converge" (Taylor 1987). In dance, Rothfield (2011, 213) put it another way: "Improvisation is an affirmative relationship to the concrete moments of chance

[2]The term "clams" originates in jazz to describe sour notes or performance mistakes, and in this work refers more broadly to mistimed or maladroit actions.

[3]https://www.nytimes.com/1991/12/01/archives/pop-music-les-paul-once-a-wunderkind-still-a-wizard.html

[4]Virtual reality (VR) is an immersive digital environment that has gained significant traction, first in gaming and entertainment, and increasingly in professional spaces. As of 2024, global VR headset revenues have reached $9.9 billion, with 51 million units shipped since 2020, dominated by Meta's Quest series. Gaming industry forecasts that the VR gaming market alone will grow from $19.2 billion in 2024 to $24.5 billion in 2025 (Future Market Insights 2024; Statista Research Department 2024a; Statista 2024b).

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to be found in the passing moment [...] It is the moment-by-moment activity whereby one body becomes another." Finally, in linguistic anthropology, Duranti and McCoy (2020:797) consider "a combination of conformity and creativity, unconscious habits, and conscious monitoring" to lie at the heart of improvisation. Within VR gaming, improvisation takes on an added ludic dimension, as players must adjust their bodily actions and gestures to the affordances of a sometimes unpredictable, often confounding, and occasionally hostile virtual environment. These modifications are not exclusively attributable to personal skill or practice, since they are influenced by the technological interface and depend on the actions of other player-participants, which may either restrict or facilitate a player's ability to improvise. VR thus presents a site of embodied improvisation where agency is contingent on both the players' actions and the system's affordances.

In this account, my use of improvisation draws selectively from each of the formulations above, since I treat every improvisatory move as one that carries traces of prior practice while simultaneously opening the way for new interpretation, which means that it operates with both anaphoric recall and cataphoric potential. I therefore understand improvisation as the ongoing reorganization of embodied capacities in situations where participants respond to shifting constraints, variable affordances, and emergent alignments, with each adjustment shaped by the history of previous actions and by the possibilities it creates for what follows.

Deleuze and Guattari's *Body without Organs*, although developed within a metaphysical account of how organization takes form, provides a vocabulary that allows us to describe moments when capacities are redistributed across physical, perceptual, and virtual planes.[5] The BWO is, thankfully, not an actual body with its organs removed. In fact, it does not have to be a human body (it can be a social body, a machinic body, a linguistic body (system), or a digital body). We can think of the BWO as a conceptual plane that allows us to consider a body as a dynamic assemblage of intensities and potentialities. The BwO transcends the usual boundaries of the body, allowing for fluid reconfigurations of bodily capacities in response to immersive stimuli and situational demands.

The BwO is developed by Deleuze and Guattari within a philosophical project that describes the conditions under which *organization takes shape*, which means that the term operates at the level of potentiality rather than at the level of observable behavior. I use it differently, since my concern involves the specific moments when players reorganize their capacities across physical, perceptual, and virtual planes in response to technological or interactional disruptions. My goal is to show how the BwO, treated as a figure for shifting distributions of capacity, can illuminate the concrete reassemblies through which players regain coherence after perceptual breakdowns in virtual environments. In their work, Deleuze and Guattari (henceforth D&G) conceptualize the *organism* as the body in its traditional form, structured by notions such as identity,

[5]I lack the space here to review the expansive philosophy of Deleuze and Guattari; my modest aim is to provide a basic outline of the BwO and some related concepts. For helpful texts contextualizing D&G's philosophy, see Goodchild (1996), Holland (1999) and Adkins (2015). For a book-length treatment applying and adapting Deleuze and Guattari to videogames, see Cremin (2015). A Deleuzoguattarian graphic-novel treatment of a kids' *Minecraft* club is offered in Bailey (2021).

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meaning, and purpose. The organism is the body under constraint, in which each organ plays a fixed, predetermined role. For D&G, any organism can enter into a relation with the BwO when its habitual organization loosens and its capacities are redistributed across a plane of immanence.

The BwO then refers to an abstract field where affective intensities and connections form outside the conventional structures that organize bodies, identities, or functions. The BwO represents the affective spark,[6] the unrealized potential of the body—what the body *could be* if it were freed from constraints imposed by both nature and society. D&G encourage us to question the organs as to their function and purpose. What would an organ be like if it had a different function?[7] My interpretive answers below also serve to introduce the concepts of deterritorialization and reterritorialization, which are further defined in the next section.

Consider the following cases:

1. While we typically use our mouths for eating and speaking, the mouth's primordial function is to seek food and explore the environment. As babies, we instinctively approach objects to mouth them, testing for edibility long before we have learned to speak and before we are systematically prevented from putting everything in our mouths. At that point, we are not aware of objects *qua* objects, but we engage with them by feeling their surfaces, interpreting their shapes, and assessing their potential through direct interaction. This is a sort of deterritorialization of the mouth's typically assumed function.
2. We typically use our eyes for seeing, but humans also possess underdeveloped echolocation abilities. People with impaired vision often learn to rely on echolocation to navigate their surroundings. My father, who became blind as an adult, would use a cane to tap the sidewalk and listen to the echoes bouncing off nearby buildings, helping him navigate the crowded streets of Ciudad de México and New York City. His enhanced ability to echolocate didn't come from formal instruction: it was a reorganization of his senses in response to a changing environment and the changing affordances of his own body. His adaptation represents a form of deterritorialization of the eye's function, one that shifts the functional "seeing" role to audition and to neural sensory-motor cortical coupling (Flanagin et al. 2017).

Deterritorialization and reterritorialization in VR

To understand the dynamic transformation of embodiment in VR, I want to draw upon D&G's ideas of deterritorialization and reterritorialization. Deterritorialization involves the breaking down of fixed boundaries, systems, or structures. In VR, this process can play out through the way one's avatar-body breaks from one's normative

[6] "Affect" for D&G is the quality of being affected and the potential to affect things and living beings in the world.

[7] "Is it really so sad and dangerous to be fed up with seeing with your eyes, breathing with your lungs, swallowing with your mouth, talking with your tongue, thinking with your brain, having an anus and larynx, head and legs? Why not walk on your head, sing with your sinuses, see through your skin, breathe with your belly […](Deleuze and Guattari 1987, 151)

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expectations—not only for what one's self looks like (avatars can be customized), but also in terms of what one's body does.

Reterritorialization, conversely, refers to the process through which new systems, identities, or structures are formed in response to the fractures of deterritorialization. One's fleshly body adapts to the digital environment and reorients to take on a new sense of stability and definition. For instance, in *Population: One*, one's avatar possesses the ability to fly. At first, it is very disorienting. Players who are unfamiliar with this ability may try to flap their arms like birds before realizing that they should glide; before realizing that frantically raising and lowering one's arms will dangerously reduce altitude and making one an easier target. Eventually, a newbie will reterritorialize their perception, realign their motions to achieve the new results, and learn to fly.

Together, deterritorialization and reterritorialization offer a framework for understanding how VR allows for the continuous transformation of both the avatar and the player's embodied identity. These processes create a dynamic, evolving experience of subjectivity and intersubjectivity, where the self is constantly remade and redefined through interaction with both the virtual and social worlds, and where a player may make assumptions about another player's de/reterritorialization based on their level of experience and possibly also based on IRL social factors.[8]

The cycle of improvisation starts with a territory

Improvisation must begin somewhere; in the background, there may be a grammatical or spatial structure, a rhythm, or a shared understanding, even if partial or implicit. This grounding context, in Deleuzoguattarian parlance, is a *territory*—a set of constraints that makes improvisation possible in the first place (Deleuze and Guattari 1987, 311). It might be a musical genre like jazz (Duranti and Burrell 2005; Romero Tenorio et al. 2020), the infinitely recursive capacity of Chomskyan syntax (Duranti and McCoy 2020), a shared linguistic, cultural, or musical ideological formation among performers (Hugh Sam 2024), or the literal topography of a climbing wall (Hillawaert, this issue). Territory is never neutral because it has been shaped through repetition, through habits of attention and embodied histories.

Deterritorialization, reterritorialization, and watching out for clams

Against the background of the territory, improvisation begins. It deterritorializes by pulling recognizable elements, such as notes, gestures, phrases, and ideologies out of their usual contexts and setting them on divergent paths. Think of jazz improvisation, and consider this conversation between the legendary jazz performers Kenny Burrell (guitar), Sherman Ferguson (drums), and Jeff Clayton (saxophone) while playing together in Alessandro Duranti's *Structure of Jazz Aesthetics* class in 2002. They are discussing whether one of them has produced a sour note:

[8]IRL is a common shorthand for "in real life," used throughout in distinction to IG ("in game"), online, virtual, or digital. When talking about spaces, the gaming literature often uses *eidetic* for IG space and *noneidetic* for IRL space.

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Clayton: You know what? I can't accept that.
Ferguson: You know, me neither.
Clayton: And you know why? Because we musicians—we jazz musicians—we stand in the corner, hoping that we can minimize the clams.
Burrell: That's right.
Ferguson: Right.
Clayton: And we play and we play and we play, and we paint ourselves… in and out of corners all the time. And so what I just heard from what Gerald was playing was… I heard him paint himself into a harmonic corner.
Burrell: ([laughs])haha.
Clayton: And then manage to get out.
Burrell: ([laughs]) haha.
Clayton: Because there was—there was tension, and there was release.
Burrell: Mhm.
Clayton: So, I just thought it was something else beautiful. He meant to go there.

As we can see from the conversation above, improvisation both leaves something behind and makes something anew, thus providing the engine for reterritorialization. The improviser assembles new alignments and momentary coherences, taking the form of grooves, emergent linguistic variation, or affective logics that hold long enough for something else to happen. As Stover (2017, 6) shows in his analysis of improvisational Cuban Rumba, micro-rhythmic deviations would be misclassified as simple embellishments. They are responses that build on each other and unfold over time, shaped by the melody's aesthetic and emotional pull.

Deterritorialization and reterritorialization thus operate in tandem. To leave one state is to begin constituting another, even if it does not yet have a name, and even if, in retrospect, it is evaluated as part of a signature aesthetic. Simultaneously anaphoric and cataphoric, this duality invites a reevaluation of the role of history, embodied experience, and artifacts in identity, emphasizing fluidity, multiplicity, and assemblages over fixed corporeal boundaries, in line with digital and posthumanist paradigms (Braidotti 2013; Milesi 2022; Herbrechter 2021).

A concrete example: in the popular VR game *Gorilla Tag* (Another Axiom), players' avatars are legless gorillas (See Figure 1 below) who can jump, climb, avoid, and tag other gorillas using only their arms and hands.[9] The limited movement capabilities of the avatars force players to improvise within the constraints of the game's physicality, offering a clear instance of the BwO as it becomes perceptible through practice. In this sense, the BwO is not an entity at work but a plane of immanent potential through which new configurations of movement and perception emerge whenever the body's habitual organization is unsettled.

[9]Why legless gorillas? As of the mid-2020s, most VR systems involve an immersive sensory experience with a headset and two controllers, one for each hand. Because there are no widely-available sensors on the legs (hand tracking from a head-mounted camera is much more doable than foot-tracking), most games have a limited representation of players' leg movements. Ordinarily, running and other leg-propelled actions are underspecified or performed through a joystick on the hand controllers. For some academic work on the enjoyment of Gorilla Tag and Beat Saber, see Boots et al. (2025).

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I once witnessed a group of kids playing "IRL Gorilla Tag," without any gaming devices by pretzel-crossing their legs, locking them into position, and chasing each other around the room surprisingly quickly in a similar fashion to how the gorillas move in the VR game. Thus, a real-life improvisation mimicked the actions of a VR game, showing that in the absence of the digital environment, the biophysical body can improvise and perform actions that transcend its normal boundaries. This type of adaptation—what D&G would call a line of flight—is not exclusive to VR. Any adult who has witnessed children improvising games and porting them between the digital realm and the IRL realm (playing *Angry Birds* with their own bodies as projectiles while knocking down living room cushions) may agree with the author that children at play uniquely exhibit the shifting distributions of capacities, the flow and reorganization of possibilities implied by the BwO.



Figure 1. A legless gorilla in *Gorilla Tag*.

Methods

The case studies presented here come from data collected between 2021 and 2023 within a gaming lab at a large western U.S. university. Although the space is in an instructional building, it has a tufted rug, couches, and soft cushions to improve acoustics and mitigate falls. Within this as-homey-as-institutionally-possible lab environment, research subjects (recruited through social media, campus gaming clubs, and research assistants' networks) were invited to play about one hour of video games specifically chosen for their cooperative modalities. Drinks and snacks were provided. All research sessions involved a consent process carried out by an age-peer, followed by five to ten minutes of free play so that players could become accustomed to the environment. IRB processes were tailored to each game. For example, to play *Richie's Plank Experience* (walking on a simulated plank from a great height), participants were screened for vertigo, fear of heights, arachnophobia (for spider mode), heart conditions, anxiety, and depression. Participants were always given the option to stop the gameplay for any reason, and we actively checked with them that they continued to be willing and comfortable during gameplay.

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Eidetic action was recorded using the Oculus/Meta Quest 2nd generation headset's recording feature, while action in noneidetic space was captured with external video cameras. The audiovisual feeds from these sources were then aligned and merged into a split-screen view using OBS Studio (Open Broadcaster Software). It is from that split-screen view that we conducted our analysis so we could see participants' IG perspective as well as the use of their bodies simultaneously.

Because every action in VR unfolds across the player's biophysical body, the avatar's programmed affordances, and the copresent participation framework, each glitch, hesitation, or prosodic spike functions as a semiotic transposition through which signs originating in one plane become consequential in another, creating a continuous negotiation between embodied expectation and digital consequences.

Case study A: *Population: One* and the failure of re-territorialization

In the early 2020s, one of the leading VR games was Population: One, a first-person shooter (FPS) with battle royale mechanics. Players are flight-dropped into a virtual environment where they must fight until only one competitor or team remains. The game is typically played in squads, and each squad may be composed of strangers from various parts of the world, adding an unpredictable linguistic and social element to the experience.

When we recorded the data in 2021, we found 29 character skins, featuring both male and female representations, along with one scarecrow. Hattie (female) and PJ (male) are the names of the foundational avatar skins that players start with before others can be unlocked through in-game purchases or level progression. While the diversity of skins aims for gender and racial balance, players often defaulted to assuming male underlying identities, with players addressing each other using male terms, such as men, bros, or dudes despite female skins, all while making sexist comments about female avatars, reflecting broader social and gendered dynamics that exist within the metaverse (see Frenkel and Browning 2021).

Despite evident game design intentions to be gender-neutral, there are documented differences in how male and female players experience VR. Research has shown that male participants tend to report a higher sense of presence in virtual environments, feeling more immersed and physically present in the virtual world compared with female participants (Felnhofer et al. 2012). This difference highlights the potential for gendered experiences of embodiment within VR, a phenomenon that can influence how players engage with their avatars and the virtual environment. In *Population: One*, female players often adjust their communication and gameplay to either accommodate or push back against sexist norms. These resulting improvisations modify posture, voice, and strategy, revealing how gender is actively negotiated in virtual space.

In the context of VR, *embodied parallelism also* plays a crucial role in how players experience the virtual world. Bollmer and Suddarth (2022) argue that VR requires a parallelism between the real-world gestures and movements of the player and the virtual avatar to produce a coherent sense of embodiment. Otherwise, players may experience actual physical discomfort, such as nausea and headaches, or fail to connect

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with the avatar in a meaningful way, as is often the case for newbie players unfamiliar with the controls and mechanics of VR. A failure in embodied parallelism can also lead to social crosstalk, as we will see below, because new users are often sidelined until they become more proficient at controlling their avatars.

The following excerpt from a *Population: One* gameplay session captures the above dynamic in action. Transcription conventions are provided in the appendix.

Video File: com.BigBoxVR.PopulationONE-20220302-145558 0:00–3:00 Video link: https://youtu.be/4RY8lzeWZ5U

Participants:

Katy is a newbie female participant.

Jake and Paul are two male players who are already in-game before Katy joins.

Matt is a new male player who sounds considerably younger than the other two males.

Player	Transcript	Explanatory Notes
1 Katy	okay (.) nice	
2 Jake	hello-	
3 Katy	yeah, I see it now	Addressed to an in-real-life peer, not involved in the game
4 Katy	what button? (3.0)	To IRL peer, not IG
5 Jake	tchyeah	
6 Jake	brah (…) well it's awfully quiet with the::se uhm	Possible indirect complaint for Katy's lack of greeting
7 Paul	**oop-** there she is	Reference to the 1993 rap hit by Tag Team? The player runs inside the tower
8 Katy	okay	
9 Paul	(.) hhh gotta yell at Hattie up on top there	Name for the starter female avatar from the opposite team
10 Katy	uhm, I can-	
11 Jake	I gotta yell out **Fatty eyy get em**	Derogatory nickname for female avatar, format tying with/ line 9
12 Paul	e::::y::: they're inside	Format tying with the previous player's utterance
13 Katy	I'm like stuck in the ground (.)	Glitch report 1
14 Jake	got one	
15 Jake	got two (.) almost	
16 Jake	they're coming in through that uh::=	
17 Katy	and I think game play is starting already, too	
18 Jake	=I don't even know if that's right or left	Failure of parallelism/perspective
19 Paul	hahaha	
20 Katy	no, I'm—I think half my body is ihhhn the grohhhuhnd hehe	Glitch report 2
21 Jake	waaah:	Response cry

(*Continued*)

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(*Continued.*)

22 Katy	or (.) I'm ground level	Glitch report 3
23 Jake	nice:::	
24 Paul	**ugghh**: right from behind (heavy sigh)	Response cry
25 Katy	oh I can move now (.) nice.	Format tying with Jake line 23
26 Katy	but I'm very low to the floor	Glitch report 4 to IRL peer, not IG?
27 Paul	hhhhhhhhhhh	Response cry {sighs exasperatedly}
28 Katy	hey what-	Clarification request
29 Jake	dude, that guy on wall where I just died is almost fuckin dead	
30 Jake	I don't even know what's going on	
31 Jake	(hhh) **ahh**: I'm just playing like a piece a shit	
32 Katy	°I think it's a glitch°	Glitch report 5
33 Jake	I need Excalibur (.) that's what's going on	Excalibur = more powerful gun type
34 Paul	**fuck** (.) there's **five** of them=	
35 Jake	=I need Excalibur, bruh, that's all we need	
36 Katy	yeah	
37 Jake	these fuckers like to stay in a little group	
38 Jake	I'm gonna fucking show them what a group DOES=	
39 Paul	=(!!!!!!) show 'em what happens to a group	
40 Jake	**yeah**(.) **they're gonna get shot**	
41 Paul	nice job, dude	Katy restarts her avatar to address the malfunction
42 Paul	I'm gonna use a little bit of shotgun action first	
43 Jake	I'm gonna sneak around if you can't get them, I'm gonna get them on this side	
44 Katy	°okay, I'm good now (.) yeah	Possible glitch resolution
45 Jake	that **one**	
46 Matt	(…) oh I joined rea:lly late	Young male player enters late, runs into tower
47 Paul	no worries (.) shoot – kill – wi:n=	Acknowledges and encourages new player Matt
48 Jake	= aww they're shooting through walls	
49 Jake	they got this stupid shit where you grab the wall and pull yourself through,	
50 Jake	then you can shoot through the damn wall without getting hit dude	
51 Jake	that's what this fuckin punk was doing, I just saw that shit	

(*Continued*)

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(*Continued.*)

52 Matt	you can **do** that?	Incredulity contour
53 Jake	if you grab an edge	Explanation directed at new player
54 Jake	it's got to be the right type of edge where two edges meet in like a fuckin triangle	
55 Jake	it's a weird fuckin-	
56 Matt	agh:	Response cry, was wounded
57 Jake	it's kind of like where you shoot up grab that lil' piece of board and the other things	
58 Jake	but yeah you can do that	Explanation coda; format tying with Matt line 52
59 Katy	I'm moving really slowly, yeah, I don't know if (.)=	Glitch report 6
60 Jake	I'm pulling myself into the ground like that	No uptake
61 Jake	I can shoot through the fucking thing like this	
62 Katy	=it's a normal thing	Self talk or to IRL peer
63 Katy	no, I was, I could run before	Self talk or to IRL peer and continuing attempt to resolve glitch
69 Computer	computerized female voice announces a win with fanfare music	Confetti drops to celebrate a win
70 Jake	that's how you win with three players and negative **one**	Possible dig at Katy

The segment begins with the team materializing outside a tower (as evidenced by Jake's "hello," line 2), and members beginning to engage both socially and tactically. Katy reports a technical glitch ("I'm like stuck in the ground," line 13) and tries to align herself with gameplay ("I think gameplay is starting already," line 17), yet receives no acknowledgment. Her avatar has literally glitched and its virtual body rendered non-functional, but what follows is also a social glitch: she is not taken up as part of the improvisational field, but indirectly chided for her lack of greeting. Katy's stalled participation reflects a form of deterritorialization, in which her embodied expectations, her avatar's compromised affordances, and her unratified bids for alignment fail to coalesce into any new configuration, leaving her without the interactional foothold required for reterritorialization.

In contrast, Matt arrives late (line 46), signals his unfamiliarity, and is immediately welcomed. Paul responds with affiliative reassurance ("no worries"), and Jake begins offering technical guidance in response to Matt's curiosity. Matt's deterritorialization, marked by his temporal and experiential marginality, is met with smooth alignment and reterritorialization through technical talk and team-building moves, such as Paul's expert-framed, avuncular adage "shoot – kill – wi:n" (line 47). The group folds him in, even offering tips for next-level hacks. The male players also exhibit pervasive format tying: quoting, recycling, and repeating bits and pieces of each other's utterances, cooperating in what Charles Goodwin calls "structure-preserving transformations on a public substrate." (Goodwin 2013:9)

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What this moment makes clear is that improvisation in video gaming does not unfold in a neutral space (see also Gray 2014). Processes of de/reterritorialization are not equally available to all players. But can we really say in this case that the marginalization is gendered? Or could it be because Katy is an inexperienced newbie (or both)? In fact, Katy's exclusion may be substantially a result of a bungled entrance, where she fails to greet the team, and the glitch in her system, which doesn't allow her to enter the tower where the rest of the team is playing, rendering her clearly audible in her numerous glitch reports but erasing her from visual copresence. She remains stuck in the spot where everyone on her team originally materialized.

I understand Katy's marginal position as emerging from the convergence of a disrupted entrance, a sustained glitch that prevented her from joining the group's perceptual frame, and a possible gendered orientation toward her bids for affiliation, with these elements combining to limit her interactional uptake throughout the sequence.

Katy's view is shown in Figure 2 below:



Figure 2. Katy's headset view from her glitched-out, stuck-in-the-ground avatar.
Other players on her team have left and are fighting opponents inside the tower in the background.

Deleuze and Guattari describe deterritorialization as a threshold or edge of transformation (Deleuze and Guattari 1987, 503–506), but crossing that threshold socially requires others to recognize it as meaningful. In this case, Katy's improvised solutions remain unratified; her glitch is not interpreted as a cue for solidarity or a bid for play. Instead, her recurrent and unanswered glitch reports provide their own parallel narrative in which uncertainty and breakdown are not reabsorbed into the flow of the game

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Figure 3. Looking down at the plank before stepping out.

but left hanging. She is deterritorialized, but without reterritorialization, her glitch has left her with no new assemblage to inhabit.

Case study B: *Richie's Plank Experience*, clams, and response cries in VR

Richie's Plank Experience (2016) is a VR game designed to simulate the experience of walking along a narrow plank placed high above the ground in a skyscraper setting. You don a VR headset and find yourself on the ground outside a city building. You then ascend in an elevator and step right onto a virtual plank that extends from the edge of the building, seemingly hundreds of feet above the ground. The game is simple in its premise but remarkably effective in its manipulation of embodied perception.

The game mechanics of *RPE* are not goal-oriented. The plank simulation has neither a score nor an opponent, nor is the game played in a campaign with others online. All action revolves around your own movements, as you are given the option to walk to the end of the plank, with the in-game avatar tapping directly into your own reactions to height, balance, and physical orientation (See Figure 3). Unlike console video games, where players inhabit characters through external controllers, *RPE* uses full-body immersion and locomotion to generate its distinctive uncanniness. As in the *Population: One* game, the player experiences the phenomenon of embodied parallelism (Bollmer and Suddarth 2022), where the avatar's locomotion in the virtual space mirrors the player's real-world movements.

For this study, a real-life 2 × 4 wooden plank was procured and aligned with the in-game plank (this is such a popular mixed-reality modification that there are in-game instructions for setup). In addition, a small fan on the floor was pointed up at the

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player and switched on when the virtual elevator doors opened to enhance the realism of the situation. When we pre–tested the scenario, some players fell silent, and, in fear of plummeting to the virtual ground, one of our pre–test subjects crawled on the real floor, while another threw himself at the opposite wall when he saw the spider. These experiences alerted us to the need to provide a padded environment and to establish a buddy system where a friend could catch the player.[10] Because we wanted to record player interactions (as well as administer a recall task for a later study), a questionnaire was designed to keep the player conversing fluidly with their friend, and instructions were given to the player to answer in sentences rather than monosyllables. Thus, the friend that the main player was asked to bring along had two jobs: keeping the research participant talking and catching them if they became unsteady on their feet.

Improvisation and agency in *Richie's Plank Experience*

Improvisation in *RPE* manifests physically, linguistically, and in interaction with the technology. Players adjust their walking pace, balance, and posture to account for the heightened sense of danger and the instability of the virtual space. The stakes seem high: organismic integrity is constantly in question, given the looming possibility of simulated dissolution through falling or jumping off the plank. Players must adapt in response to semiotic layering (Mendoza-Denton and Jannedy 2011), or what Charles Goodwin (2013) refers to as semiotic lamination, where multiple modalities are simultaneously built up across time and action. In this case, semiotic layering includes haptic feedback from the physical wooden plank, the sensation of wind in one's hair, and the continuing interaction with friends, alongside in-game sensory inputs such as the in-game sounds of the howling wind, creaking wood, spiders trilling, and the helicopter, along with uncanny visuals, such as having a shadow but no feet, and controllers where the hands should be.

This convergence of real-life, in-game, and proprioceptive cues creates a densely layered interactional field, compelling players to improvise moment by moment as they navigate fragmented perceptions and the porous boundary between virtual and physical embodiment. Let's now look at the transcript of the interaction:

Video file name: spider scary.mp4 Video link: https://youtu.be/Gejj6mDPY5k

Speakers:

Milly: participant wearing the headset.

Fiona: her friend and coparticipant is asking questions from a questionnaire, also tasked with catching Fiona if she falls

Ray: Research assistant monitoring and recording action.

Otherwise, transcription is modified GAT 2, using IPA in red square brackets for accurate transcription of response cries (see appendix). Segments bivalent between response cries and words are in italics.

(*Continued*)

[10]One of our inspirations for this study was the collection of many YouTube videos where this type of setup is staged with friends. See London's Fulham FC players braving virtual heights: https://www.youtube.com/watch?v=ArlavrOFpkI

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(*Continued.*)

Speaker	Transcript	Notes on the environment and on Milly's actions and speech
1 Milly	[ɯ:::]	Looks out at the plank where there is a cake at the end.
2 Milly	[ɯ:hhuʔɯ::]	Slow steps, walks carefully toward the plank. Phonation has jitter and shimmer.
3 Fiona	look around=	
4 Milly	=[hɯhɯ:::]	Leans forward and looks out of the elevator first to her left, then to her right.
5 Fiona	look around carefully	
6 Fiona	do you see spiders and caterpillars	
7 Milly	um (.)	One foot on the plank. Looks in every direction before stepping onto it
8 Milly	I don't see any spiders (.) or caterpillars .hhh	Catches breath
9 Milly	↑ >*[ʍãʔ haːw]* <	Steps onto the plank with both feet. Slightly unsteady, emits high-pitched, compressed falsetto which sounds a bit like "What? How?" between lexical and response cry]
10 Milly	what I'm so scared right nhhohw	Two steps down plank, line 12 utterance indeterminate between "what?" and response cry
11 Milly	[hʉhɘhɘhɘ]	
12 Milly	↑↑ *[ʍãʔ]*	
13 Milly	okay.	Two confident steps, then stops. Utterance in modal voice.
14 Milly	what am I supposed to ↑do	Looks around, chopper sound
15 Fiona	how many eyes do the ↑spiders have	Spiders start an ominous trilling noise in the background as they approach. This noise keeps up for the rest of the recording
16 Milly	>I don't know < I don't see any spi:↑der::: I guess=	Looks at helicopter sound overhead and loses balance [extends both syllables of "spider" with balance problems, goes from modal to falsetto]



Milly is losing her balance at Line 16, and with it, losing her modal phonation and going into falsetto.

17 Ray	=don't forget the cake	
18 Milly	(1.2)	Bends down to pick up the cake; the spider pops out

(*Continued*)

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(*Continued.*)

19 Milly	↑↑**ah ha //hahaha]**	Shakes controllers as though she were shaking spiders off her arms
20 Fiona	↑ **//hahaha]**	Some cake slices fall from the plank
21 Milly	**hahaha [ɦ̊i:::]**	Airstream mechanism: pulmonic ingressive inbreath with a high vowel
22 Milly	>oh my god, it fell <	Keeps dropping cake
23 Milly	↑**a:ha**ha	Sees a giant spider to her right, then turns her body left
24 Milly	**[ɦ̊i:]**	Ingressive mechanism Spider gets closer
25 Milly	↑ah hahaha	Starts shielding face with controllers
26 Milly	↑ah ha [ɦ̊i::]	Notices the spider to her right, draws away from it
27 Milly	**[i::y:: ʉ:::ʌ:]**	Sounds like “eeewww”
28 Fiona	hihihihi	
29 Milly	**[ɦ̊i:]**	Keeps shielding face with controllers and turning away



Milly is shielding her face with controllers at line 29.

30 Milly	**[i:Ih:y:: ʉ::::: ʌ]**	
31 Milly	**[ɦ̊i:]**	
32 Fiona	how many eyes do the spiders have	
33 Milly	**[i:Ih:y:: ʉ:::::hʌ]**	
34 Milly	>I don’t want to look up (.) **I don’t want to look** < ***↑[ʌ:ɘ::hp⃗]***	Shrugs while protecting oneself with controllers. Last syllable sounds like high-pitched “up.”
35 Milly	**[ʔʌ: hɘ:]**	Starts after looking up, hides face
36 Fiona	how many ehhyes do they have	
37 Milly	**[ʉ::::::hʌ] I don’t know**	
38 Milly	>I don’t know how many eyes this spider has <	compressed and strained delivery
39 Fiona	>look up <	compressed
40 Milly	It has hecka-	Throws cake at the spider
41 Milly	It has many eyes:	Modal phonation

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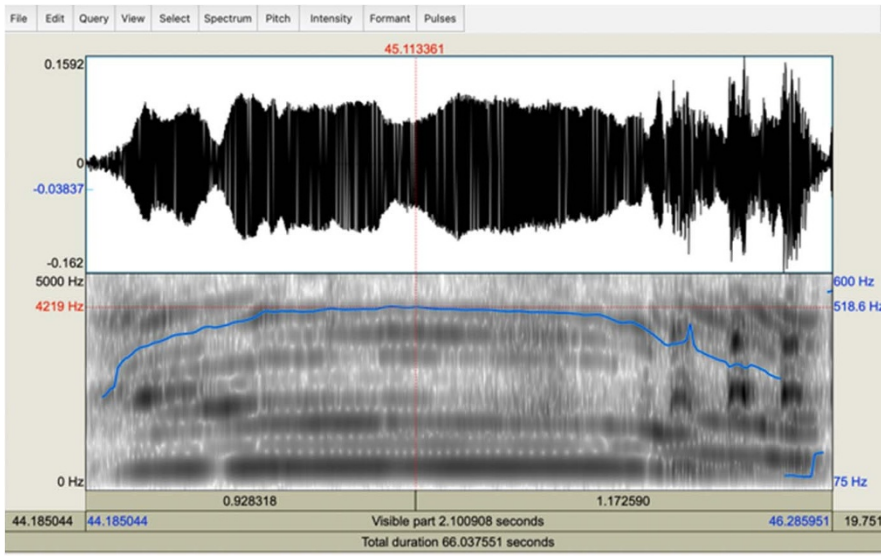


Figure 4. Waveform, spectrogram, and f0 contour (in blue) for line 33:**[i:Ih:y:: ʉ:::::hʌ]/** "eeeeew" duration 2.1 seconds.

The above interactional sequence from *Richie's Plank Experience* reveals that response cries in VR are neither simple affective outbursts nor malformed "clams." Their interjections are structurally and rhythmically organized components of gaming participation (Aarsand and Aronsson 2009). These patterned shifts in phonation mark a redistribution of perceptual and vocal capacities under affective pressure, and it is this transient reorganization that I treat as the empirical manifestation of the BwO within the virtual environment.

The f0 contour pictured in Figure 4 is one of three separate and near-identical quasi-lexical[11] turns by Milly, each one uttered in an interactional sequence with her friend Fiona, in the sequence ABABAB. Drawing on Goffman's (1978) work on response cries and C. Goodwin's (2013, 2018) theories of cooperation, we can understand these utterances as important to the organization of affect and social action, and to the process of deterritorialization and reterritorialization. Furthermore, M.H. Goodwin, Cekaite, and C.Goodwin's (2012) analysis of "eeeew" in data from Los Angeles middle school girls shows that this type of utterance functions as a strong negative stance marker of disgust, and is often accompanied by actual physical recoiling. Such an interpretation of a negative, avoidant stance is supported by Milly repeated body torque to turn away from the spider and her use of the controllers to "shield" her face.[12]

[11]John Heritage, in personal communication, advocated for considering the utterance "eeewww" as fully lexicalized.

[12]Thanks to Candy Goodwin for this observation that brings together the embodied, lexical, and intonational modalities.

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Milly's vocalizations function as semiotic resources that mediate the tension between her bodily experience of disgust, fear, and excitement and the complexity of the VR environment (See also Mendoza-Denton et al. 2017). These interjections/response cries are extragrammatical but stand as full utterances (Ameka 1992); some are borderline lexical, exhibiting distinctive pitch contours and communicative respiratory mechanisms. They form a recognizable interactional pattern that recurs throughout the encounter. Their grammatical marginality is mirrored in their analytic marginalization in the literature, though as Ameka (1992) and more recently Dingemanse (2024) argue, interjections constitute a universal and systematic part of language and play a central role in interaction. Jittery and shimmery vocalizations in the beginning come across as trepidation-laden "[ɯ:::], [ɯ:hhuʔɯ::], [hɯhɯ:::]" (lines 1–4), and establish a rhythmic and acoustic structure that persists like a leitmotif as the game intensifies. Response cries serve as affective discharges *and* affective scaffolding, showing Fiona where she can provide support and anchoring Milly's bodily responses across a semiotic partiture (Mendoza-Denton and Jannedy 2011) involving rapid-fire visuals, in-game sounds, and real-time peer interaction.

As the VR scenario becomes more intense, particularly with the appearance of spiders and sudden haptic feedback, Milly's vocal expressions evolve into a patterned series of sequenced cries. These include bivalent lexical-affective hybrids, such as [ʍãʔ]/ "what" and [ha:w]/ "how" (lines 9, 12); and clearly nonpropositional vocalizations, such as [hʉhəhəhə] (line 11), [h̊i:::] (lines 21, 24, 29), [i::y:: ʉ::::ʌ:] (line 27), [ʉ:::::hʌ] (lines 30, 37). Line 10 notably repeats the phonetic form of the line 9 response cry but sets it in motion in the grammar, where falsetto gives way to modal phonation. This is reminiscent of the jazz conversation we saw above, where a "clam" winds up being repeated and reinterpreted as a purposeful segment. Performing a kind of style shift, here the repetition causes the entire utterance in line 10 to be reinterpreted as anaphoric, bivalent between affective intensity and lexicon. I encourage the reader to listen to these changes through the link provided.That the sounds exhibit format tying and repetition through the reuse of prosodic and phonetic forms across a single speaker's turns means that they create cohesion without relying on syntactic structure (Goodwin 2011). Across speakers, the repetition of vowel types, intonation contours, and phonation methods establishes cooperative transformation and affective interactional rhythm. Fiona's responses follow Milly's phonation and timing. For example, Fiona's laughter pulses in lines 20 and 28 mirror the vowel height in Milly's laughter and post-laughter inhalation respectively, echoing pitch, vowel geometry, and number of pulses and rhythm to form a rhythmic, collaborative affective sequence.

In their study of political speech, Mendoza-Denton and Jannedy (2011) analyze how intonation and gesture operate within complementary and supplementary multimodal systems. In complementary systems, modalities such as speech and gesture contribute different components to a single communicative act, as when a speaker says "this city" while pointing to a location on a map. In supplementary systems, multiple modalities reinforce the same communicative content, amplifying its salience through redundancy, as in a raised voice accompanied by a forceful gesture. In Milly's case, response cries operate within both systems. These cries supplement visible fear in her

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bodily reactions (shielding her face, shaking off the virtual spiders) while also contributing complementary cues that direct attention to features of the environment, such as spiders or the plank's edge. These are both emotional expressions and interactional structures that help the player organize perception and action across sensory domains.

The presence of lengthened ingressive phonation at the end of several of Milly's laugh tokens adds another layer of affective and physiological significance to the response cries. These inhalation events—the high amplitude ingressive segments in lines 21, 24, 29, and 31—were realized with high vowels and tended to emerge at points of high emotional saturation or physical overwhelm. Trouvain et al found in corpus studies that ingressive phases are common at the end of laughter bouts, but hypothesized that "inhalation in laughter is a consequence of unplanned air leakage due to spontaneous vocalization." (2022, 29). Here, the poetic patterning of the inbreaths signals the dissipation of affective arousal and often accompanies the shift back into verbal activity and modal voice. In Milly's case, these ingressives do not appear to be unplanned leaks, and are reminiscent instead of the well documented laughter-joining events in the discourse and conversation analytic literature (Glenn 2003), since they participate in the interaction by providing patterns of vowel geometry and timing that are followed by the interlocutor (see also laughter entrainment, as in Ludusan and Wagner 2022). These moments sit at the edge of what Ameka (1992) and Dingemanse (2024) call the core of language: interjections and vocal expressions that, though often dismissed as peripheral, perform critical interpersonal and affective work. In this context, the ingressive laugh tokens form part of a distributed system of vocal regulation, allowing Milly to process, display, and transition out of overwhelming affective states while maintaining interactional presence within a densely layered VR environment.

While some of Milly's vocalizations may initially appear as "clams"—that is, malformed or misfired phonatory sequences that deviate from recognizable linguistic or prosodic expectations—they should not be dismissed as performance failures. Rather, these clams mark moments of improvisational opening, where the body exceeds prescripted interactional norms and enters a state of affective experimentation. What might seem like excesses, stumbles, or leakages in the phonatory stream are, in fact, rhythmic and prosodic cues that invite co-participation. Fiona's echoic responses show that she is attuned not only to Milly's lexical utterances but also to her nonlexical vocal stylings. These productive disalignments create the space for joint meaning-making, affective resonance, and what Goffman (1974) would call the transformation of a "serious frame" into a "play frame." In this sense, clams are better understood as launch points for improvisation, co–constructed in real time through vocal patterning, timing, and embodied responsiveness.

Conclusion: improvisation, presence, and the virtual body

> The skin is faster than the word.
> Brian Massumi (2021, 25)

The cases I have traced here suggest that embodiment in VR is itself a form of improvisation under affective constraint. Through the lens of case studies on the games

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Population: One and *Richie's Plank Experience*, we have seen how players inhabit a semiotically layered and precarious terrain where the avatar becomes a BwO, responding creatively to glitches and clams in interaction.

This work argues for a view of interaction that makes room for the incipient, the precarious, and the excessive. In linguistic anthropology, as in linguistics more broadly, we often center our analyses on what we can identify as speech events, and break these down into utterances and tokens. In other words, we center systems of signs that have already occurred, leaving us ill-equipped to account for what is absent, unsaid, or not-yet-realized. This is the realm of negative data. Interrupted gestures, failed alignments, and affective intensities that are never resolved into words (failures of reterritorialization) are difficult to analyze in disciplines that rely on transcription, and in the case of sociolinguistics, on proportional counts of linguistic phenomena. By engaging with de/reterritorialization as an analytic tool, this paper attempts to make legible those zones of affective instability that resist symbolization.

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Appendix

The transcription system used in this study is a modified version of GAT 2 (Selting, Auer, and Barth-Weingarten 2011), adapted to reflect the affective, phonetic, and multimodal features of VR interaction. Utterances are transcribed orthographically, avoiding the use of eye dialect. Nonlexical vocalizations are transcribed in IPA, using square brackets to denote phonetic transcription. Prosodic and segmental details are added as needed, especially for nonlexical vocalizations. Loudness is indicated using boldface (e.g., **no**). Pitch movement is marked with arrows (↑ rising, ↓ falling) before the relevant segment. Elongation is represented with colons (e.g., *ye::s*) or extended IPA vowels (e.g., [ʉ:::::hʌ]). Ingressive phonation is indicated with [h̆], and other voice qualities (e.g., jitter and shimmer) are noted when salient. Laughter is rendered as *hahaha*; overlapping segments are marked with slashes (e.g., *//hahaha//*). Descriptions of gesture, avatar movement, and on-screen actions appear in a right-hand comment tier.

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