Acta Ludologica | 2024, Vol. 7, Special Issue

Objects Really Matter: Ludo-Representationalism and the Reality of Digital Games

Tamás Csönge

Tamás Csönge, PhD.
University of Pécs
Faculty of Humanities and Social Sciences
Ifjúság street 6
7624 Pécs
HUNGARY
csongetamas@gmail.com

Tamás Csönge is a senior lecturer at the University of Pécs (Hungary), Department of Film and Visual Studies. He is a member of The International Society for the Study of Narrative. Working within the framework of rhetorical and classical narratology, he wrote his doctoral dissertation on the topic of perspectivation and character narration in film and has published on the topics of narrative complexity, film narratology and game studies in edited volumes and the journals *Acta Universitatis Sapientiae Film and Media Studies*, *Frontiers of Narrative Studies*, and *Ekphrasis*. His other research interests include film theory, the theory of fictionality, and ideological aspects of contemporary popular culture.

ABSTRACT:
The aim of this paper is to identify the reasons for the contradictory conclusions of the fictionalist and the realist theoretical positions on the ontological status of digital game objects. First, the applicability of the Waltonian notion of fiction regarding digital game objects and events is challenged. The paper clarifies that the debate contains a categorical misunderstanding, and that it is not really about the discursive quality of fictionality (or factuality), but about an ontological opposition between represented and real objects. It is then demonstrated that digital game objects belong to a special category of non-physical informational entities that realists rightly consider real because they exhibit systemic behaviour, but fictionalists are also correct regarding their function as signifiers of non-real, represented objects. Following Aarseth, a distinction is made between represented, simulated and real objects. It is argued that simulated digital game objects are real objects, but not necessarily the same kind of objects as those they represent: a virtual library is a library, but a virtual kitten is not a kitten. Finally, it is suggested that the main reason for the confusion about the existential status of game elements is an issue of descriptive language: a confusion between signifier and signified and the uniform designation of heterogeneous phenomena.

KEY WORDS:
descriptive language, digital games, fictionalism, realism, representationalism, simulation, virtuality.

DOI:
10.34135/actaludologica.2024-7-SI.16-33

Introduction: Is This a Real Game?

The paper aims to contribute to the debate between ludo-fictionalism and ludo-realism, where representatives of the more widespread former position such as Atkins (2003), Tavinor (2009, 2012), Meskin and Robson (2012; Robson & Meskin, 2016), Willis (2019), and Nader (2022) claim that, despite their interactivity, the content of digital games are essentially fictional because they "represent fictional characters, places, and events: that is, a fictional world" (Matsunaga, 2016, p. 89). In opposition, researchers leaning towards a realist approach such as Frasca (2002), Juul (2005), Aarseth (2011, 2014, 2023), Coppock (2012), Chalmers (2017), Matsunaga (2016), and Klevjer (2019) dispute this claim and argue that our relationship with digital games, even if they do not have a physical realization, is still very different from our relationship with fictional worlds and entities.

It is useful to start with the idea that most of the debate is not really about the applicability of the quality of fictionality (understood here as an aesthetic category or communicational device),[1] because the adjectives of *fictional* and *real* are not in fact opposites,

1 Remark by the author: Fictionality is understood in this text as a distinct autonomous quality, a widely used rhetorical device and mode of sense-making, rather than as a literary or artistic form/genre. For a conceptual distinction between fiction and fictionality, see Walsh (2007) and Nielsen et al. (2015). For the difference between rhetorical and other approaches, see Zetterberg Gjerlevsen (2016).

but lie at categorically different levels. We will therefore refer here only to some of the essential features of the specific concept of fictionality that we consider to be the most viable for our purposes.

The primary aim of this paper is to demonstrate – without relying on the over-mystified and diversely understood notions of *player experience* or *immersion* – that the two theoretical positions are not necessarily mutually exclusive, and that both positions are valid about the referents of their claims, but that these referents are simply not the same. Digital games often contain representations of objects (most fictionalist arguments discuss this aspect), and that these representations are not the same as the digital game objects that act as their signifiers (often called props), but are at the same time objects in themselves. In this sense, digital games are real-time systems that can be manipulated by the player and therefore contain real events and objects (realist approaches tend to focus on this aspect of digital games). These objects belong to a special category: they are information-based (non-physical and software-generated) objects that can exhibit systemic behaviour in a virtual environment. Their properties and behaviour can be described by well-defined rules, and unlike mere representations of characters or objects in a novel, their properties can be tested and explored by the player, so they are never accidental or inconsistent. Together with other elements of the game, they form a system where they usually have a ludic function: they help or hinder the player's progress in the game.

It is in this context that the much-problematized concept of simulation as machinery with a dual nature can be situated and defined: in this sense, it is the execution of an interrelated set of operations that utilizes the actual behaviour of a rule-based system (the ludic aspect) while generating analogies in a semiotic process to model real-word phenomena (the representational aspect).

The final point of the reflection is to demonstrate how differences in theoretical commitments have led to the seemingly coherent and logical arguments for the fictional or real nature of game content in both approaches. It is assumed that the main reason for the confusion about the reality of game elements is an issue of *descriptive language*: more precisely a confusion between signifier and signified and the uniforming designation of heterogeneous phenomena. The issue with naming and describing game elements is that, often, their representational content is referenced, so that descriptions lump together very different types of objects, simply because they express similar figurative elements. If we describe a game scene in which a knight opens a chest with a key and finds some gold inside, many things will be left out that are crucial to understanding it as a game, such as: which element is interactive, functional, and which is not: the chest, the key, the gold, or the character? Does the player control the knight? Is the gold just decoration or does it have a specific in-game value? Can the player collect the gold and use it to buy useful equipment for her character?

The argument that sparked our interest in the subject is Aarseth's (2007) claim about the ontological heterogeneity of games, pointing out that a source of many theoretical misunderstandings is the fact that complex software programs are called 'games', which are usually more than just games: they contain algorithmic and representational elements as well. According to Aarseth (2007),

> computer software is a kind of metamedium that is able to emulate the older media of text, image, and film. But they also contain items that are different from the elements we recognize from older media. These elements are ontologically different, and they can typically be acted upon in ways that fictional content is not acted upon. (Aarseth, 2007, p. 36)

As they are extremely heterogeneous in terms of their structure, it is not easy to give a common, all-encompassing definition of electronic chess games, *Minecraft* (Mojang, 2011), *SimCity* (Maxis, 1989) and *Cyberpunk 2077* (CD Projekt Red, 2020), not to mention

that this heterogeneity also exists within the diverse palette of non-electronic games. Games can contain different types of elements, both within and across genres: simulation, representation, narrative, fiction.[2]

The term „fictionalism" is increasingly used in the context of game studies by scholars, often from the field of analytic philosophy. Sometimes called 'virtual fictionalism', 'virtual irrealism' (Chalmers, 2017), or 'ludo-fictionalism' (Aarseth, 2023), but of course related claims appear in many more works in the field. Tavinor (2019) clarifies that it most often refers to *gameworld fictionalism*, meaning "that the worlds depicted in games, where they exist, are fictional" (p. 1).

Here, realism is also used in a more general sense, following Heim (1998), as a way of asking about the ontological specificity of a particular object, in this case the realness of certain aspects of digital games. The term is not used in the aesthetic sense of a movement or an artistic style as used by many scholars. For example, Atkins (2003) describes realism as a stylistic type of fictional mode. Matsunaga (2016) talks about "realism in simulation" and "realistic simulation" (p. 101), which are also non-ontological categories for him. That is, by realism we do not mean some artistic or cultural codes of truthful, authentic depiction (of which Madame Bovary in literature or the paintings of Gustave Courbet are prime examples), but we try to characterize digital game content as *part of* reality. It also follows that this ontological realism does not refer to a discursive mode of factuality either, whether understood as a conceptual framework concerning the status of references or as a 'communicative resource' (Nielsen et al., 2015). So the realist position does not assert that game objects (as signifiers) refer to real objects (as signifieds) or are a mechanical imprint of reality (like footage from a documentary), but emphasizes that they are real objects themselves (just like virtual money in a bank account).

In what follows, we argue that many of the discussions about the realism of digital games are often (overtly or unconsciously) not really about the nature and question of fictionality (even if the term is used), but about representation, so that it can be pointed out that the ludo-fictionalist position is actually a ludo-representationalist one.

Ludo-Fictionalism: Is This Just Fantasy?

Walton's (1990) definition of fiction is enduringly popular among fictionalist approaches related to the analytic tradition (Meskin & Robson, 2012; Robson & Meskin, 2016; Nader, 2022; Ricksand, 2020; Tavinor, 2009, 2012; Wildman & Woodward, 2018; Willis, 2019). Since ludo-fictionalism as a theoretical stance has been largely shaped by Walton's theory, it is worth briefly discussing its nature and how it has been applied to digital games. Walton's (1990) starting point is to relate representational art forms to children's games. For him, paintings, plays, films, and novels can be best understood if they are compared to

> dolls, hobbyhorses, toy trucks, and teddy bears. The activities in which representational works of art are embedded and which give them their point are best seen as continuous with children's games of make-believe. ... [Walton] shall argue that representational works serve as props in such games, as dolls and teddy bears serve as props in children's games. (Walton, 1990, p. 11)

2 Remark by the author: Hungarian game scholarship has reflected on this kind of internal heterogeneity and hybridity of digital games in a wide range of ways. See for different approaches: Kiss (2013), Pólya (2020), Orosz-Réti (2021), and Jancsovics (2022).

Or, as one interpreter puts it: "fictional content belongs to those things that function as props in games of make-believe" (Willis, 2019, p. 50). We would stress that in the Waltonian view, a prop is a material object which functions as a sign vehicle in a conceptual (more specifically representational) discourse, and which, in the appropriate context of reception, is endowed with the rhetorical power to refer to a meaningful element of that discourse. That is, the prop is not an element of a particular semiotic code, or the abstract form of a sign, but its physical manifestation. Any natural or man-made object can be a prop that encourages an act of imagination to "generate fictional truths" (Walton, 1990, p. 21), it need not be specifically designed for this purpose.

As Meskin and Robson (2012) point out, the Waltonian approach is not concerned with the referentiality of fiction, because "it has nothing to do with the existence or non-existence of the situation that [an] object depicts (or otherwise represents)" (p. 205), but rather, as one interpreter, Friend (2008) puts it: "Walton is interested, not in our everyday concept of fiction, but in those works that prompt make-believe, however we pre-theoretically classify them. Such works he labels as *fiction* or, equivalently, *representational art*" (p. 154). Friend points out that Walton's definition is therefore not appropriate for exploring the conceptual *distinction* between *fiction* and *non-fiction*. So, when Meskin and Robson (2012) "argue that videogames are artefacts which have a function of serving as props in games of make-believe" (p. 201), the authors acknowledge that "Walton's non-standard account of depiction implies that all pictures – including photographs – are fictions" (p. 205). The consequence of using such a broad definition of fiction is that "almost all videogames – merely by virtue of being pictorial – will count as fictions in Walton's sense" (p. 205). On the basis that "one role of videogames is to mandate imaginings" (p. 207), they are content with the conclusion that digital games are fictions in the Waltonian sense, although they stress that this is not their primary or most important feature.

For Walton (1990), a kind of game develops in the subjective relationship with different objects, representations and works of art, which is – while based on so-called "principles of generation" (Meskin & Robson, 2012, p. 138) – a more open, individuated and spontaneous cognitive activity that mobilizes the imagination. Aarseth (2011), following Roger Caillois, calls this type of 'game' *paideia*, and distinguishes it from *ludus*, another type based on fixed rules and skills. However, the 'game-like' nature of digital games is not related to the imaginative activity associated with them or their representational character, but to their ludic aspects: that is, they contain rules that cannot normally be bypassed during gameplay. Although for most players it is undoubtedly important, several commentators have noted (Newman, 2002; Aarseth, 2004; András, 2019) that some truly dedicated, hardcore gamers can completely detach themselves from the representational, aesthetic, and narrative aspects of digital games in order to focus on the game mechanics. Aarseth (2011) gives an extreme example of two games that differ only in their appearance – *The Suicide Bomber Game* (fabulous999, 2002), also known as *Kaboom!*, and *The Howard Dean for Iowa Game* (Persuasive Games, 2004) –, although unique as aesthetic objects (they evoke different conceptual associations, imply different narratives, and convey different ideologies), are in fact identical as *games* because of their shared mechanics. Again, we stress that the term game is used in a narrower sense here. While in one you must act as a suicide bomber, and in the other you have to recruit voters for the titular democratic political actor by holding up signs, you have to perform practically the same game actions to achieve your goals.

Like all cultural representations, 'Waltonian fictions' can be created while playing digital games, but this broadly applicable concept will not be able to distinguish them from other types of playful activities or representational systems and point to their medium-specific possibilities, unique mode of operation, and rhetoric.

Other representatives of fictionalism try to escape from this Waltonian trap by using fictionality in a more specific sense. Tavinor (2009) underlines that "Walton uses the term *fiction* in a rather wider stipulated sense. ... [Tavinor] want[s] to employ the term *fiction* in a more robust sense" (p. 50), therefore, by capturing the discursive nature of the concept, he defines the fictional mode as something "referring to imagined states of affairs" (Tavinor, 2012, p. 192). While most contemporary digital games "simulate the material modality of our primary world to make believable facsimiles" (Makai, 2021, p. 72), Tavinor (2012) argues that some digital games do not require the imagination of fictional worlds, for example, *Tetris* (Pajitnov, 1984) or computerized chess games. Therefore "a weakened form of the videogame as fictional thesis might state that while videogames often involve fictive elements, they do not necessarily do so. Videogames are sometimes works of fiction, and sometimes not" (Tavinor, 2012, p. 187). The definition prompts us to take a closer look at the different ways fiction can be defined in this context.

Fiction as Ontology vs. Discourse: Caught in a Categorical Slip

Descriptions that do not attempt to homogeneously define all digital game content as fiction tend to oppose fictionality with two conceptual fields: 1) systematic behaviour (also called virtuality, simulation, algorithmicity), which is often identified with *realness*, or 2) *factuality* (documentary nature). In our view, the first is a false dichotomy, or at least results in a categorical slip, which also occurs in Aarseth's (2007) argument when he contrasts the real (and simulated) elements of games with the fictional. According to Tavinor (2012), the fictionality of games is problematic because while "the non-existence of objects in literary fictions is abundantly clear, in the case of videogames there does seem to be *something* there with which [the player is] interacting" (p. 190). But here he does not contrast the characteristics of the category of fiction with those of real entities, because the contrast remains true in non-fictional discourses: a written factual account of a historical event or a documentary film does not allow us to interact with its characters *through the reception of the work*, but this does not mean that the objects of the representations in question are imaginary. The places, events, and people *depicted* in a factual discourse are just as absent as those in fiction, meaning that the example is in fact opposing qualities related to presence and absence. Literary and transmedia scholar Ryan's (2018) definition of fictionality also operates on similar semiotic assumptions: "a text is fictional when it passes as something other than what it is, but without deceptive intent from its author" (p. 38). Although it is clear from the context, the statement itself is ambiguous as to what it refers: the text as object or as signifying system?

The concept of fictionality in literature always emerges in relation to the ontological status of the signified, while in relation to games, it can concern *the game itself as an object or process* (the elements of their structure and their functioning). In this regard, Aarseth (2023) also makes a comment in line with our conclusion that, following Juul (2005), "much of the later claims of game fictionality seem to conflate the notions of fiction and representation" (p. 14). Whichever position one adopts on the nature of digital games, it is clear that representation is the broader category, encompassing both fictional and factual discourse, which can be validly contrasted with the supposed realness

of game objects. The real question at the heart of the debate is therefore not whether the content of games is fictional, but whether they are *merely* representations.

Since fictionality is a conceptual discourse, it can be properly contrasted with other conceptual discourses, such as historical or documentary-type representation. In these, the question of reality will always be a question of reference, and there is no ontological difference between them and fictional discourses, only a rhetorical one. But if we contrast representation with an object that produces a systemic functionality and can be manipulated by the user in real time, there will indeed be an ontological difference between the entity represented and the entity that functions instrumentally. It could be said that the question of fictionality (as rhetoric) can be understood in terms of the status of the signifieds of representations, while the ontological question of realness applies to "phenomenological objects" (Aarseth, 2011, p. 65). It is a quite different thing to claim that the objects and events of a game represent real objects and events (referential signs) than to claim that they are real objects and events. The debate is therefore largely not about the rhetorical difference between fiction and non-fiction, but about the ontological difference between absence and presence, or reference and existence.

Tavinor's (2009) comparison is revealing about the representationalist approach to digital games. He suggests that "the stage gun is *simply real and not fictional*" (p. 47), and from this, we can conclude that certain aspects of plays are simply real. By analogy, it could be said that certain aspects of digital games are similarly real. "But – he claims – the stage prop gun is simply not the gun represented in the fiction, no matter how much it might appear to be a gun, indeed even if a real gun loaded with blanks is used" (p. 47). That is, he correctly points out the difference between signifier and signified in the way representation works, and that when referring to a weapon 'in the fiction', it is really the latter that we are referring to. Then he draws the conclusion: "What is real in this case is the prop, and the events that involve the prop, and not the fiction that it is used to represent" (p. 47). Tavinor takes the Waltonian concept back to its theatrical roots, but in doing so he also indicates that the realness of the 'prop' is of little importance: its only function as a signifier is to communicate a signified, so we can say that *in the play* the weapon is actually present even when the actor is holding a banana in his hand or shaping the object with his fingers.

Tavinor (2009) examines games along these lines, concentrating on their representational (sign-like) aspects, assuming that all other 'material (in this case virtual) aids' are not essential aspects of the game. This is based on the premise that games operate in a similar way to plays, novels, and films, in which mainly the signifieds of representation deserve to be examined in particular. This assumption is well reflected in statements such as "virtual representations can present real *and* fictional things" (p. 49). Here, Tavinor is explicitly discussing the capacity of digital games to *represent* real and non-real referents in specific, unique ways. That is, despite the implication that digital games contain some kind of real, but virtual objects, their role and significance are secondary to the fact that these objects serve to represent other objects. Tavinor (2009) thus concludes that the algorithmic operation in digital games is also a mode of (fictional) representation, although, he argues, more 'robust' (since it conveys more aspects/properties of the signified object) than a static, traditional representation. Moreover "the stage drama gun is even *more* representationally robust than the videogame gun, but equally as fictional as the gun depicted in the movie and the story book" (pp. 46-47). So, while the physicality of the prop gun makes it more 'robust' for Tavinor, his focus is still on the process of semiosis and the status of its ('fictional') referent. It follows that anything that is considered to be a real object in a digital game (just like a stage prop gun) is only a vehicle, even if it is 'functional', because it is not the same as the object it represents.

As much as fictionalists consider the virtual object to be real (equivalent to the set of information that is necessary and exists in the form of code), since it is not the same as the object that the game 'makes you imagine' by its appearance or behaviour, *as a weapon*, it is only represented. Here, the doubly problematic assessment of fictionality arises in part from the *difference*, the *non-identity*, of the object depicted and the virtual object that exists as its signifier. This argument is self-fulfilling in its commitment to representation as a framework (see Meskin & Robson, 2012, p. 206), for how can we contest that the signifier of representation is not the same as the signified, when this gap is the essence of all semantic relations? The assumption arising from the position is that the virtual object in the digital game is not a real gun, since a gun (which is only invoked here as a referent by the game object) is tangible, capable of firing a bullet and capable of injuring living beings.

This discursive framing of ludic content where every element is approached as a sign, a representation, is by no means invalid, it is logical and plausible, but it pays too little attention to the non-representational aspect of digital games where objects that are only referred to as props in the spirit of other representational media, are diverse in their functioning as actual tools of actions and events.

Ludo-Realism: No Escape from Reality

What most realists focus on are the objects and processes generated by the digital game's algorithms, the gameplay and its events created by the operation of the system and the player's activity. Their key feature is that they are not merely representations utilizing perceptual and behavioural features of external models, but are elements in connection with which we execute, operate, shape, and manipulate a system. Aarseth (2014) vehemently attacks the validity of the Waltonian thesis by arguing that:

> there is no need for make-believing when players shoot at each other in *Counter-Strike* ... they are manipulating nonphysical, informational guns that shoot nonphysical, informational projectiles and when their avatars are hit, they do not have to make-believe that they are eliminated. (Aarseth, 2014, p. 491)

In other words, he rejects the idea that a game object is *only* a prop, since it "is a functional object that will directly support the player's operational play, and not (merely) prescribe imaginings" (Aarseth, 2023, p. 19). Although he uses the notion of fictionality to describe positions different from his own, his argument also points to the fact that it is the notion of representation that should be contrasted with the category to which the game object belongs, as, he argues "it does not represent; it is, in the most basic sense, *useful*" (Aarseth, 2023, p. 19).

Although wavering in his definitions, he takes a moderate realist position, which could be better described as anti-representationalist, in that he proposes the introduction of a third ontological category in relation to games: "games are not fictions, but a different type of world, between fiction and our world: the virtual" (Aarseth, 2007, p. 39). He later justifies this by saying that:

> just because 'fiction' is a poor conceptual fit, it does not follow that 'real' has all the analytical power needed, especially if we are experiencing genuinely new material constellations of human construction, such as the current revolution of artificial intelligence. (Aarseth, 2023, p. 21)

It is to this position that the proponents of the stronger realist thesis respond, stressing that the problem with the escape route of virtualism is that it can only describe its own position in a negative or circular way: "Virtualism has a fault in that it itself explains nothing. … What is videogame interaction? Virtual one. Then what is it to be virtual? To be capable of interaction!" (Matsunaga, 2016, p. 91). In contrast, the stronger view is – as Chalmers (2017) explains – that "virtual reality is a sort of genuine reality, virtual objects are real objects, and what goes on in virtual reality is truly real" (p. 309). The difference lies in the fact that Aarseth (2023) tries to refine the category of reality, separating its significantly distinct versions in terms of human experience and perception, warning us that "the ludo-fictional thesis fails to grasp the most crucial ontological turn of our time: from material to informational reality" (p. 15). In this sense, the only essential difference between what are traditionally called real and virtual objects is their physicality: "The game object … is not a material entity, but a phenomenological one … why must 'real' always mean 'physical'?" (Aarseth, 2011, p. 65).

Aarseth's (2007) other argument against the representationalist view is the systematic nature of digital game simulations (which is the basis of all game mechanics), in contrast to which "fictions do not have to be logical or consistent, as long as they make us project mental images, happenings and notions" (p. 36). In a digital game system, there can be no contradictory states. This is why the mechanics and the representational layer of the game are well separable, the latter of which, as Aarseth (2023) also notes, is often arbitrary in its relation to the former.

Klevjer (2019) draws attention to an important distinction in the context of the temporality of digital games. While representation is not 'real-time', all events it displays are pre-coded (although their reception in certain media is time-bound), in gaming, we can talk about "screen-based real-time environments" and "real-time virtual objects" (p. 733), whose state can be precisely determined at any moment, their operation unfolding in the present time. The game may indeed generate event-like representations, it may contain 'scenarios', but their occurrence is subject to the same conditions of realization, meaning that they are part of a causal chain, they always have antecedents and consequences as any event in the simulation. According to Klevjer (2019), "during play, we are, via the screen, able to experience real-time modeled objects and environments" (p. 733), the states of the former and the creation of the latter are real events, not just a representation of a situation.

The realist position's strength lies in its attention to the differences between a digital game and other semiotic artefacts and representational media, as well as its focus on the internal diversity of game elements. However, it sometimes misses the object of its critique, since no theoretically sound position would deny the systematic nature of a simulation or the freedoms and possibilities that come from being a real-time process. For representationalists, the problem with the approach relates to the naming of game objects. According to them, it is misleading, for example, to describe (and thus identify) a game object as a gun, because although it has a real function in the game, it is incapable of injuring flesh and blood creatures. This issue has given rise to quite distinct theories of how virtuality can be conceptualised.

Virtuality and Simulation: Open Your Doors

To distinguish between 'fictional' and 'virtual' game objects, Aarseth (2007) gives the example of two types of doors in *Return to Castle Wolfenstein* (Gray Matter, 2001): one is an element that looks like a door, has the texture of a door, but cannot be opened and walked through – it is a mere decoration. The other not only looks like a door but also works like a door: you can open it, close it, your avatar can pass through it, and enter a previously enclosed space. In Aarseth's definition, this is a functioning virtual door.[3] Tavinor (2012), on the other hand, places virtuality again within the domain of representation as a possible (digital game specific, medium-specific) mode of it, and from this perspective criticizes Aarseth's distinction:

> The genuine difference that Aarseth refers to between merely decorative doors and usable doors does not amount to a difference between fictional and nonfictional doors as he contends, but to a difference between fictional doors depicted in a nonvirtual way, and fictional doors depicted in a virtual way. (Tavinor, 2012, p. 197)

For Tavinor (2009), then, virtuality is posited as a mode of representation (and a 'fictional' mode of representation in most games), the specificity of which "is their richly contingent representational media, their responsive nature, and their consequent interactive opportunities" (p. 50). Aarseth (2007), in comparison, emphasizes the fact that it is *an* object with a real mode of operation and behaviour, which *also* represents another object.

For a more precise definition of this quality, it is worth distinguishing between broader and narrower senses of virtuality. Aarseth, for example, uses the term for objects that have no physical existence but behave according to fixed, predetermined rules. However, when he identifies their operation as a (digital, computerized) type of simulation, he adds a model-like and thus sign-like aspect to the formula. This is clear from the definition he adopts from *Encyclopedia Britannica*, according to which, a simulation is the representation of "the dynamic responses of one system by the behaviour of another system modeled after it" (The Editors of Encyclopaedia Britannica, 2024, para. 1).

It is important to clarify that the simulated object is *usually* not another individual instance (token) of the same class of objects (type) as the one it models, so if it has only similar characteristics, it can be *interpreted* as a representation, *but at the same time* the simulated object is a real digital object. What if the simulation reproduces all the characteristics of its target system? If having an impact on physical reality is one of the properties of the target that the digital model cannot achieve, then it is not really a perfect reconstruction of the phenomenon, entity, or process. What really lends itself to complete virtual simulation are inherently conceptual or digital systems (such as the game of chess), but if the created system is identical to the source in all aspects, it is no longer a simulation: the act of copying something entirely does not constitute representation; rather, it is a reproduction.

---

3 Remark by the author: The philosophical point-and-click computer game *Doors* (Gualeni & Van de Mosselaer, 2021) was created as a response and critique to Aarseth's (2011) claim that virtual objects are not fictional, and fictional objects cannot be interacted with. The game contains several types of doors (non-interactive, interactive, meta-representational, referential, secret, implied, magical, etc.), which, as signs and representations, stand in different relationships to their referents. In our opinion, however, the game does not demonstrate the possibility of interacting with the represented objects (the different type of doors) or the fictionality of the functioning game objects but rather points out that the represented and the real object are not identical in the case of game doors, even if they appear as a single complex, simulated object.

Interestingly, Tavinor's (2012) definition is very similar to Aarseth's, when he states that "*virtuality* refers to the fact that one object can serve as an interactive proxy for another kind of object because it replicates the functional structure of the target object" (p. 195). Virtual objects understood in this way are usually also sign-like (by referencing an external model), but this is not theoretically necessary, even in a digital game, since the element can function without any intentional, recognizable analogy, simply functioning by the system's own internal laws. A classic example of this is the shapes and mechanics of *Tetris*, which does not aim to model any real-world functionality, yet works in a systematic way, its objects can be manipulated and produce recognizable patterns of behaviour.

Hybrid Ontologies: Little Real, Little No

A theoretical confusion arises for Aarseth (2007) when he tries to conceptualize the 'not purely representational' content of a game, sometimes calling it real, sometimes as a separate category, virtual. Compare these two claims, which are a few lines apart: "When we play games, in real or virtual environments, we really win or lose, and the events in the games are real ... The bullets in a game of *Counter-Strike* ... are not real bullets, but neither are they fictional" (p. 39). "Non-fictional doors are virtual, a mode of existence that is neither fictional nor real" (p. 42).

The uncertainty is caused by the following situation: although the virtual object 1) has its own autonomous existence, 2) and imitates a real object, but 3) it is not identical to this imitated object. Some may therefore feel the need to introduce a third ontological category. But it is not really necessary to assume, as many do, following Juul (2005) or others, a 'mode of existence' halfway between the 'fictional' (or more precisely represented) and the 'real', with an ambiguous or hybrid status. As we have already argued (see Csönge, 2023), this is simply a complex object that is both a (non-physical but) real object *and* a vehicle for the representation of another object. Representation here works on two levels: through the formal (static) and functional (dynamic) properties of the game object, what we have called perceptual and procedural iconicity,[4] partly to allude to Bogost's (2007) concept of "procedural representation" (p. 9).[5]

4 Remark by the author: The notion essentially corresponds with Eco's (1976) take on "functional representations" (p. 209), but procedurality perhaps more specifically expresses the algorithmic nature relevant to the medium. Perhaps it is questionable on our part to use the term iconicity (in the sense of an iconic sign), as it carries a strong connotation of visuality or sensory impression, but we still think that the icon as a technical term is adequate, because it emphasizes the mimetic aspect of the representational nature of the process. This does not actually change the semiotic meaning of the term, because when Peirce (1994) introduced it into the discourse, he used it in a broader sense, in connection with any similarity of qualities, and this sense is still used today:

> An Icon is a sign which refers to the Object that it denotes merely by virtue of characters of its own, and which it possesses, just the same, whether any such Object actually exists or not. ... Anything whatever, be it quality, existent individual, or law, is an Icon of anything, in so far as it is like that thing and used as a sign of it. (Peirce, 1994, p. 368)

5 Remark by the author: András (2021) uses the Bogost-inspired term *procedural aesthetics* (Bogost, 2007) to draw attention to unique game rhetorics, such as those in the extremely slow game *The Longing* (Studio Seufz, 2020), in which a game is not simply represented by its mechanics and does not pretend to claim something about our reality outside the game. Instead, it offers a particular aesthetic experience, thus the emergence of a new reality of perception and action for the player.

Indeed, the fact that Aarseth's (2007) conceptual system depends on this factor (the identity of the object in the game and the object represented) for "granting" realness is demonstrated by the fact that the objects that he claims to be real, even in contrast to the virtual ones, differ from other non-physical objects in precisely this respect: in this case, the game object in question *categorically* coincides with the object represented by its simulational qualities. He gives the example of a labyrinth, which he considers to be a real labyrinth, even in a simulation: "a 3D virtual labyrinth in a computer-simulated world is a real labyrinth, since it can be navigated by the same rules" (Aarseth, 2007, p. 41). The reason that a real labyrinth can actually be created in the simulation is that Aarseth (perhaps controversially) interprets the labyrinth not as a physical object, but as a conceptual category that does not include the parameter of physicality. Perhaps a more striking example is the distinction made by Chalmers (2017) between kittens and libraries, in which he argues that while a virtual kitten is not a real kitten, a virtual library is a real library, because it is a conceptual entity, and we would venture to say that its non-computerized version is also essentially digital. It is not hard to see that a virtual library is not a simulation of a library, if it functions exactly like the physical version. What Aarseth obscures in his example, but Chalmers (2017) points out, is that virtual objects are real even if they do not correspond to the object they represent in a model-like way: "importantly, virtual kittens are still real objects. ... virtual kittens at least in principle can be just as rich and robust as nonvirtual kittens and play corresponding causal roles in virtual worlds" (p. 326).

The real difficulty, which we suspect leads Aarseth to define virtuality as a separate ontological category and Tavinor to define it as a representation, is the fact that virtual objects in digital games that represent other objects are in most cases *not identical* to the object they represent (if they are, this essentially removes the representational character), *yet in naming them,* we *hide this difference* or describe the former as a signifier of the latter. Aarseth uses the adjective 'virtual' to save the name of the represented object, to stress the connection between in-game objects and their real-world counterparts, while acknowledging their difference. Note that Chalmers is careful to say that a virtual kitten is a real *object*, not that it is a real *kitten* which is a biological entity that cannot be fully reproduced digitally. When the digital entity is labelled as a kitten, we inevitably invoke the representational layer of the game, and this move can cause confusion. It is not inconsistent with either the fictionalist or the realist position that this object merely represents a kitten, but at the same time exists and functions as another kind of dynamic object. The present framing suggests that the two approaches are not mutually exclusive but merely highlight different characteristics of digital games.

Descriptive Language: Mama, Just Killed a Man

Matsunaga (2016) argues that the specificity of digital games is that they create and display 'symbols' in their game events that "are *individuated in accordance with their fictional contents*" and "described by using ... expressions originally for describing f ictional contents" (p. 98). In other words, he indicates that the virtual object or event is named in terms of the representational referent of the simulation: "I drank the elixir", "I planted the flag on the castle tower", while a more literal description of the game events

behind them would be "I replenished my health points" and "I completed the main task required to finish the level".[6]

Tavinor (2005) poses the question of realism with examples of criminal activity from *Grand Theft Auto III* (DMA Design, 2001): should shooting an innocent bystander in the game be considered real murder? Or are we pretending to kill them in a purely Waltonian sense? However distressing it may be for some people, the player is certainly not burdened with the responsibility (criminal or moral) that would be involved in committing these acts outside the game, so according to the fictionalist view one must consider these acts to be mere representation.

Tavinor (2012) also detects that this problem is related to the difference between the language of description (which emphasizes representations) and the real game events. He acknowledges that in digital games "there exists *something* with which to interact" (p. 190), but to describe this something, it is tempting to use a signified of the representation, for example, of an obviously fictional goblin. This should lead to the paradoxical situation in which a real player interacts with fictional objects and characters, and where „there seems to be an ontological gap between the space in which we locate performed actions as individual events ... and the space in which we locate the agent who performs the actions" (Matsunaga, 2016, p. 89).

There is a simple solution to the problem, to use Aarseth's door example: the virtual doors manipulated by the player are very *real objects* (of a non-physical kind), but *not real doors*. Their behaviour and formal properties simply represent doors. Their behaviour mimics relevant functionality (procedural iconicity) and their audiovisual features (e.g. texture) imitate formal characteristics (perceptual iconicity). The reason for the misunderstanding is that when interpreting the game and describing the game element, the represented object, the door, is named.

A common way of describing these objects is to add distinguishing adjectives to the name, but this does not really resolve the linguistic difficulties. When we say 'virtual door' or 'virtual kitten', the names of familiar concepts and the adjective attached to them (coupled with the imitative relationship and the lack of physicality) reinforce the idea that we can and must define the game object, which has been relegated to a much lower status, only in relation to an original and primary object. It is, of course, a misconception that the adjectives ('virtual' or 'simulated') denote a distinct ontology, referring to a door or a kitten existing in a parallel dimension (or possible world). In fact, they refer to a real game object, and it is only common practice (perhaps to facilitate its conceptualization) to describe this object based on the representational analogy. Matsunaga (2016) concludes that sentences describing games refer to real but institutionally constituted objects and actions:

> Such actions as ... *hitting a home run* and *striking out* in baseball, would all never exist if there were not the rules of ... baseball. Of course, without any rule, you can perform the action ... of clouting a ball far away with a wooden club; but some rule is required for those behaviors to be *counted as* a move or a home run: that is, a gameplay action. (Matsunaga, 2016, p. 98)

6 Remark by the author: Patridge's (2017) distinction between "self-involving language" of the fiction and "indirect, ludic language" (p. 182) is very similar to our conceptualization of the problem. In both models, the first case refers to situations in which digital game objects and events are named after their representational referents. In the second case, where we use ludic language, we refer to in-game concepts that make sense and function within the mechanics of the game, not in the 'fictional world' of the game, such as health points, experience points, damage parameters, etc. The reason for using the language of representation for description, Patridge (2017) argues, is that "self-involving language is more aesthetically pleasing due to its directness and simplicity and so seems more natural" (p. 182).

Institutionality means that an action or event acquires its meaning and significance through a social norm, a community agreement, whose "existence depends on our recognition and acceptance" (Saftescu-Jescu, 2013, p. 149). In his example, this means acting in the right place, at the right time, in the right way, cooperating with your teammates, and the acceptance of the rules of the game by all participants. This statement may be true for some non-digital games, but not for digital games, where the 'constitutive rules', that is, the institution is the algorithmic system itself, which operates more like the physical laws of the real world with coercive force than our actions with symbolic force. Within the given framework of a game, it is simply not possible to act in a way that is not a gameplay action. Therefore, we do not believe that these game actions "are ontologically the same as institutional facts" (Matsunaga, 2016, p. 100), or any different from any other real-life event except that they are (partially) non-physical.

Lastly, the problem of homogenization through the utilization of descriptive language must be addressed. On the one hand, this occurs in the context of identical names for a wide variety of mechanics in different games, and, on the other hand, in the context of linguistic homogenization of heterogeneous elements of individual games.

It is worth noting that when teaching someone how to play a (digital) game, we often have to explain what the concepts and expressions used in everyday language mean in the game. Aarseth's (2011) example is illuminating here: because *The Suicide Bomber Game* and *The Howard Dean for Iowa Game* associate different representations with the same functions, different descriptions ('to blow up a bomb' in one game and 'to hold up a sign' in the other) are used to refer to the same game mechanic. To complicate matters, it is not always necessary or possible to refer to game elements in figurative terms (referring to the representational layer): this is least necessary in cases of 'almost pure' games, such as the abstract *Tetris*, where the representational layer is minimal or insignificant. In some cases, the game activity or situation is named (more or less) in its literal (ludic) sense, even if the game has a rich representational aspect. Concepts such as winning, losing, stalemate, fighting, getting ahead, taking risks, escaping, etc. Sometimes we mix the ludic and the representational categories. An event in the 2D sandbox game *Terraria* (Re-Logic, 2011) can be described by saying: my avatar (describing the game element) climbed down (describing the representation) to the bottom of (the spatial dimension is virtual, so this is also partly a representation) the level (describing the game element), and there I found (here they refer to themselves as the player because of the first person) a sword.[7]

To return to the example of murder: it is clear that a virtual murder is not a genuine one, but as an event it is not fictional, it is a real in-game event that also represents another type of event: a murder. For the sake of simplicity, players describe the in-game event as 'murder' because of the representation associated with it. However, this single term may cover different types of game events, specific game situations or mechanisms from game to game. When the executor is the player, different forms of action and skills (reflexes, memory, dexterity, attention, intellect, strategic planning) may be required depending on the genre, there is no single virtual concept of 'killing' as there is in reality, where murder involves a single definable action. Nonetheless, it must be acknowledged that individual names for specific mechanics are not entirely unmotivated: they often cover a similar type of event, and usually involve the deactivation, removal, or elimination of a game object and the fulfilment of a player objective. Thus, despite genre schemas and well-known game mechanic topoi, a given expression and its meaning can therefore only be considered consistent and predictable within a single game, as this seems to be its standard scope.

7 Remark by the author: This is a representation, but the description of the game element could be: a digital object for offensive action to help the progress of the player in the game.

At the same time, there are clearly identifiable game mechanics ('ludemes') with associated technical terms (not always or consistently linked to corresponding representations), but these are less used by the average digital game player.

The difficulty comes from the fact that by naming the representational aspect (which is standard practice), the nature of the element becomes ambiguous, or different kinds of objects and events become difficult to distinguish. There may be an impassable wall surface that looks like a door, a functional object that can be opened and resembles a real door, and a secret door that appears as a window in the game. Chalmers (2017) rightly acknowledges that a single term can imply two different layers: "if an avatar in virtual reality plays the role of Gollum stealing the ring, the event of Gollum stealing the ring is fictional, but this is consistent with the underlying avatars and movements within the virtual realm being real" (p. 316). He suggests that there is both a represented and a real event in this case. His assumption is valid, if there is a combination of representational (narrative) and ludic elements in the situation, which is not entirely clear from the description. If the action of Gollum's avatar is the result of a pre-determined, built-in narrative segment (which may still require the active involvement of the player to trigger it), then it is only the representation of the theft of the ring. And if it is a functional and meaningful state of the simulation, then alongside this representation, there is a real in-game event, which is of course not theft, but some other kind of action that can be useful or harmful to the player's progress in the game.

Conclusion: Objects Really Matter?

To conclude the discussion, when game elements are referenced by their representational content, the same terms are often used to describe very different types of components: sometimes real game events, sometimes representations of events and objects, sometimes actually fictional narratives. That is, the names can be the same for denotations with different ontological status. Take the example of the third-person shooter *Max Payne* (Remedy Entertainment, 2001), which combines narrative and ludic elements in a spectacular way. If we say that the character we control, the game's protagonist, "Max has been killed", we are basically naming a real in-game event with a representational dimension (the character collapses on the ground), which happens as often and in as many ways as the character runs out of life energy during the game. If we say, "Max's family was murdered", we are describing a fictional event that is part of the game's storyline (which, unlike the previous case, cannot be repeated or undone), but which does not represent a specific gameplay situation or simulation configuration. The two similarly named 'events' cover a very different type of game element.

In many cases, it is much easier to name the representational referent of a game element or game object than to elaborate on its exact status and function in the game. For a specific game, however, this is not a problem at all in communication between skilled players: an internal language is established so that all parties understand what is meant by the given expression. For theorists, however, the homogenizing use of language can be misleading, and they can easily adopt views that concentrate on a single aspect of structurally, semiotically and functionally complex digital games.

On the one hand, fictionalism (or representationalism) rightly draws attention to the non-reality, the sign-like nature of objects, characters and events used in the descriptions

of mimetic digital games. On the other hand, the merit of the realist approach is that it clarifies that alongside (or sometimes without) this representational character, there is a real eventfulness and genuineness to the mechanics of the game. Taking all this into account, we conclude that in the case of digital game simulation the same game element acts both as a signifier of something else and functions as a tool, an object itself, and that although purely conceptual objects may be an exception, the represented and the real object are not usually identical.

Acknowledgment: *We are grateful to the anonymous reviewer of this paper for suggesting valuable academic material and many examples, to which we have added our own reflections in order to make the arguments clearer and to present the relevant theoretical positions accurately and impartially.*

BIBLIOGRAPHY

Aarseth, E. (2004). Genre trouble: Narrativism and the art of simulation. In N. Wardrip-Fruin, & P. Harrigan (Eds.), *First person: New media as story, performance, and game* (pp. 45-55). MIT Press.

Aarseth, E. (2007). Doors and perception: Fiction vs. simulation in games. *Intermédialités: Histoire et Théorie Des Arts, Des Lettres et Des Techniques*, *5*(9), 35-44. https://doi.org/10.7202/1005528ar

Aarseth, E. (2011). "Define real, moron!". In S. Günzel, M. Liebe, & D. Mersch (Eds.), *DIGAREC Keynote-Lectures 2009/10* (pp. 50-68). Potsdam University Press.

Aarseth, E. (2014). Ontology. In M. J. P. Wolf, & B. Perron (Eds.), *The Routledge companion to video game studies* (pp. 484-492). Routledge.

Aarseth, E. (2023). Back to reality: The case against ludo-fictionalism. In A. Kissel, & E. J. Ramirez (Eds.), *Exploring extended realities: Metaphysical, psychological, and ethical challenges* (pp. 484-492). Routledge.

András, C. (2019). Elkötelezett játékok. *Apertúra*, *14*(2), 1-32. https://doi.org/10.31176/apertura.2019.14.2.6

András, C. (2021). Türelemjáték. A The Longing és az idő. *Apertúra*, *16*(3), 1-21. https://doi.org/10.31176/apertura.2021.16.3.2

Atkins, B. (2003). *More than a game: The computer game as fictional form*. Manchester University Press. https://doi.org/10.7228/manchester/9780719063640.001.0001

Bogost, I. (2007). *Persuasive games: The expressive power of videogames*. MIT Press. https://doi.org/10.7551/mitpress/5334.001.0001

CD Projekt. (2020). *Cyberpunk 2077* [Digital game]. CD Projekt Red.

Coppock, P. (2012). Are computer games real?. In J. R. Sageng, H. Fossheim, & T. M. Larsen (Eds.), *The philosophy of computer games* (pp. 259-277). Springer. https://doi.org/10.1007/978-94-007-4249-9_17

Csönge, T. (2023). Medium specific uncanny in contemporary video games. *Acta Universitatis Sapientiae, Film and Media Studies*, *24*(1), 185-202. https://doi.org/10.2478/ausfm-2023-0020

DMA Design. (2001). *Grand Theft Auto III* [Digital game]. Rockstar Games.

Eco, U. (1976). *A theory of semiotics*. Indiana University Press.

fabulous999. (2002). *The Suicide Bomber Game* [Digital game]. Newgrounds.

Frasca, G. (2002). Ludology: From Representation to Simulation. In K. Sullivan (Ed.), *SIGGRAPH '02: Proceedings of the 29th international conference on computer graphics and interactive techniques. Electronic art and animation Catalog* (pp. 134-137). Association for Computing Machinery.

Friend, S. (2008). Imagining fact and fiction. In K. Stock, & K. Thomson-Jones (Eds.), *New waves in aesthetics* (pp. 150-169). Palgrave Macmillan. https://doi.org/10.1057/9780230227453_8

Gray Matter. (2001). *Return to Castle Wolfenstein* [Digital game]. Activision; Aspyr.

Gualeni, S., & Van de Mosselaer. (2021). *Doors* [Digital game]. https://doors.gua-le-ni.com/

Heim, M. (1998). *Virtual realism*. Oxford University Press. https://doi.org/10.1093/oso/9780195104264.001.0001

Chalmers, D. J. (2017). The virtual and the real. *Disputatio*, *9*(46), 309-352. https://doi.org/10.1515/disp-2017-0009

Jancsovics, K. (2022). Spatiality, focalization and temporality in horror games. *Acta Ludologica*, *5*(2), 72-85. https://actaludologica.com/wp-content/uploads/2022/12/AL_2022-5-2_Study-5_Jancsovics.pdf

Juul, J. (2005). *Half-real: Video games between real rules and fictional worlds*. MIT Press.

Kiss, G. Z. (2013). *Efemer galériák*. Gondolat.

Klevjer, R. (2019). Virtuality and depiction in video game representation. *Games and Culture*, *14*(7-8), 724-741. https://doi.org/10.1177/1555412017727688

Makai, P. K. (2021). Media and modalities – computer games. In J. Bruhn, & B. Schirrmacher (Eds.), *Intermedial studies: An introduction to meaning across media* (pp. 69-85). Routledge. https://doi.org/10.4324/9781003174288-5

Matsunaga, S. (2016). Did you really get a mushroom? Players' fictional actions in videogame playing. *Aesthetics*, 67(20), 89-102.

Maxis. (1989). *Sim City* [Digital game]. Maxis.

Meskin, A., & Robson, J. (2012). Fiction and fictional worlds in videogames. In J. R. Sageng, T. M. Larsen, & H. Fossheim (Eds.), *The Philosophy of computer games* (pp. 201-217). Springer. https://doi.org/10.1007/978-94-007-4249-9_14

Mojang. (2011). *Minecraft* [Digital game]. Mojang.

Nader, K. (2022). Video game fictions: A dual-work view. *Journal of the Philosophy of Games*, *4*(1), 1-17. https://doi.org/10.5617/jpg.9230

Newman, J. (2002). In search of the videogame player: The lives of Mario. *New Media & Society*, *4*(3), 405-422. https://doi.org/10.1177/146144402320564419

Nielsen, H. S., Phelan, J., & Walsh, R. (2015). Ten theses about fictionality. *Narrative*, *23*(1), 61-73. https://doi.org/10.1353/nar.2015.0005

Orosz-Réti, Z. (2021). Storytelling, interactivity, and agency in film – video game hybrids. In J. A. Bánházi, Z. Beke, V. Benczik, E. Z. Csorba, Á. M. Kling, G. Kovács, N. Pikli, E. J. Székelyhidi, O. Szujer, & É. Vancsó (Eds.), *Encounters of the popular kind: Traditions and mythologi*es (pp. 45-54). ELTE BTK.

Pajitnov, A. (1984). *Tetris* [Digital game]. A. Pajitnov.

Patridge, S. (2017). Video games and imaginative identification. *The Journal of Aesthetics and Art Criticism*, *75*(2), 181-184. https://doi.org/10.1111/jaac.12355

Peirce, C. S. (1994). Division of signs. In C. Hartshorne, P. Weiss, & A. W. Burks (Eds.), *Collected Papers II.* (pp. 362-374). Harvard University Press.

Persuasive Games. (2004). *The Howard Dean for Iowa Game* [Digital game]. Persuasive Games.

Pólya, T. (2020). A videojátékok mint történetmesélő mászókák és a médiaszöveg-fogalom. Az olvasat átértelmeződése és a narratíva másodrendűsége egy ergodikus médiumban. *Médiakutató*, *21*(1), 93-104.

Re-Logic. (2011). *Terraria* [Digital game]. 505 Games.

Remedy Entertainment. (2001). *Max Payne* [Digital game]. Gathering of Developers.

Ricksand, M. (2020). Walton, truth in fiction, and video games: A rejoinder to Willis. *The Journal of Aesthetics and Art Criticism*, *78*(1), 101-105. https://doi.org/10.1111/jaac.12707

Robson, J., & Meskin, A. (2016). Video games as self-involving interactive fictions. *The Journal of Aesthetics and Art Criticism*, *74*(2), 165-177. https://doi.org/10.1111/jaac.12269

Ryan, M.-L. (2018). Photos, facts and fiction: Literary texts and mechanical representation. *Comparative Studies in Modernism*, *7*(13), 37-50. https://doi.org/10.13135/2281-6658/3110

Saftescu-Jescu, C. (2013). A central problem of contemporary philosophy: Institutional facts. John Searle's point of view. *Procedia – Social and Behavioral Sciences*, *71*(1), 148-153. https://doi.org/10.1016/j.sbspro.2013.01.020

Studio Seufz. (2020). *The Longing* [Digital game]. Application Systems Heidelberg.

Tavinor, G. (2005). Videogames and interactive fiction. *Philosophy and Literature*, *29*(1), 24-40. https://doi.org/10.1353/phl.2005.0015

Tavinor, G. (2009). *The art of videogames*. Wiley-Blackwell. https://doi.org/10.1002/9781444310177

Tavinor, G. (2012). Videogames and fictionalism. In J. R. Sageng, H. Fossheim, & T. M. Larsen (Eds.), *The philosophy of computer games* (pp. 185-199). Springer. https://doi.org/10.1007/978-94-007-4249-9_13

Tavinor, G. (2019). Radical game fictionalism. In *Abstract proceedings of DiGRA 2019 conference: Game, play and the emerging ludo-mix* (pp. 1-3). DiGRA. https://dl.digra.org/index.php/dl/article/view/1813/1813

The Editors of Encyclopaedia Britannica. (2024, October 10). Computer simulation. In *Encyclopedia Britannica*. https://www.britannica.com/technology/computer-simulation

Walsh, R. (2007). *The rhetoric of fictionality: Narrative theory and the idea of fiction*. Ohio State University Press. https://doi.org/10.2307/j.ctv16f6jfc

Walton, K. L. (1990). *Mimesis as make-believe: On the foundations of the representational arts*. Harvard University Press.

Wildman, N., & Woodward, R. (2018). Interactivity, fictionality, and incompleteness. In J. Robson, & G. Tavinor (Eds.), *The aesthetics of videogames* (pp. 112-127). Routledge.

Willis, M. D. (2019). Choose your own adventure: Examining the fictional content of video games as interactive fictions. *The Journal of Aesthetics and Art Criticism*, *77*(1), 43-53. https://doi.org/10.1111/jaac.12605

Zetterberg Gjerlevsen, S. (2016). Fictionality. In P. Hühn, J. Pier, W. Schmid, & J. Schönert. (Eds.), *The living handbook of narratology*. Hamburg University. https://www-archiv.fdm.uni-hamburg.de/lhn/node/138.html