Toward An Agential Realist Account of Digital Games: Revisiting Gamic Agency and Materiality

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ABSTRACT
This paper brings together discussions of agency in game studies and posthuman research to propose a radical rethinking of agency and agential enactment in digital games. Game scholars often approach agency in the traditional humanist manner which associates agency in games with the player's intentionality, subjectivity, and freedom. While they provide important insights on how we can interpret games and make sense of our in-game actions, the liberal human-centered ideas underpinning may not fully account for the highly technologically mediated and transversally related 'posthuman subjects' we have become today. Drawing from Barad's agential realism and Braidotti's affirmative ethics, this paper proposes to rethink digital game players as posthuman subjects, and digital gameplay as a series of intra-acting practices through which the agencies of players and games are enacted and reconfigured.

Keywords
games, agency, materiality, relation, agential realism, posthumanism, new materialism, becoming, affirmative ethics

INTRODUCTION
This paper brings together discussions of agency in computer game studies and posthuman research to propose a radical rethinking of the notion of "agency" in digital games and play. Digital games have become one of the most predominant cultural, aesthetic, and entertaining products in this hyper-industrial age. Games are not only software running on computers; they also present as important virtual worlds for players to inscribe their digital traces and play with their online identities. The penetration of digital games in contemporary life indicates that games have already become an indispensable part of our everyday life and social fabrication, constantly blurring the boundaries between the real and the virtual, the physical and the digital. Digital games may also serve as a critical site for us to rethink the question of agency. As philosophy professor and game scholar C. Thi Nguyen (2020) suggests in his book *Games: Agency as Art*, agency *is* the medium of game— games constitute "a library of agencies" (ibid., 33) and games can teach us "how to be flexible with our agency" (ibid., 29). While what does agency mean here needs more elaboration, this short yet strong argument certainly captures the unique position of agency in the study of games and the significance of games as a specific venue for the discussion of agency.

In the following three sections, I will first explore the different ways in which agency has been understood in game studies and identify some key limitations in the current studies of gamic agency. Then in the second section, I will move from the traditional

Proceedings of DiGRA 2023

humanist idea of agency to the posthumanist approach to agency and demonstrate the implications of posthumanist agential enactment for digital game studies. To do so, I will mainly take up two important strands of posthumanist thoughts – Barad's agential realism (2007) and Bradotti's affirmative ethics (2019). The former allows us to see the agential enactment of both players and games: the players are not only playing games but also co-becoming with games—players and games are agentially related and co-constituted. The latter provides us with a critical tool to reflect on what an affirmative approach to agential enactments in digital games can bring us and teach us. In the last section, I will examine how an agential realist account of digital games can shed new light on the understanding of materiality in game studies.

The engagement with posthumanist thoughts in game studies is becoming more and more popular, and it might not be too much of a stretch to say we are going through a posthuman turn in the realm of game studies. Justyna Janik (2018; 2021), for example, makes explicit the posthuman ethics in player-game relations by drawing on Barad's critical posthumanism. Janik argues that "the player and the game object are constantly reconfiguring each other, but also do not exist in this form outside this connection." (2018, 4) That is to say, there is an intimacy in computer gameplay where the player and the game object are constantly defining each other's boundaries; the game object is not waiting to be activated by the player, but actively reconfigures the player's body (e.g., improving the player's eye-hand coordination, causing muscle pain and mood swing, etc.). This way of understanding games and play, as Janik suggests (ibid., 7), "gives us an opportunity to 'hear' the voice of the game object, that sometimes can be hidden beneath its anthropocentric design" and thus shakes off the human-centric inclination of perceiving games.

Linus de Petris and Anders Falk (2017, 5) also adopt Barad's agential realism to identify computer games as emergent within the real and everyday life, as "(re)verberations within society, culture and our understandings of the world in which we have our being." This understanding challenges early play theorist Johan Huizinga's notion of "magic circle" which insists on the separation of game and reality. Instead of asking what a game is or what a game is about, de Petris and Falk (ibid., 10) suggest that "focus can be put on how did this emerge as a game and what does it put in motion."

The panel discussion "Video Games and Posthumanism" organized by Sonia Fizek and Paolo Ruffino in DiGRA 2018 is another prominent example of the posthuman turn in game studies. In this panel, Braidotti's (2013) posthumanist thought has been foregrounded as a promising perspective for digital games research, especially when contemporary digital games engage more and more with AI, procedural generation, and complex agential relations between the player and the avatar (Ruffino, 2018).

And more recently, Sonia Fizek's newly published book *Playing at a Distance* (2022) offers a Baradian reading of video games that considers gameplay practice as a complex web of relations among different agents of ludic entanglements. This relational approach, as Fizek (ibid., 81) suggests, "shies away from a cybernetic understanding of play as a symmetrical communication between clear-cut entities—humans on one end of the communication channel and computers on the other." By acknowledging that play is asymmetrical, uncertain, and unpredictable, a Baradian reading of video games opens up new possibilities to grasp the onto-epistemology of games.

Following these lines of inquiry, this research also engages with a posthumanist, or more specifically, an agential realist reading of digital games. Through diffractive readings of digital games and posthumanism theorization, this research aims to see what an enlarged understanding of agency can tell us about digital games and their unique materiality. The engagement with digital games, on the other hand, can

potentially bring vivid examples of new forms of nonhuman agency, which might lead to new understandings of agency in posthuman studies.

GAMIC AGENCY REVISITED

The concept of agency has always been one of the key terms to grasp digital games, along with other notions like rules, goals, and failure, etc., but there is still no consensus on what agency means in game studies. Tanenbaum and Tanenbaum (2009) have summarized four categories to understand agency in games, designating agency as 1) choice, 2) freedom, 3) illusion, and 4) commitment to meaning. Agency as choice, as Murray (1997, cited in ibid.) identifies, points to "one of the central pleasures of interacting with digital environments." Under this category, to play a game is to make choices within the constraints of the game. The second category goes beyond such instrumental play, positing agency as freedom from restrictions (e.g., Frasca 2001). Such freedom can allow the player to experiment with the game and challenge authorial constraints. The third category considers the player's inability to affect the outcome of certain game events, therefore regarding agency as illusion. The last category, agency as commitment to meaning, is often seen in narrative games in which "the player and designer are engaged in a conversation with each other via the game story." (Tanenbaum & Tanenbaum 2009, 8) In the last case, it's the commitment that makes the game meaningful to its player.

In recent years, discussions of agency in digital games have shifted in various directions. Frans Mäyrä (2019), for example, draws from both cultural studies of technology and phenomenology of game play to consider the player as a hybrid: "a particular version of subjectivity that emerges from involvement with the contents, cultures and technologies of games." (ibid., 27) The player's hybrid agency is both constructing and restricting, indicating the asymmetrical power relations and various internal tensions embedded in game culture.

C. Thi Nguyen (2020, 25) believes that agency *is* the medium of game: games constitute "a library of agencies" (ibid., 33) and they can teach us "how to be flexible with our agency" (ibid., 29). In Nguyen's account, agency is the medium of the game through which the game designer exercises control. The player, on the other hand, takes on temporary agencies specified by the game designer to pick up and set aside certain interests and goals. Agency flows in the gameplay process in which the player can learn about agential fluidity. However, the concept of agency here is only loosely defined as intentional action, as Nguyen suggests that we don't "need to settle on a particular philosophical account of 'agency' to usefully say that games use the medium of agency." (ibid., 25)

Partially in line with Nguyen's agential posture, Daniel Vella (2021, 8) further reconstructs agency within the framework of existential ludology, as he writes: "To wield one's agency in the gameworld, then, is to present oneself as an active being", which bears existential weight. Nevertheless, Vella also points out that "the experience of agency does not circumscribe the entirety of our relationship to the world in which we exist." (ibid., 5) Striving for success in games is agentially meaningful (according to Nguyen), but withdrawing from certain actions and not submitting to the agency 'designed-in' is equally meaningful "if we understand our existence in the gameworld as opening up a space of freedom, within which we can take on multiple, potentially contradictory, projects of being." (ibid., 10) Here, what underpins the concept of agency has shifted from intentional action to the possibility of freedom.

Moving from the existential ludologist idea of "being-in-the-gameworld" (Leino 2010; Vella 2015; Gualeni & Vella 2020), Johan Kalmanlehto (2019) locates gamic agency in the computational dimension of digital games. Guided by French philosopher

Philippe Lacoue-Labarthe's notion of mimesis as "the loss of the subject", Kalmanlehto (ibid., 93-4) proposes that "digital gameplay is a confrontation with the otherness of both the developer and the machine, but it is also the art of the player as a subject that produces itself through agency". According to Kalmanlehto (ibid., 181), it is necessary to connect the player to the computational instead of the figural aspect of gameplay, because gameplay is, in essence, nonpresentable. The imperceptible computer operations can produce a sense of sublime in digital gameplay: in this respect, the computer process is rendered as an uncanny otherness through which the player (or "the subject of gamic action") is produced as "a technologically enabled self" (ibid., 193). Kalmanlehto and von Bonsdorff (2019, 12) then proceed to highlight rhythm as the aesthetic (rather than rational) agency of digital gameplay: to play a certain game is to respond to the rhythm orchestrated by the game's procedurally generated agency.

These examples demonstrate there are different meanings pertaining to the notion of agency in game studies, and most of them are aligned with the liberal humanist conceptualization of agency as human intentionality or subjectivity. In Mäyrä's account, the attribution of agency is mainly limited to the player. In Nguyen's case, agency is the medium through which human intentionality flows (mainly from designers to players). In Vella's account and in existential ludology in general (e.g., Leino 2010; Leino & Möring 2015; Gualeni & Vella 2020), agency is closely related to Merleau-Pontyian intentionality and Sartrean freedom. Kalmanlehto's theorization of agency, to a certain extent, goes beyond the conventional association with human subjectivity, as he sees agency as computer-generated, located in the code and the machine that is beyond human perception and understanding. While Kalmanlehto's account of gamic agency may pave the way for a radical rethinking of nonhuman and more-than-human forms of agency, it still has its own limitations. First, the agency in Kalmanlehto's account (as well as in most game scholars' theorization) is designated as an attribute that someone or something has. This contends the core thesis of posthumanist understanding of agency—agency is an enactment, not attribute (Barad 2007, 178). In other words, agency is not pre-given, but enacted in and through practices. Therefore, from the posthumanist perspective, it makes little sense to 'grant' agency to humans or nonhumans; agency is always in the making. Second, Kalmanlehto highlights the sublime as the core aesthetic experience of gamic agency—"sublimity of the imperceptible computer operations whose magnitude exceeds the player's capacity of understanding during gameplay" (2019, 188). Considering digital games imperceptible may obscure important insights about how we, as players, make sense of games, and how games, as initially a bunch of codes and rules, materialize into games. Last but not least, Kalmanlehto's emphasis on the computational agency may draw attention to the hidden aspects of digital games, but it may also conceal other equally important material dimensions of digital games, such as the screen, the interface, and the controller, etc. This duality between hidden and surface, concealed and tangible, also prompts us to rethink the materiality of digital games: What is the core materiality of digital games? What is the role of computation in constructing and circumscribing the enactment of agency and the mode of experience in digital games? In the following two sections, I will address those limitations of current studies on gamic agency by exploring in detail what an expanded notion of agency means in posthumanism and its implications for rethinking the materiality of games.

TOWARD AN AGENTIAL REALIST ACCOUNT OF DIGITAL GAMES

Given that this paper does not aim to provide a complete account of Barad's agential realism, a lengthy explanation of the theory would be counterproductive for our discussion. For the purpose of this paper, I will only briefly discuss the key arguments in agential realism that are relevant for our inquiry. As mentioned in the introduction, the engagement with posthumanism in game studies is not a new invention, several game scholars have implicitly or explicitly employed the ontological, epistemological,

or ethical stances of posthumanism in their work (de Petris and Falk 2017; Janik 2018, 2021; Fizek 2017, 2022; to name just a few.) Along these lines, this paper seeks to generate diffractive readings of digital games and posthumanism theorization in an attempt to see what an enlarged understanding of posthuman agency can tell us about digital games.

In order to unfold agency in Barad's agential realism, we need to look at one of its keywords—*intra-action*. Barad (2007, 33) posits the notion of "intra-action" to replace of the usual term "interaction", the latter often presumes the existence of separate entities. Intra-action, on the contrary, "recognizes that distinct agencies do not precede, but rather emerge through, their intra-action." (ibid.) In contrast to the Cartesian cut which takes the subject-object distinction for granted, intra-actions produce *agential cuts* between the "subject" and "object". In this sense, there is no absolute exteriority between the "subject" and "object", the exteriority here is internal within the phenomena enacted in specific intra-actions. In the absence of radical exteriority and separation between subject and object, it makes little sense to talk about agency as a stand-alone attribute that someone or something has; what the ontological indeterminacy enacts is *agential separability*—a separability that is "not inherent or absolute, but intra-actively enacted relative to a specific phenomenon." (ibid., 339)

To unpack the concept of agency more explicitly, Barad writes, "Agency is 'doing' or 'being' in its intra-activity. It is the enactment of iterative changes to particular practices—iterative reconfigurings of topological manifolds of spacetimematter relations—through the dynamics of intra-activity." (2007, 178) Barad's posthumanist account of agency is fundamentally different from the liberal humanist understanding of agency associated with free will and freedom of choice; as Barad suggests, "agency is about the possibilities and accountability entailed in reconfiguring material-discursive apparatuses of bodily production." (ibid., 218) Therefore, to speak of agency is to respond to and account for the intra-acting practices of which we are an active part. This renewed and enlarged conceptualization of agency raises a whole new set of questions for the study of games: How can we understand games in the absence of ontological determinacy and absolute exteriority? Does the ontological separation between game and player still hold true? If games do not exist as a pregiven conceptual category, how do games materialize as games, and how do we materialize as players? How can we be 'response-able' (Barad 2007) and accountable for the intra-active gameplay practices?

Within game studies and ludology, digital games tend to be understood formally as "rule-based systems" (Juul 2003, 36), "procedural systems" (Bogost 2007, 4), or "designed objects" (Sicart 2009, 22). What these definitions share in common is the recognition of games as individual objects with formal properties such as rules, affordance, and procedurality. This way of understanding computer games seems congruent with the theoretical premise that highlights the ontological primacy of a unified object. In contrast, by looking at digital games through the theoretical lens of agential realism, this research questions the autonomous, self-contained existence of players and computer games. It proposes that the player and the game as individual entities do not pre-exist their intra-actions in the act of playing, but rather emerge through the intra-actions in the gameplay practice. This approach to digital games foregrounds the relations between players and games, positing digital games as a virtual yet material context for relational encounters and digital gameplay as a series of intra-acting practices through which the agencies of players and games are enacted and reconfigured.

The popular imagination and discourse of a digital game player would be someone sitting in front of a computer screen, numb, inert, sedentary. However, such an over-

simplified interpretation of the player's bodily production is problematic and outdated since both the player and the game are not bounded entities. Identifying the agential enactments of the game and the player may help to remove the negative and passive connotations associated with game artifacts and the player's body, and propel us to rethink digital games in a provocative way. To this end, I will draw on Braidotti's notion of affirmative ethics, which is extensively discussed in her recent book *Posthuman Knowledge* (2019). In rejecting the liberal humanist idea of an autonomous, bounded subject, Braidotti proposes the notion of posthuman subjects (2019, 40) to describe "an enlarged, distributed and transversal concept of what a subject is and of how it deploys its relational capacities." It would not be a stretch to consider digital game players in the framework of posthuman subjects: the players are highly technologically mediated and transversally related. Their bodies are wired up in a bio-socio-techno network of codes, algorithms, wires, screens, clouds, on the one hand, and industries, markets, institutions, and policies, on the other, as well as marked with specific gender, race, and class dispositions. While Braidotti's notion of posthuman subject functions well beyond the scope of our exploration in the technologically mediated digital world, this paper argues that digital game players can be seen as a prominent example of posthuman subjects, as they transversally link both human and nonhuman actants, "*zoe*-logical, geological and technological organisms"[1] (Braidotti 2019, 47)—offering a protruding case of what Braidotti calls "*zoe*/geo/techno assemblage" (ibid.).

As Braidotti (ibid., 166) further elaborates, "[a]ffirmative ethics builds on radical relationality, aiming at empowerment." To implement affirmative ethics in our consideration of digital games is to first acknowledge the embeddedness of the player: play is not an activity that takes place in a fantasized game world; it reinserts the players into the technocultural circuit that conditions our day-to-day, sociotechnical practices. Game industry often strives to create a seamless gameplay experience for the players and celebrates gameplay qualities like immersion (Calleja 2007; Cairns et al. 2014; Jennett et al. 2008), believability (Warpefelt 2016; Umarov & Mozgovoy 2014), and flow (Chen 2007). Let's take a mainstream game *Red Dead Redemption 2* (Rockstar Games 2018) as an example. The media reviews around this game often concern how real and "natural" (Hoggins 2019, published in *The Telegraph*) the gameworld looks and feels like, "thanks to an unrivaled dynamic weather system, ambient sound effects, and the most ambitious ecology of flora and fauna ever seen in games." (Bertz 2018, published in *Game Informer*) The so-called 'naturalness' may conceal the technological control embedded in the neoliberal, hyper-industrialized game markets. Correspondingly, the seamlessness it purses may deprive games' ability to affect and to be affected by the players, that is, the ability to build relationalities. Players, on the other hand, are immersed in the smooth experience of the game, leaving little room for meaningful reflections and connections.

A counterexample would be *The Elder Scrolls IV: Oblivion* (Bethesda Game Studios 2006), the fourth title of *The Elder Scrolls* series. Its NPCs are usually considered 'unnatural' (Onyett 2018), and even 'wrong' (The Cantina 2019), as they often talk randomly and have their own agendas and goals. Unlike traditional NPCs which rely on conditional statements in programming (if A then B), *Oblivion*'s NPCs are created with Radiant AI—an AI program developed by Bethesda to allow NPCs to make choices and engage in more complex and dynamic behaviors. NPCs are typically perceived as 'natural' if they are static and only respond to the players when activated or interacted. *Oblivion*'s NPCs, on the contrary, can act whether the players are present or not, which may make the players feel 'unnatural' and uncanny. However, this paper argues that this uncanniness may work as a rupture that allows the players to confront directly with the gamic agency which used to be black-boxed and concealed. The uncanny NPCs in *Oblivion* also enact a more radical relationality with the players:

because the NPCs have their own agendas and do not wait to be activated, the player may get a sense in which "the world kicks back" (Barad 1998, 112). This also indicates that the player's experience is not simply pre-scribed by rules, but co-generative with the lively NPCs. The co-generative force of games not only lies in the game world, as in the authentic relations established between the player and the NPCs,[2] but more importantly, as Anikina (2020, 90) accurately summarizes, "the in-game experience inevitably spills into the economic, cultural and social fabric of the player's life, producing other cultural encounters – lore, videos, walkthroughs, memes and images."[3] This indicates, in an important sense, that a given game is not only a bunch of codes running on computers, but a living organism that can self-actualize and co-generate with the players, re-shaping our sociotechnical fabrications. In the next section, I will further examine how such an agential realist account of digital games can shed new light on the understanding of materiality in game studies.

AGENTIAL ENACTMENT AND RELATIONAL MATERIALITY

In the previous section, I looked at digital games through the lens of posthumanism and agential realism and presented both games and players as agentially enacted and co-constituted. This may pose a challenge to the early ludologist understanding of games as stand-along objects characterized by formal properties such as rules, affordance, and procedurality. However, this does not mean that ludological notions like rules, goals, procedural are useless, but rather they need to be examined through a renewed, posthumanist premise that highlights agential enactment and its inherent indeterminacy.

In defining the machinic agency of digital games, Kalmanlehto (2019, 93) proposes that "[c]reating a digital game is an art in which the developers present themselves through the gamic form and the code, which, with the power of the computer, transforms into a machinic agency." Rules and goals are part of the machinic agency, manifested in the code and computational process. This partially echoes Leino's (2012a) observation that the alleged "rules" are hardcoded in the materiality of the game artifact, and the players can only perceive certain patterns of the "rules" without actually accessing them. For Leino, the biggest difference between digital and non-digital games lies in the materiality of digital games, that is, "the ability to transform as a consequence of its player's choices" (Leino 2012b, 65). Think about the "game over" state in digital and non-digital games: when playing non-digital games like cards, it's up to the players to decide when to stop, whereas in digital games like *Tetris*, the "game over" is imposed by the material game artefact which "will transform itself to the extent that it prevents the game from continuing" (ibid., 66) This materiality conditions the player's agency, as Leino mentions: "Given that I desire to play, the materiality of the game artefact imposes on me a freedom of choice of which I am responsible in my choices." (ibid., 70) At the risk of over-simplifying their arguments, I tentatively summarize that in Kalmanlehto's account, the materiality of digital games lies in the imperceptible computer operations, whereas in Leino's observation, it lies in the constraints imposed by the game artifacts. The former posits gamic agency as something hardcoded in the materiality of games (therefore, the agency is interior to the materiality), whereas the latter sees agency as conditioned by the materiality of games (hence exterior). While they provide important insights on how games can be perceived interiorly and exteriorly, these theorizations seem to be too static to fully account the performativity and indeterminacy embedded in digital game materiality.

To talk about the materiality of digital games, it is necessary to briefly examine the discussion of digital materiality. Yuk Hui (2015) summarizes two mainstream approaches to digital materiality: digital physics and digital textuality. The former sees the digital as different algorithmic arrangements of the binary composition, while the latter looks at "the multiple layers of textual events" (Kirschenbaum 2008, 109, as cited in Hui 2015, 135) from which the digital can be traced. In identifying that both

approaches "either start with or end up with substance" (ibid., 137), Hui proposes a new approach to digital materiality that shifts from substance to relations. Partially building on Barad's relational ontology, Hui (2015) postulates "relational materialism" to account for the rapport between relations and technologies—a relational materiality that "is made visible and explicit under digital conditions" (ibid., 131). Hui quotes Kirschenbaum's XML[4] example to demonstrate that data technology (e.g., the sematic web) is "a web of materialised relations, which can be the URI or the comparison between any two attributes." (ibid., 141) Such materialization of relations is made more explicit in digital games: abstract significations such as the code and data can be turned into material connections and actions on the computer screen and may proceed to enter technocultural circuits that condition our day-to-day, socio-technical practices.

The shift from substance to relation, from digital materiality to relational materiality, is also aligned with the observation that both games and players are agentially enacted. What characterizes such a relational materiality of digital games is an inherent indeterminacy, rooted in the intra-acting process through which games and players materialize and actualize themselves. Building on Kurt Gödel's notion of incompleteness and Alan Turing's idea of incomputablity, M. Beatrice Fazi (2018, 5) proposes that "[c]omputation is an abstractive procedure of determination that always confronts indeterminacy." This kind of computational indeterminacy might be used to characterize the contingent behaviors of NPCs in *Oblivion* which do not rely on the player's intentionality. However, Fazi approaches the question of indeterminacy in a radical empiricism manner, that is, to "speak of the contingency of computation in its logico-formal character, before turning to the chance events, glitches and accidents of its implementations, or to the computational simulations of the empirical world with the consequent replications and appropriations of the mutability of such empirical world's behaviours" (Fazi 2021, in the interview with Beer 2021). This paper argues that the two situations left out in Fazi's account can also fit into our theorization of indeterminacy in digital games: the implementational accidents and empirical consequences are organic parts of the gameplay practices. In the case of digital gameplay, just as the logico-formal character of computation (i.e., how games are written in code), the implementation (i.e., how games are played by the players) and consequences (i.e., how games influence the players) are integral to the materialization of games and players. For example, in *Oblivion*'s case, the players can choose to pursue their main quests without paying much attention to the NPCs' contingent behaviors, but choosing to follow the contingency may bring about deeper emotional and material bond. And the same indeterminacy can be said about the inscription of *Oblivion*'s NPCs in the cultural and social fabric of the player's life. Therefore, we may safely conclude that digital games are not pre-scribed, bounded entities, they are performatively and indeterminately enacted through a series of intra-actions between human and nonhuman components. This indeterminacy leaves crucial room for incidents, glitches, and connections, reinforcing the unique relational materiality of digital games that builds on games' ability to enact agential separability, establish material relations, and invite responses from the players.

CONCLUSIONS

This paper has brought together discussions of agency in game studies and posthuman research to radically rethink the notion of agency and agential enactment in digital games. Game scholars often approach agency in the traditional humanist manner which associates agency in games with the player's intentionality, subjectivity, and freedom. While they provide important insights on how we can interpret games and make sense of our in-game actions, the liberal human-centered ideas underpinning may not fully account for the highly technologically mediated and transversally related 'posthuman subjects' we have become today. Drawing from Barad's agential realism and Braidotti's affirmative ethics, this paper proposed to rethink digital game players as

posthuman subjects, and digital gameplay as a series of intra-acting practices through which the agencies of players and games are enacted and reconfigured. This challenged the early ludologist definitions of games which posit games as bounded entities with discernible formal properties such as rules, affordance, and procedurality.

Foregrounding games and players as agentially enacted and performatively emerged, this paper considered digital games as a virtual yet material context for relational encounters, which can lead to a reworking of digital game materiality. Digital games cannot be reduced to algorithmic arrangements of binary code, or thematic representations on the computer screen. Rather, they are materializations of relations indexed in the code, manifested on the interface, and may spill into larger socio-techno-cultural fabrics of our day-to-day life.

An agential realist account of digital games is not only an ontological project that rethinks what digital games are, but more importantly an epistemological and ethical project. It concerns how games are played in practice and how players can be responsible and accountable for the gameplay practices. This paper does not aim to provide any definite answer to these questions, but to provoke more questions: What counts as responsible gameplay practice? How can players, as technologically mediated and transversally related posthuman subjects, be accountable for their own in-game actions? How can such accountability be expanded from the digitized game world to our physical world? Where is the boundary, if any, between the game world and the real world? How can games be 'response-able' to our reality? How can gameplay practices reconfigure the manifolds of space-time-matter?

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ENDNOTES

[1] Traditionally, Western philosophy holds that *zoe* refers to the life of animals and nonhuman entities, as opposed to *bios*, which refers to human life. However, in the context of the posthuman convergence, Braidotti (2019, 10) maintains that "this opposition is too rigid and no longer tenable." *Zoe* cannot be reduced to dehumanized life (as Agamben theorizes), but needs to be reconsidered as "a force exceeding anthropocentric perspectives and humanistic expectations, offer[ing] resources to resist the reterritorializations of advanced capitalism." (ibid., 177)

[2] This can be seen in many positive reviews under the famous YouTube video "*What Is Wrong with Oblivion's NPCs?*" (The Cantina 2019), such as "To be honest, if the npc's [sic] weren't absolutely ridiculous in Oblivion, I probably wouldn't love it as much as I do." (Mad Bro Sheo 2019), and "Nothing's wrong with Oblivion's NPCs, they're the peak of the medium. They've given me more entertainment than like half of all TV shows I've seen." (Terry R. 2020)

[3] In *Oblivion*'s case, we can see the NPCs from a game released in 2006 are still an important source for today's memes (e.g., the Reddit thread of *Oblivion* memes is still growing: https://www.reddit.com/r/oblivion/) and fan-made videos (such as the one mentioned in the previous footnote).

[4] XML (Extensible Markup Language) is a markup language similar to HTML, but without predefined tags to use. XML is used to store, transmit, and reconstruct arbitrary data.