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Video Game Frictions: Grammars of Normativity, Aesthetics of Trouble

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Abstract

This article offers a critical reading of the tensions between two contemporary regimes of game design: on the one side, *seamless game design*, which aims to smooth out the gaming experience by eliminating any form of rupture; on the other, a set of practices that can be grouped under the label *friction-based game design*, which embraces, provokes, or stages various forms of resistance. By analyzing several types of friction, the article identifies their effects on player experience (destabilization, disorientation, discomfort) and questions their critical potential.
Friction is presented not as a flaw to be corrected, but as an aesthetic and political operator capable of shifting dominant norms of playability. In doing so, the study shows that these troubled or troubling — games reveal the stratified, unstable, and manipulable nature of the digital medium itself, often concealed by fluidity-oriented design aesthetics.

Keywords *Video game, Friction, Technology, Digital, Design, Interaction.*

1. Introduction

The notion of seamless design refers to a design paradigm aimed at erasing perceptible mediations: fluid interactions, invisible transitions, the elimination of points of friction. Driven by the ideal of a continuous and intuitive experience, this logic has gradually established itself as the dominant norm across many fields of contemporary design.

Video games are no exception to this dynamic. In fact, they offer a privileged terrain for the implementation of seamless design, where even the slightest discontinuity is regarded as a potential obstacle to immersion or engagement. In this context, the play experience tends to be modelled as a continuous flow — free of apparent breaks or visible roughness.

This shift, now almost imperceptible due to its widespread adoption, nevertheless invites a crucial question: what becomes of play when fluidity is no longer a formal choice but a norm taken for granted?

This article proposes to examine the mechanisms at work in seamless video game design, first by analyzing its characteristic processes, then by contrasting them with design approaches that deviate from it. By studying these deviations, we aim to shed light on how seamless design shapes the implicit expectations associated with the experience of play.

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2. Toward Seamless Play: Erasing Mediations and Smoothing Experience

2.1 Seamless Design as a Dominant Paradigm in Contemporary Game Design

The concept of *seamlessness* originates in 20th-century industrial design, championed by figures such as Dieter Rams and Raymond Loewy, who advocated for clarity, simplicity, and functional elegance. In his *Ten Principles for Good Design*, Rams asserts that a well-designed product should "explain itself," requiring neither instructions nor interpretation. Ergonomics thus emerges as a design imperative, seeking to optimize ease of use while minimizing cognitive load and unnecessary effort.

This ethos was later extended within User Experience (UX) Design, notably by thinkers such as Don Norman, who argued that the best design is one that remains invisible. In *The Design of Everyday Things* (Norman, 1988), Norman emphasizes that intuitive design anticipates user behavior, guides it seamlessly, and prevents error — precisely by requiring no reflective effort. Apple's design philosophy exemplifies this principle: products such as the iPhone or MacBook are celebrated for their minimal interface, predictability, and immediate, affordant feedback. The dominant interaction paradigms on mobile platforms — *tap*, *swipe*, *pinch* — are the culmination of this pursuit of transparency and intuitive coherence.

Within contemporary game design, this ideology translates into a strong normative pressure toward seamless design. The imperative is to render the game experience maximally accessible by eliminating any friction that might hinder the player's immersion or engagement. This imperative acquires a particular intensity, since the medium relies not only on reception but on performative interaction. The game unfolds only through the player's active involvement: they must manipulate, decide, react. As a result, any friction — whether motor, perceptual, or cognitive — assumes considerable weight, potentially interrupting the flow of action or distancing the player from the game world.

This pressure toward frictionlessness is compounded by a second characteristic of video games: their inherent heterogeneity. Unlike more unified media forms, games orchestrate a diverse ensemble of elements — animated visuals, text, audio, gameplay mechanics, narrative contents — each governed by distinct logics. This internal diversity renders the medium especially prone to disruption, as every component carries the potential to introduce discontinuity or resistance.

Strategies of seamless game design emerge in response to this dual condition: on the one hand, the performative structure of play; on the other, the constitutive heterogeneity of the medium. It is at the intersection of these two dimensions that frictions accumulate — and that seamless design intervenes, not merely as an aesthetic choice, but as a disciplinary mechanism aimed at sustaining the illusion of coherence, immediacy, and uninterrupted flow.

2.2 Five Design Logics in the Service of Fluidity

Given this context, we can now examine some methods employed by game designers to establish continuity. Whether they concern the interface, narrative, staging, or game mechanics, these methods all share the same goal: the elimination or invisibilization of friction. We highlight five of them.

A first method typical of seamless game design consists in facilitating the player's initial engagement by integrating learning directly into the experience itself (Hodent, 2017, p. 167). Games such as *Portal* (Valve, 2007) or *Inside* (Playdead, 2016) illustrate this attention to continuity by orchestrating the opening moments (onboarding) as disguised learning sequences. Rules are no longer presented in manuals or tutorial sections, but introduced through gameplay itself, to the point that it becomes difficult to distinguish between learning phases and play phases. This shift is accompanied by a change in design objectives: the aim is no longer to ensure knowledge of the rules, but to enable functional appropriation. Learning becomes operative, relying more on practice than explanation (Hodent, 2017, p. 87).

A second method concerns the coordination of the various layers that make up a video game. As a composite medium, the game combines code, image, sound, text, and interactivity. A classic perspective considers the alignment and convergence of these elements as conditions for a successful gameplay experience. The MDA model (Hunicke et al., 2004), which proposes a structure based on the fluid articulation of game mechanics and aesthetic effects, follows this logic. What the player does, sees, hears, and feels should belong to the same system of signs. When this convergence is achieved, action is said to become intuitive—not because it is simple, but because it is supported simultaneously by several sensory and symbolic channels. A game like *Tetris Effect* (Enhance, 2018) radicalizes this logic and aims for a synesthetic experience.

A third design method involves the management of the temporal flow of the experience. In seamless design logic, an action in progress cannot tolerate abrupt interruption or arbitrary slowdown. Maintaining rhythmic continuity thus becomes a central goal: it involves preserving the dynamic of action by reducing downtime, removing loading screens, smoothing difficulty, or anticipating player gestures. The experience must unfold smoothly, with each transition designed to appear natural or imperceptible. Through its uninterrupted design, *Super Meat Boy* (Team Meat, 2010) offers a clear example of these principles: the moment the player fails, they are immediately returned to action, without the opportunity to dwell on their failure (McMillen, 2010). In another register, Jenova Chen's adaptation of flow theory (Csikszentmihalyi, 1988) in *flOw* (thatgamecompagny, 2007), *Flower* (ibid, 2009), and *Journey* (ibid, 2012) illustrates the popularity of constant progression without noticeable transition.

A fourth approach extends this logic by seeking to neutralize all elements that remind the player of their external position relative to the game world. The aim is to erase apparent layers of mediation in order to promote immersive continuity. This is the logic behind the development of intra-diegetic interfaces, as exemplified by *Dead Space* (Visceral Games, 2006). This erasure can also concern material elements: controllers, mice, or input devices are designed to fit the shape of the hand, reduce manipulation effort, and be as affordant as possible. This phenomenon is part of a broader material history of game interfaces, marked by a phylogenesis of controllers oriented toward functional transparency and the reduction of physical friction (Nova & Bolli, 2013). This logic can extend even to the player's body, whose presence is meant to be minimized. Two contrasting strategies illustrate this. On one hand, homothetic design — which aligns the player's movements with those of the avatar and tends to superimpose real and simulated space — seeks to reinforce the illusion of embodiment. *Half-*

Life: Alyx (Valve, 2020), in virtual reality, reflects this orientation. On the other hand, some productions emphasize minimalism to reduce friction points — *Monument Valley* (ustwo games, 2014) for instance.

Finally, a fifth design logic consists in relying on pre-existing forms of codification. In a seamless logic, some designers seek to reduce rule exposition by drawing on conventions already internalized by players. “Intuitiveness” depends less on the transparency of systems than on prior acculturation to interaction norms. A green button to confirm, a glowing platform to indicate a jump, a map saturated with familiar icons — elements reduce interpretive effort not through intrinsic clarity, but through recurrence in prior experiences. They come to be forgotten because they belong to a repertoire of gestures and signs acquired through use. What seems self-evident in practice is often the result of embodied learning that has become invisible through repetition (Bourdieu, 1979). *Call of Duty* (Activision, 2003) exemplifies this logic, repeating the same interaction patterns across titles.

Seamless design has gradually become a structuring norm in contemporary video game design. Associated with quality, polish, and accessibility, it now represents an ideal of continuous, intuitive, and frictionless experience. This logic, embedded in industrial standards, player expectations, and design methodologies, tends to naturalize certain design choices by presenting them as self-evident. In doing so, it shapes an implicit definition of what a “good” video game experience should be.

However, the hegemony of this approach should not conceal the existence of other possible forms of video games. In the next section, we will not merely show that alternative aesthetic or technical approaches exist but ask what these counter-models reveal about games as a specific form of experience.

3. Forms of Play Against the Current: Design Through Friction

While seamless design has become a hegemonic norm in contemporary video game development, it represents only one possible way of organizing play experience. In contrast to this logic of fluidification, a heterogeneous set of design practices proposes alternative ways of playing and designing games. This approach aligns with what Douglas Wilson calls *broken games*:

> “*intentionally ‘broken’ or otherwise incomplete game systems can help support a distinctly self-motivated and collaborative form of play.”* (Wilson, 2011)

These types of experiences are based on the introduction of breaks, disjunctions, and tensions that disrupt the continuity of gameplay. Rather than avoiding friction, these games actively cultivate it as a space of disturbance and uncertainty — sometimes even embracing deficiencies, dysfunctions, or incompleteness as design principles. This approach, grounded in the disruption of established norms, more broadly echoes a conception of play as a form of resistance to systems.

> *“In the age of computational machines, we must understand play both as playing with systems and playing within systems —as a form of appropriation, but also as a form of resistance against them. The computer offers us the pleasure of bounded, constrained, logical experiences; play offers us the pleasure of pushing against these limits and reclaiming them. It reintroduces ambiguity into systems*

> *designed for clarity and efficiency. If systems thinking creates structures to explain, understand, and express the world, play sometimes takes hold of those same structures to subvert their logic in the name of expression."* (Sicart, 2014, p. 98)

We present here six such strategies, without claiming to be exhaustive.

3.1 Control

A first strategy consists in offering the player a deliberately suboptimal or unreliable control scheme. In *Surgeon Simulator* (Bossa Studios, 2013), each finger is controlled independently, making object manipulation extremely awkward — at odds with standard ergonomic principles. Another approach involves rendering the avatar's structure unstable or incoherent, as in *QWOP* (Bennett Foddy, 2008), where the player controls a floppy, disjointed body that constantly teeters on the edge of collapse. In *Gigantomachie* (One Life Remains, 2013), players are confronted with a controller 10 meters long, forcing them either to run between buttons or to share the device with others.

In other cases, the player's own body becomes a site of friction, through unusual motor constraints. This is the case in *Bounden* (Game Oven, 2014), where two players must synchronize their movements in a choreographed dance.

In all these cases, the same outcome emerges: a disruption of motor efficiency and the illusion of mastery. By breaking with the logic of fluid control, these games remind the player of the materiality, resistance, and conventionality of interfaces — whose availability, in the Heideggerian sense of *ready-to-hand* (Heidegger, 1927), is far from self-evident.

3.2 Perception

A second friction-based strategy can be identified, this time relying on perceptual misalignment. Here, the aim is no longer to obstruct movement, but to destabilize the perception. The player is not prevented from acting, but struggles to make sense of what they perceive, unable to align their senses with the game environment. This perceptual friction often stems from the dissonance or competition between sensory channels — misleading sounds, ambiguous visuals, unstable spatial structures — or from cognitive overload: excessive signals, flashing lights, high display speeds, or a mismatch between action and perceptual feedback.

This kind of asynchrony may make visuals too rapid to process, sound too saturated to orient the player, or the interface too unstable to interpret in real time. The friction here lies in the instability or inadequacy of the sensory flow, which puts the player's perceptual adjustment capacities to the test.

Such disorientation can take several forms. *Hypnospace Outlaw* (Tendershoot, 2019) pastiches 1990s web interfaces to the point of visual and structural overload, making navigation unpleasant. In *Space Giraffe* (Llamasoft, 2008), Jeff Minter embraces extreme psychedelia, stimulating the senses to the point of deliberate saturation. In contrast, titles like *Infini* (Barnaque, 2020) or *Manifold Garden* (Chyr, 2019) destabilize perception by relying on paradoxical spatial logics. In all cases, the friction does not stem from a material obstacle or difficulty in acting, but from sensory uncertainty itself.

3.3 Difficulty

> *"[…] we know that players prefer games in which they fail. This is the paradox of failure in games. It can be stated like this: 1. We generally avoid failure. 2. We experience failure when playing games. 3. We seek out games, although we will experience something that we normally avoid."* (Juul, 2013, loc. 107)

If we accept that failure is not only a frequent but fundamental element of games, a question arises: how far are we willing to go in accepting its implications?

A third friction-based strategy pushes this logic to the extreme: it introduces radical resistance to progression through absurd obstacles, excessive (or arbitrary) difficulty, or intentionally tedious sequences (Cardoso & Carvalhais, 2025). Difficulty here ceases to reward mastery; it becomes a provocation or irony aimed at the very notion of progression.

This logic is exemplified in *Getting Over It* (Bennett Foddy, 2017), where a single mistake can erase minutes of effort, and failure resets progress abruptly. Nothing compensates for the frustration — on the contrary, it is embedded into the experience, reinforced by a mock-sympathetic voiceover that amplifies the device's irony. The game becomes a metaphor for repeated failure, where each attempt weighs more than the last.

Other games adopt a more passive but equally grueling approach, by artificially extending tasks or multiplying mechanical actions without variation. *Desert Bus* (Penn & Teller, 1995) exemplifies tedious duration: eight hours of driving with no variation or reward.

In a related but distinct vein, some games use real time as a resistance mechanism. *The Longing* (Studio Seufz, 2020) unfolds over 400 real-time days, during which the player must literally wait. Exploration is slow and sparse, and haste is pointless: the game teaches the player to wait, to delay action, and to embrace inactivity as a driving force. In *Generations* (One Life Remains, 2011), the game can only be "completed" over several decades, through generational transmission. The current player experiences only the prologue of a game they will never finish. Time becomes a radical friction, dissolving any idea of completion into an unreachable future.

Finally, some experimental systems translate friction into the player's body itself. In *Painstation* (Reiff & Morawe, 2001) — a modified version of *Pong* — each error results in a real physical punishment. To continue playing is to accept a direct sensory trial.

These designs do not attempt to balance difficulty and pleasure, but challenge the player's mental endurance, physical tolerance, and capacity to endure discomfort in all its forms. They raise a critical question: how far can a game go in testing the player — and what motivates persistence when success is no longer the goal?

3.4 Rules

A fourth friction strategy challenges the player's ability to understand, by disrupting the relationship to rules, their clarity, or reliability. In contrast to the clarity and intuitiveness promoted by seamless design, these games blur familiar reference points by constructing ambiguous, incomplete, or deliberately unstable systems. The goal is not to confront the player with explicit difficulty, but to remove

the frameworks that would allow them to understand what they are doing, why, and with what effects. The game becomes a space of uncertainty, where every action relies more on speculation than skill.

This friction may take the form of deliberate opacity: rules are neither stated nor hinted at, and sometimes not even meant to be deciphered. The player is forced to proceed by trial and error, to formulate hypotheses, and infer the system's logic from partial traces (droqen, 2013). This kind of design relies on cryptic content — obscure or fragmentary data that can only be grasped (if at all) through interpretive reconstruction.

Opacity may also involve crisis in rule reliability. The player believes they have understood how the system works, only for it to shift, contradict, or deceive them. Rules may change (Lantz, 2017), cease to produce expected outcomes, or lose their validity altogether (Crawford, 2012). The game plays with interpretive expectations, undermining or redirecting them, until it destabilizes the very horizon of understanding.In some cases, it is not the rules themselves, but their application, that becomes uncertain. In *B.U.T.T.O.N.* (The Copenhagen Game Collective, 2010), rules are issued to the players, but never enforced by the system:*"The egregiously "broken" nature of the game - the fact that it does not enact but only prescribes most of its rules — opens up a highly visible space for players to bend the game to their own needs. To play the game "well" means to interpret the rules in creative ways, to gauge the appropriate intensity of physical play, and to find ways of cheating that are enjoyable for everyone playing."* (Wilson, 2011).

Friction also arises from ambiguous feedback. The player acts, but the results are absent, vague, or unclear. The link between cause and effect becomes tenuous: it is hard to tell whether the action was registered, whether it mattered, or whether it even occurred (Pope, 2013).

The player is thrown back onto their own cognitive limits, and the trust placed in the system is put to the test. Enjoyment no longer stems from mastered progression, but from interpretive imbalance: constructing meaning, inventing logic, and playing with the lack of transparency. The game world is no longer a space to be mastered, but a field of unstable forces, where the effort lies not in succeeding, but in understanding why understanding is impossible.

3.5 Ontology

> *"Among the formal characteristics of play, the most important is the localized separation of play from ordinary life. A closed space, isolated—either materially or ideally—separate from the everyday environment."* (Huizinga, 1951, p. 40)

In contrast to this well-known view, a fifth strategy of friction rests on blurring the boundaries between play and non-play. Here, friction emerges from the disruption of the usual frames that define the video game experience. By unsettling the markers that signal "this is a game," certain works cultivate an ontological ambiguity that provokes doubt in the player: *am I still in a game?*

This strategy appears most clearly in Alternate Reality Games (ARGs), which intentionally dissolve the boundary between fiction and reality. Works such as *The Truth About Marika* (Weidemann et al., 2007) or *In Memoriam* (Lexis Numérique, 2003) extend into the player's environment through fake emails, phone numbers, and a mix of real and fictional websites, sometimes even involving live

interactions. Here, friction becomes existential: the challenge is not only to understand the game's rules, but to determine whether one is even inside a game.

A further example is *Lose/Lose* (Gage, 2009), a shoot 'em up in which destroying an enemy deletes a file from the player's hard drive. Friction no longer merely blurs fiction and reality — it introduces real-world risk into the personal computing environment. In a different vein, *Doki Doki Literature Club!* (Team Salvato, 2017) begins as a romantic visual novel, but gradually subverts its own structure: characters are erased, bugs are simulated, and players must intervene manually in the game's directories. Gameplay becomes a form of external manipulation, undermining the separation between fiction, interface, and system.

The game is no longer a sealed, self-contained space with clear boundaries, but a zone of ambiguity, whose edges are constantly shifting—or denied altogether.

3.6 Norms

A sixth friction-based strategy involves challenging the social, cultural, or ethical norms that determine what is considered acceptable to do *in*, *through*, or *around* games. This form of friction emerges when the game enters into conflict with these norms, revealing the tensions between gameplay practices and their surrounding contexts.

Some games explicitly confront moral frameworks. *Spec Ops: The Line* (Yager Development, 2012), by adopting the codes of the military shooter only to turn them against the player, confronts them with ethically ambiguous choices — notably the use of white phosphorus on civilians — while denying them real alternatives (Keogh, 2012).

Friction can also arise from the context in which the act of playing takes place. *Pokémon Go* (Niantic, 2016), by moving gameplay into public space through geolocation, exposed the implicit norms governing where it is socially acceptable to play. Here, friction stems from the game's intrusion into places where it was not supposed to occur — such as the Cambodian Genocide Museum, for instance (Jenkins, 2016).

Temps de pause (One Life Remains, 2017) pushes this logic further into everyday life: worn on a smartwatch, it commands the player to freeze at any time — even in socially inappropriate contexts.

These games reveal that friction targets not just in-game mechanics, but the social legitimacy of play itself: not "what can be done?" but "where and when is it acceptable to play?"

4. Frictional Play: From Disruption to Revelation

Frictional design suspends the illusion of immediacy sustained by seamless interfaces, substituting instead a regime of mediated engagement where tension and disruption become vectors for disclosing the material and conflictual dynamics of play. The aim of this section is to clarify what such interventions produce on a deeper experiential and epistemological level.

We proceed in three steps. First, we examine how frictional games induce destabilization and disorientation, resulting in a process of de-acclimatization. Second, we argue that this estrangement reactivates imagination — not as a retreat into subjectivity, but as a mode of technical reappropriation emerging from misalignment. Third, we show how, in digital games specifically, these disruptions reveal the structural tensions of the medium itself — tensions that seamless design typically works to suppress.

4.1 Destabilization, Disorientation, De-acclimatization

The heterogeneity of frictional design lies not merely in its formal mechanisms but in the differentiated ways it modulates the player's embodied and cognitive engagement. These effects, while diverse, tend to cluster around two major experiential perturbations: destabilization and disorientation. These effects can impact players at motor, perceptual, and cognitive levels, disrupting the ordinary conditions of gameplay engagement.

Destabilization occurs when the foundations that typically support fluid player action cease to function as reliable anchors. The player becomes unsteady, not because they lack skill or knowledge, but because the environment no longer sustains coherent engagement. Actions become uncertain, perceptions falter, and logics are thrown into opacity or contradiction. Structural imbalance forces the player to continuously recalibrate their relation to the game without ever achieving a new equilibrium. Even when the rules or objectives remain intelligible, the capacity to project oneself into action is weakened, the relation between intention and execution rendered precarious.

Disorientation refers to the breakdown of the spatial or temporal coordinates that allow players to locate themselves. It interferes with what Bernard Stiegler identifies as functions of cardinality (spatial orientation) and calendarity (temporal orientation) (2001, p.113). In frictional games, these functions can be disrupted: the player may no longer know where they are, or even what they are supposed to do. The game space no longer operates as a coherent *milieu* in which the player can act and understand their actions. Instead, it becomes unstructured, equivocal, or alien — undermining the conditions for interpretive fluency.

Together, these effects initiate a process of *de-acclimatization.* Whereas conventional design cultivates *acclimatization* — allowing the player to inhabit the system seamlessly, frictional design does the opposite: it *withholds comfort*. It obstructs the sedimentation of habit and prevents the disappearance of mediation behind action. In contrast to the ambient familiarity of the quotidian — where the world is taken for granted and the flow of action proceeds without reflection — frictional design maintains the player in a state of alert estrangement. What dominates here is not assurance, but *unfamiliarity*: the sense that nothing can be relied upon, that one may be surprised at any moment, that taken-for-granted is impossible. The experience of play becomes one of heightened exposure, where the coordinates that normally support orientation and confidence are suspended.

This is the precise meaning of de-acclimatization: not a simple loss of comfort, but a reconfiguration of the player's relation to their environment. The game produces a climate in which the taken-for-granted becomes questionable, the automatic becomes effortful, and the ordinary turns strange. It reinstates a form of *inquiétude*, a productive unease that recalls the initial strangeness of encountering a system for

the first time. In such conditions, the player cannot rely on habit; they must continually re-engage, reinterpret, and reorient themselves. What results is not paralysis, but the opening of a space where imagination is solicited in full.

4.2 Misalignment and Imagination: Reconfiguring Engagement

Frictional games generate a specific form of engagement — not in spite of their difficulty, but through the misalignment they introduce. Actions no longer produce predictable results; perceptual cues become unreliable; rules elude understanding. The experience shifts from fluid execution to uncertain navigation, marked by resistance, disruption, or delay. The player is extracted from habitual routines, and what some might call imagination is reactivated.

It would be misleading, however, to interpret this dynamic as a triumph of pure creativity over technology, or as the resurgence of subjectivity compensating for a lack of system design. Such a view rests on a persistent dichotomy between human and technic, one that continues to inform gaming cultures where “authentic” play is opposed to procedural constraint (Roy, 2019). On the contrary, as Bernard Stiegler reminds us, imagination is always already mediated — formed within, and through, technical supports, dispositifs, and arrangements (Stiegler, 1994, p. 152).

Frictional games make this interdependence tangible. What they reveal is not the absence of technique, but the breakdown of its transparency. The system no longer facilitates action — it resists it. The interface ceases to serve as a neutral conduit and becomes a site of friction: a non-aligned artifact that requires negotiation. It is in this failure, local and situated, that imagination is reengaged: one that schematizes, adjusts, invents.

In such contexts, the player becomes a bricoleur, recomposing strategies from fragments, adapting gestures, and improvising provisional responses. As Michel de Certeau noted, tactical invention often arises where normative use breaks down (De Certeau, 1990). This improvisational reappropriation does not necessarily signal a progressive mastery; it may involve a form of regression — reactivating past routines once sedimented — or progression, leading to the elaboration of new heuristics and goals. In either case, it attests to the plasticity of play: the ability to reorganize one's relation to tools, rules, and environments when the usual frameworks no longer hold.

These combined effects do not simply increase difficulty; they initiate a process of de-acclimatization. Unlike conventional design, which seeks to foster familiarity, adaptation, and eventual absorption of the system into bodily and cognitive routines, frictional design suspends this trajectory. It interrupts the formation of automatisms and obstructs the player's incorporation of the game’s logic. In such environments, gestures remain tentative, rules unstable, feedback ambiguous. The player cannot “settle in.”

This applies to all forms of mediation. Yet it becomes particularly salient when the medium in question is digital. Because digital technologies remain relatively recent, their structuring principles — discretization, manipulation, automation — are less fully naturalized. Frictional games that mobilize digital properties do not fabricate disruption; they disclose it. They expose not some hidden essence,

but what seamless design normally inhibits: the structural non-alignment of digital systems with embodied, analog expectations.

4.3 Play as a Revealer of Digital Strangeness

Frictional design operates not merely as an aesthetic or mechanical variation, but as a critical apparatus: it reveals the constitutive properties of digital technology that seamless design typically suppresses or dissimulates. While fluid interfaces and intuitive feedback loops are designed to make the medium disappear in favor of the experience, friction reintroduces the material and operational tensions embedded in digital systems.

To understand what is being exposed, we must return to two fundamental characteristics of digital technology: discretization and manipulation (Bachimont, 2010). All digital operations rely on the encoding of information into discrete units — typically binary — and its transformation through programmable, repeatable procedures. These conditions enable calculability and automation, but they also generate tendencies toward fragmentation and dissemination (Bachimont, 2010). Seamless design exploits the former while actively neutralizing the disruptive implications of the latter. Frictional design, by contrast, creates the conditions for these suppressed tensions to manifest and become perceptible. This revealing function can be traced across three essential domains: temporal calculation, interactivity, and systemic stability.

Digital computation unfolds in a discrete, machinic temporality that is fundamentally heterogeneous to the continuity of lived human time. In most games, this disparity is concealed: loading times are masked, delays are smoothed, system responsiveness is calibrated to simulate synchronicity. The player is led to believe that digital operations unfold naturally within their own temporal rhythm. Frictional games break with this illusion. They foreground temporal misalignments: through latency, waiting, acceleration, or over-responsiveness, they render visible the non-coincidence between computational execution and human experience. The experience of time becomes irregular, asynchronous, uncomfortable — revealing that so-called "real-time" responsiveness is always a product of technical adjustment. Even what appears on screen — the visual flow of animations or feedback — is the result of this mediation: an image may lag behind or anticipate the system’s internal state. What is revealed, then, is not just delay, but a fundamental non-alignment of temporal regimes. Time in digital systems is not ergonomic by default; it must be engineered to appear so.

Digital interactivity does not consist in a continuous flow between action and response. It is the result of a chain of discretized operations: inputs are sampled, processed, and translated into outputs through logical structures. Seamless design conceals this fragmentation, crafting interfaces that simulate fluid, embodied engagement — suggesting a direct link between gesture and effect. Frictional games intervene in this simulation. By introducing latency, noise, denial of expected results, or breakdown of input-output logic, they reveal that interaction is not a transparent passage but a translation through formal mediation. The player becomes aware that they are not acting *in* a world, but *through* a system of encoded operations. This rupture destabilizes the illusion of immediate agency. It shows that interactivity is not grounded in co-presence between body and environment, but in a discrete,

asynchronous negotiation between signal, computation, and display. Far from being self-evident, action becomes technically contingent — dependent on parameters the player neither controls nor fully perceives.

In conventional design, games present themselves as internally consistent systems governed by stable, intelligible rules. The game world is staged as a reliable framework in which behavior can be learned, optimized, and predicted. This impression, however, is a *construct*, designed to mask a fundamental property of digital systems: structural instability. Frictional games do not create this instability — they expose it. Unlike printed rules, digital “rules” are neither fixed nor directly accessible. They are operational constructs: subject to manipulation, reinterpretation, or reconfiguration at any moment. The player never interacts with the rule as such, only with its effects. The digital system is a black box — its logic is enacted, but never transparently given. This opacity stems directly from the digital’s essence. Because digital data must be manipulable to be computed, it is by nature modifiable. And because it is encoded discretely, it must always be interpreted to be operational. There is no originary trace to consult, no definitive rule inscribed somewhere in the system. The apparent stability is a simulation, sustained by conventions and interface smoothing. Frictional games break this illusion by making rules appear inconsistent, reversible, or ambiguous. What was believed to be a structured, rule-governed space becomes a site of procedural volatility. Without elaborating further here, one might argue that such games challenge the very applicability of the concept of “rules” to digital environments. If nothing is fixed, and if everything is subject to manipulation, in what sense can one still speak of rules at all?

Through these strategic ruptures — between human time and machine time, gesture and algorithm, user expectation and system behavior — frictional games reveal the concealed strangeness of digital environments. They do not merely introduce irregularities for expressive effect; they make tangible the constitutive tensions of the medium. In doing so, they challenge the ideology of seamlessness: the belief that digital systems are naturally coherent, continuous, and reliable. These qualities are not intrinsic — they are design effects. Frictional games bring to light what is not simply latent, but actively inhibited, masked, or refused in conventional design.

4.4 Friction as a Fundamental Condition of Play

Far from simply disturbing interaction, friction sustains the very dynamics through which play unfolds by making mediation perceptible — interrupting the absorption that usually conceals the technical substrate of experience.

In frictional design, disruption is not a breakdown but a form of revelation: it exposes that every act of play depends on material and operational infrastructures that are never fully transparent. When these infrastructures falter, the player is not expelled from play; rather, play is reconfigured as the negotiation of that faltering. Instability thus becomes constitutive rather than accidental — a reminder that to play is always to engage with a system that resists, constrains, and transforms action.

This insight extends beyond the digital domain. The strangeness disclosed by frictional games points toward a broader truth about the technical condition of play. Every act of playing presupposes tools that

are neither neutral nor entirely available but problematically mediating. To encounter friction, then, is to rediscover the irreducible alterity of technique. Seen in this light, frictional design echoes what Guy Debord and the Situationist International conceived as the subversive potential of play: a practice that interrupts automatisms and reopens experience to reinvention and *détournement* (Debord, 1997).

5. The Seamless Design Paradox: Situated Friction, Stabilized Play

At this point, one might be tempted to draw a sharp contrast between two types of game regimes: on the one hand, frictional games that make the problematic dimension of technology explicit; on the other, so-called seamless games that appear to neutralize its effects and smooth over rough edges. However, this dichotomy deserves to be nuanced. Based on the observations developed so far, we can now return to seamless design not to reaffirm the idea of frictionless design, but to interrogate the specific ways in which it channels, controls, and frames friction.

5.1 The Centrality of Friction in Seamless Games

Contrary to what one might think, friction is indeed present in games designed according to the principles of seamless design. It appears in the form of localized disorientation, specific tensions, or deliberate destabilizations. Platformers, for example, are built around gaps: their terrain is discontinuous, composed of obstacles, jumps, and spaces to cross, creating a deliberately unstable environment. The player must compensate for this suboptimal setup through precision and coordination.

In racing games, tension arises from the contradiction between the desire for speed and the curving path: each turn is a potential site of imbalance that demands constant adjustment. Puzzle games, for their part, present fragmented, cryptic configurations that disorient the mind and require players to reconstruct frames of reference. In all these cases, friction is not accidental: it is intentional, structured, and integrated into the overall design economy of the experience.

Far from being eliminated, friction is a central mechanism of player engagement in seamless games. It does not occur at the margins but in strategic points around which the system is organized. The fluidity of interfaces, clarity of feedback, and coherence of mechanics do not aim to remove difficulty but to make it manageable. Motor, perceptual, or cognitive challenges are made possible by a stable environment designed to host and channel localized tensions.

This organization relies on a key technical condition: system hyperstabilization. This refers to the design strategies that ensure a highly predictable, responsive, and coherent environment. Such global stability makes it possible to localize friction, isolate it, and intensify it without disrupting experiential continuity. In other words, the more the system is stabilized overall, the more designers can vary tension locally.

In this view, technology acts as a silent infrastructure, absorbing anomalies and ensuring experiential consistency. Whereas frictional games expose technical processes in their incompleteness, seamless design stabilizes technology to such a degree that it can contain its own disruptions. Friction becomes

a parametrized micro-variation, framed within an architecture designed not to open a technical becoming, but to channel its effects into a pre-closed form.

5.2 Formatted Friction: Forms, Locations, Rhythms

Once contained and normalized, friction loses its disruptive force. It appears predictably, in codified forms, blending into the rhythm of play — less a rupture than a familiar, even comforting, motif.

This creates a risk of friction formatting: difficulty arises in identifiable places and tempos, confined to orchestrated sequences. It no longer disturbs the whole experience but remains localized. This appearance perimeter acts like an implicit grammar: what appears as a natural challenge is in fact the result of specific design constraints — difficulty thresholds, action tempos, expected feedback. Friction becomes a functional component, part of a progression logic. It no longer challenges the game's order; it confirms it.

This silent organization introduces a specific normativity: by repeating certain engagement formats, it legitimizes some forms of play while making others unlikely or unacceptable. Seamless design does not simply propose a way of playing; it shapes expectations, directs interpretations, and stabilizes an implicit definition of what it means to play. In seamless design, friction is not eliminated, but it becomes less capable of questioning what contains it. It loses its critical potential.

What these processes crystallize — technical hyperstabilization, the invisibilization of framing structures, the formatting of tension — is not just an interaction model. It is an idea of play that becomes locked in. An idea in which playing means solving clear problems in a fluid environment, with legible reference points and calibrated obstacles. A conception of play as a regulated performance, positioned between effortless fluency and manageable effort.

This stabilization acts as a closure. It doesn't prevent play — quite the opposite — but it limits the range of what play can mean. It marginalizes forms of engagement that disrupt perceptual habits, that embrace uncertainty, or that call upon non-predefined imagination. It makes it harder for games to emerge that shift or unsettle the frame instead of confirming it.

Thus, seamless design is not just an aesthetic or ergonomic stance: it constructs an implicit ontology of play. It defines what is thinkable, doable, and explorable in the game space. And in doing so, it closes off a critical possibility: that of making play a site of disturbance, provocation, or resistance.

6. Putting Our Understanding of the Digital at Play

Video games today provide a privileged terrain for examining the ambivalent nature of the digital. At first glance, the contrast between so-called seamless games and friction-based games appears to oppose two irreconcilable aesthetics: one based on fluidity, legibility, and the erasure of mediation; the other on resistance, opacity, and disruption. Yet this apparent opposition holds only insofar as we overlook what connects them at a deeper level: their shared inscription within a digital technical regime

structured by an internal tension between formalization and discontinuity, between calculability and emergence.

As an ambivalent technology, the digital is both a driver of normativity and a medium of rupture and bifurcation. Video games exemplify this ambivalence in that they rely on an arrangement between framework and deviation, explicit rules and the means of bending them.

It is precisely because friction constitutes a structuring dimension of the play experience that video games make the double dynamic of the digital — between formalization and discontinuity, calculability and emergence — both tangible and situated. Even the most polished games never entirely eliminate this friction: it remains at their core, as a condition of playability itself.

In this sense, play maintains a privileged relationship with the digital. It does not merely exploit its properties: it reveals its underlying tensions. To think play today is to think this ambivalence — not as a flaw to be resolved, but as a critical resource, a lever for imagining new ways of inhabiting the digital and, by extension, the era it shapes.

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