Video Games as Material Performances

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Abstract *Taking its roots in puppetry and material performance, this chapter argues for an object theatre approach to video games. It first traces connections between puppetry, human-computer interaction (HCI), and video games before turning to new materialism to establish game objects as performing pieces with their own agency. It closes with a short interpretation of Tetris as one example of such an object theatre approach to games.*

Overview

Puppetry has been a reference for how we relate to computer systems from the very beginning of human-computer interaction (HCI) design and remains so in the era of modern video games and recent virtual reality (VR) and augmented reality (AR) designs. This ancient performance practice has informed analysis, design, and critique and it will be at the center of the following argument, too. First, this essay will connect to existing discussions that already relate HCI and games to puppetry. This will provide the necessary context and help to situate the argument. Second, it will briefly turn to new materialism to expand the notion of what defines a puppet. Following this expansion, it will focus on material performances and object theatre as forms of puppetry and apply them to games through a short discussion of a classic example: *Tetris*. Its main argumentation is somewhat circular: It connects games to performance, to puppetry, to material agency, and from this logic it offers a critical reflection back onto our reading of games in the first place.

Approaching puppetry

When we turn to puppetry, we inherently start navigating along a shifting border that defines itself by blurring its demarcations. Puppets are 'dead' but they 'come alive'. By their very nature, puppets are liminal objects: expressive, but also inanimate things of pure material quality. At the same time, puppets reposition the human by making them a co-performer, turning them into a collaborator, the pup-

peteer, whose role can be a shifting one. With the puppeteer's help, puppets walk a tight rope between the 'inanimate' and the 'alive'. 'Whenever someone endows an inanimate object with life force and casts it in a scenario, a puppet is born' (Blumenthal 2005, 11). The inanimate quality of the puppet object is not a hinderance in this balancing act. The fact that puppets are made of 'dead' materials is not a dealbreaker but a necessary part of the logic. It is this material quality of the puppet that defines the format. '[T]he special feature of the puppet is its materiality. In drama the actor uses his own body as the "material" vehicle of the stage character. In the puppet theatre, the "material" vehicle is really material – it is puppet' (Jurkowski 1990, 24). This defining vehicle that underlies the nature of the art should be recognized as a first marker of our argument at hand. Puppets are the liminal objects whose very difference from the 'alive' human puppeteers and audiences allows the creation of an expressive theatrical form. This creation process depends on human action, on an ongoing 'endowment' of the material. It is not a given quality, but it is process-based and depends on human support. Puppets are not robots and, when left alone, lose these active functions. A puppet not played is closer to an inanimate object than to an active performer. It makes all the difference whether you are looking at a historical puppet exhibited in a museum—such as the archives of the *Center for Puppetry Arts* in Atlanta—or whether you are watching a show performed at one of the *Center*'s stages.

HCI and puppetry

A comparable process-based dependency is found in our interaction with computers. Human-computer interaction depends on emerging actions between the human and the machine. It is not surprising that one can find puppetry as a reference even in early writings about HCI (Hayes-Roth, Brownston, and Sincoff 1995). Interacting with computers is an expressive–creative practice where objects are integral collaborators—just like puppets. Both practices are relational by definition. As will be argued later, both practices should accept the agency of their non-human partners more fully.

The reach into real-time controlled virtual beings harks back to the 60s (Sturmann 1998) and has led to the development of various controllers, such as the 'Waldo' interfaces developed by Jim Henson's Creature Shop, which support the combined hand and body-tracking set up used by *The Henson Digital Puppetry Studio* today. Puppetry art and performance practices have adapted various of those emerging techniques along the way. This has led to performances with AR puppets (King 2018), virtual characters (Eide 2008), and robots (Poulton 2015). These set ups not only target novel artistic expression but can also support education (Moumoutzis et al. 2018) or heritage conservation (Lin et al. 2013).

Developing technologies for novel control mechanisms remains a challenge, but opening up puppetry to the conceptual challenges that these technologies pose might be even more demanding. As technologies infuse the world around us, they also reframe the role of puppetry. Orenstein coined the term 'New Puppetry', which expresses 'interrelationships rather than binaries and oppositions and reflect our contemporary struggle to understand our now deep involvement with technology, embedded as we are in it' (Orenstein 2017, 96). Tillis speaks of 'media figures' that might be robotic, virtual, or any other form of mediated entity (Tillis 1999). Mapping the shifting interrelationships is difficult. The sheer variety of mediated forms complicates any single approach. The most influential attempt, so far, might be Kaplin's concept of a 'puppet tree' (Kaplin 1999) in which he maps traditional puppetry like shadow puppets or traditional Japanese Bunraku puppetry on the same plane as robotics and virtual character controls. His defining relations are 'distance' between object and human and 'ratio' of human controllers to manipulated objects. Because these criteria reach across technologies, Kaplin manages to map out Henson's Muppets, animatronics from amusement parks, and video game characters on a shared matrix (Kaplin 1999). This matrix might say little about expressive range, but it provides a powerful map that assembles different forms with clear relations. From both ends, HCI as well as puppetry scholarship, we can trace a constant cross-referencing. Yet, this remains a malleable and developing field for both disciplines.

Puppets and games

Video games use puppetry as a reference for their setting and narrative (e.g. *Puppeteer* [SCEJ, 2013]), character definition (e.g. the *Little Big Planet* game series [Media Molecule, 2008–]), in indie games (e.g. *Octodad: Dadliest Catch* [Young Horses, 2014]), through embodied interfaces such as the Kinect (e.g. *The Gunstringer* [Twisted Pixel Games, 2011]) or VR (e.g. *Hello Puppets!* [Otherworld Interactive, 2020]) to offer but a few references. Emergent play forms, such as machinima, have led to novel interfaces (Kirschner 2011) and rallying cries such as 'Machinima isn't animation! It's puppetry!' (Hancock and Ingram 2007). Arguing that video games have an established history with puppetry is easy. It is much harder to identify how this changes the conceptual grounding.

Game Studies have adapted puppetry using a human-centered lens. For example, Calvillo-Gamez and Cairns build on the user experience to argue for a puppetry framework in gaming via a phenomenological turn (Calvillo-Gamez and Cairns 2008). According to this turn, '[p]uppetry is produced when there is a high level of ownership, and ownership is achieved when the player has a high level of control over the game' (Calvillo-Gamez and Cairns 2008, 7). The puppet is of value because of the direct control offered to the player. It is seen as a form of a digital extension.

More recently, Aliano discussed a puppet-like impact of video games through such an extension.

> I argue that the work of self-formation and identity in video games does operate like that of the actor assuming a role in performance. But, because of the extension of self through technological prostheses, and the personal ownership of in-game experiences that occurs when one games, the implications of this performative transformation of self are much greater (Aliano 2022, 62).

Aliano's 'technological prostheses' are basically puppets, and she picks up Hayles' reading of 'posthuman' technical extensions of the human body. In a game setting such as *Animal Crossing: New Horizons* (Nintendo, 2020) '[t]he avatar is both the gamer's self and separate from it; it acts on behalf of the player and for its own ends within the game, via the player's control' (Aliano 2021, 55). The agency of the avatar is largely found in the context of the game from which the player might draw new experiences 'as a person other than themself' (Aliano 2022, 68). This reflects back on human experiences of self-formation.

The approach I want to add here starts from the same field that emerged from a turn to the material and the more-than-human. However, it aims to provide an original perspective on the role and origin of agency in our understanding of video game play as puppetry. I argue that video game characters and objects are not mere access points for human expression. Instead, a digital puppet should be seen as a material object not unlike physical puppets. Such an object has its own qualities and agencies that contribute to the performance. Rolling dice, moving figures on a board, dealing cards, and throwing marbles are all play activities that co-depend on material objects and their performance. This dependency expands when dice turn into marionettes or cards into shadow puppets. Likewise, playing a video game is an enacted balancing act between human and non-human contributors that expands the collaborative construction of expression. The different nature of the components of a video game—its rules, interfaces, visuals, sounds, design, platform—are collaborating in an enacted performative construction of the gameplay. The player remains a key contributor—like a puppeteer—but equally relevant are code, interface, virtual characters, or game logic—performing objects of the game. As with the previously noted materiality of traditional puppetry, the nature of these non-human components should not be confused or compared to those of conscious humans. It is precisely their otherness that makes puppets and game characters useful companions. Puppets—whether physical or virtual—are not seamless extensions but differing active partners. Most importantly, we have to acknowledge their own contributions to an emerging shared performance.

Relations and objects

Video games form their own interrelationships in these shared performances. To connect them back to Orenstein's principles:

> Contemporary New Puppetry is more usefully thought of through the eclectic notion of performing objects rather than the more reified idea of puppet. […] The predominant use and vision of the puppet today does not represent a machine newly imposed from the outside set to overtake us, but rather something with which we are deeply connected, and through which we strive to express, understand, and negotiate our interrelationship with each other and with the non-human world (Orenstein 2017, 107).

Orenstein, following Foley, draws connections to Eastern puppetry traditions that already see the puppet as an active contributor to the unfolding performance. But the argument here will follow another thread mentioned by Orenstein: that of material agency. Orenstein introduces material agency to the discussion via Bennett and her concept of 'vibrant matter' that offers a 'resistant force' (Bennett 2010, 1) toward other beings including humans. For Bennett, this force is tied to its own vitality and part of a discussion of what vitalism means for things. Such a discourse necessarily includes a reassessment of what vitality might mean as such. For Bennett, humans are also non-human in the sense that their being is also ruled by materials and their forces. Such material relativity certainly applies, but it centers on discussions of what 'life' is and how the term might apply. My argument tries to emphasize the differences and dependencies between the puppet object's agency and that of the human. It sees them as enacted processes and does not worry whether they share a form of 'life'. To achieve this, I turn to another scholar working in this field: Karen Barad. Barad sees material agency as fundamentally interdependent. A key term for this view is 'intra-action', which,

> *signifies the mutual constitution of entangled agencies.* That is, in contrast to the usual 'interaction', which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action. It is important to note that the 'distinct' agencies are only distinct in a relational, not an absolute, sense, that is, *agencies are only distinct in relation to their mutual entanglement; they don't exist as individual elements* (Barad 2007, 33, emphasis in original).

From this perspective, materials have agency, no matter whether they qualify as alive or not. It is through the relation of forces between them that they can be distinguished from one another in what Barad calls the 'agential cut'. In that way, en-

tities only come into being relationally. There is no puppet or puppeteer up until the moment when the forces of one help to define the other. Intra-action continues the action-based perspective that draws performance, HCI, and play together into foundational inter-dependencies. Here, we do not have users, puppeteers, or players controlling a computer, shadow puppet, or videogame. Just as the very existence of the puppeteer is only constituted through the encounter with the puppet, the player does not come into being until their encounter with the game. The argument is not one of cultural differences (as, e.g., Foley's is) but one of principle dependency and emergence. Barad is not talking about performance as a mimetic art to represent something else but of performativity as a constitutive force that is linked not only to 'the formation of the subject but also to the production of the matter of bodies' (Barad 2003, 808). Performative intra-action relates to game play as both are constructed through shared activities between human and non-human participants.

With this in mind, we now turn to object theatre and performing things (see, e.g., Schweitzer and Zerdy 2014) to highlight the active role that materials play in this performative moment, whether this performance happens in a video game, on a stage, or in any other location.

Object theatre lessons

Material performance has been defined within puppetry research as a 'term [that] assumes that puppets and other material objects in performance bear visual and kinetic meanings that operate independently of whatever meanings we may inscribe upon them in performance' (Posner, Orenstein, and Bell 2014, 5). Although it does not have to be a confrontation, there is a difference between the meanings humans would inscribe culturally and those inherent in the activities of materials. In Carrignon's *théâtre d'objet*, object theatre, the object is a kind of memory container. It 'carries the memories of those who have owned these objects' [1] (Carrignon 2011, 5). This cycles back to the belief in material culture studies that human conduct can be traced through objects. The remnants of an object from the past contain traces of the story of its crafter and the times and conditions of its production. 'Material, a part of the world, the record of bodily action in nature, the artifact perpetually displays the process of its design, the pattern in the mind of its creator. It incorporates intention' (Glassie 1999, 44). This is not a notion of a co-constitutive partner but of a trace. As discussed above, we need to step beyond a purely human-centered reading of 'intention' or agency. Materials contribute agency that does not stem from human memory or intention. This turn is reflected in philosophical movements such

1 In French :'Le théâtre d'objet porte la mémoire de ceux qui ont possédé ces objets'. (Carrignon 2011, 5)

as object-oriented ontology (OOO) (Bogost 2012). But unlike OOO, expressive objects still operate and emerge only relationally. In the conditions of interaction, play, and performance this shared becoming necessarily includes human contributions. That does not focus on humans at the center of these productive encounters, but it lays out interconnected networks. In these networks we do not find linked actors that stand independently and act upon each other. These are partners that only come into their being as they intra-act with each other's forces. The resulting perspective of a materiality-driven object theatre is one of interdependencies and it is beyond singular intention. It still maps on puppetry, though:

> The essence of puppet, mask, and object performance (as countless puppeteers have said from their own experience) is not mastery of the material world but a constant negotiation back and forth with it. Puppet performance reveals to us that the results of those negotiations are not at all preordained and that human superiority over the material world is not something to count on, especially since *we* all eventually end up as lifeless objects (Bell 2014, 50).

It is this position of the puppeteer that helps to understand the player as the digital performer. This is not the user of an application or the controller of cybernetic processes, but it is the being that is co-negotiated with paper, felt, wood, metal, polygons, and bits.

Tetris renegotiated

To highlight this material-based concept of object theatre and exemplify its value in relation to Game Studies, the concluding section will look at a reading of *Tetris* (Pajitnov, 1985–) through the material-based object theatre lens developed above. The basic game concept of *Tetris* has undergone a range of changes that include multiplayer, 3D, networked play, varying level designs, and countless other variations. The core game has been ported to most available devices and their specific interfaces. Sticking with its main principle, we will focus on *Tetris* as the single-player video game in which various shapes of blocks appear at the top of a screen one-by-one and gradually descend to the bottom of that screen where they stack up. The speed of that descent increases in later levels. The player cannot control the gradual speed increase or order of the falling pieces, but they can rotate and shift these shapes in order to affect the way they will stack at the bottom. The goal is to control the pieces so as to fill every gap in a line across the playing field. This will make this line disappear and score points. The basics of this matching mechanism became highly influential for a range of related games (Juul 2007). A game ends when the pieces have stacked up to the top of the level. There are a number of additional features, such as variable

falling speed, scoring mechanisms, or speeding up the descent of the pieces, but for simplicity's sake, we will focus on the main principle only.

One of the reasons for picking *Tetris* is that the game has been historically influential as a cultural artifact. Its very emergence tells a great story: originating in the Soviet Union, designed and programmed by a single creator, Alexey Pajitnov, crossing over into commercial markets in a legal battle, and becoming part of the success-story of Nintendo's *Gameboy* launch. This is a story of human interest that was told multiple times (including as a comic book (Brown 2016) and Hollywood movie (*Tetris*, John S. Baird, 2023]). *Tetris* was also at the center of a historic debate in the then-budding field of Game Studies. Its level of abstraction was identified as a defining element (Wolf 2003) but that did not stop further interpretations of the game from proliferating. Notably, Murray pointed to *Tetris* as an unfolding text that allows us to interpret human experiences. In her reading, the mechanic of disappearing lines could be read as an eternally erased success state. 'Success means just being able to keep up with the flow. This game is a perfect enactment of the overtasked lives of Americans in the 1990s—of the constant bombardment of tasks demand out attention and that we must somehow fit into our overcrowded schedules and clear off our desks in order to make room for the next onslaught'. (Murray 1997, 144). The spatial concepts of level, pieces, and player interaction invite associations with modern human experiences. 'The screen objects are like a symbolic language for inducing our activity. So while we experience the game as being about skill acquisition, we are drawn to it by the implicit expressive content of the dance. Tetris allows us to symbolically experience agency over our lives. It is a kind of rain dance for the postmodern psyche, meant to allow us to enact control over things outside our power'. (Murray 1997, 144) Such an interpretation was countered by scholars who argued against a turn to human—or narrative—framing (Eskelinen 2001). This counter-perspective did not look for a projected meaning onto the abstracted game but focused on the mechanisms within it. 'Unlike in music, where a national anthem played on electric guitar takes on a whole new meaning, the value system of a game is strictly internal, determined unambivalently by the rules. Among the many differences between games and stories, one of the most obvious is that of ambiguity. In *Tetris*, I do not stop to ponder what those bricks are really supposed to be made of'. (Aarseth 2004, 48) The difference presented part of a scholarly controverse within a larger debate, one that shall not be re-opened here.

Instead, a short reading of *Tetris* as material-based object theatre performance hopes to establish its own view next to the existing ones. It should be noted upfront that both sides of this debate use the term 'performance' within their own readings (Aarseth 1997; Murray 2004) but differ in their use of terminology from the logic outlined here.

A material performance view of Tetris argues against both the idea that the value (or anything else) is 'internal' as well as the idea that the game merely enacts 'human

experience'. It argues for an interdependent construction of collaborating human and non-human actors. As a piece of puppetry performance, *Tetris* features a number of objects that are active performers. Some of them are hardware-based (like the controller of the specific platform), others might be defined by the situatedness of the play event (like distracting commentary of a bystander). Sticking to the principle game mechanics, we will only look at the activities on the screen, but it should be noted that the principles apply to the situatedness as well.

Concentrating on the fundamentals, the objects to manipulate in *Tetris* are the blocks. In most versions, these blocks are color-coded or marked in visually distinct ways. Their shapes are polyominoes, connected set of squares. The term polyomino was introduced by Golomb (Gardner 1988 [1956]) and their features have been part of mathematical puzzle constructions ever since. Golomb noted that polyominoes were examples of combinational geometry and explains them in reference to patterns possible on a checkerboard (Golomb 1994). Golomb's original description of these shapes refers to them as almost embodied movements performed on such a checkerboard: 'we *define* an *n*-omino as a simply-connected set of *n* squares of the checker which are 'rook-wise connected'; that is, a rook placed on any square of the *n*-omino must be able to get to any other square, in a finite number of moves'. (Golomb 1954, 675). *Tetris* game variants used different level designs, but the original had a 10x20 grid (vs the 8x8 of the original checkerboard). On that grid, the blocks perform not only through a chess-rook-like embodied object behavior but also through their falling speed, their initial orientation, and the way they rotate and move in response to the player's input. These are the objects in our material performance that collaborate with the human to define each other (object and human) and that contribute their agencies such as form and movement. The player engages—intra-acts—with these objects through the design offered by the platform, but the activity cannot be reduced to the rules alone. Players' engagement remains central and might very well be read as a meaning-making process. Even if that meaning is largely a pattern-recognition task, it might extend from the most basic forms to ever larger and more elaborate ones. Such extensions are in the nature of play (Salen and Zimmerman 2004). The impact of this control on the players and whether it is transferable to other contexts has been debated (Pilegard and Mayer 2018), yet the engagement itself is not challenged. But in *Tetris* play is not human-based either. It is a form of participation, not of sole control. In coordination with the gaming situation and the objects available, players negotiate their next move—not as similar but as different participants in the action, just like puppeteers.

Conclusion

Retracing the main steps of the argument from the role of puppetry for HCI and video games, to material agencies of objects, each offering specific and different qualities, to the notion of object theatre as a co-emergent performance between different partners, we arrive at a reading of *Tetris* that sits neither in a purely game-based nor a purely human-based interpretation. Yet, the concept of video gameplay as object theatre does not equalize all the partners. The specifics of the polyominoes remain different from the plans and actions of the player. Humans might interpret, cognitively engage, contribute their own emergent behaviors—game objects might fall, rotate, affect through their embodied shape. It is a clash of different agencies. As is the case with puppetry, the reason why gameplay works is because of these differences. Because the game objects are separate and different from the human player, both sides of the play event can combine to a shared performance. It is through this difference that both can contribute to each other's construction. To understand modern game objects from increasingly complex avatars to virtual objects to abstracted entities, we have to build on this core principle of puppetry, individual agency, and the realization of the differences that allows a shared production.

The chosen example of *Tetris* offers an abstract example of that form. Looking at the much more differentiated character controls, interfaces, and visual representations at work in many recent titles, the shared performance has every opportunity to become ever richer and variable. Many titles push humanoid expressiveness from facial animation, to detailed representation of hair or skin, to the rigging of the game characters. Naturally, this is a valid and effective approach. At the same time, it should be noted that gameplay as object theatre equally describes the worlds of *Octodad: Dadliest Catch* (Young Horses, 2014), where multiple players control a single game character, or *Brothers: A Tale of Two Sons* (Starbreeze Studios, 2013), where one player controls more than one character simultaneously, or the multiplayer puzzle mayhem of *Very Very Valet* (Toyful LLC, 2021).

Games as object theatre do not confine themselves to a narrative or ludic frame. They elevate the performative construction of action over its interpretation and an intra-active co-emergence over a rule-based approach. This is not a new concept. It has been at work in puppetry across many cultures and for a very long time. This essay hopes to provide one building block in integrating this tradition into Games Studies.

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Biography

Michael Nitsche works as Professor in Digital Media at the Georgia Institute of Technology, where he directs the Digital World and Image Group. His research combines elements of craft and performance to develop novel media and interaction designs. Nitsche's publications include the books *Vital Media* (2022), *The Machinima Reader* (2011) (co-edited with Henry Lowood), and *Video Game Spaces* (2009), all with MIT Press. Since 2015, he has been co-editor (with Julia Sussner) of the Taylor & Francis journal *Digital Creativity*.