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THE COMPOSITION AND RECEPTION OF TIME IN THE ART OF VIDEOGAMES

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THE COMPOSITION AND RECEPTION OF TIME IN THE ART OF VIDEOGAMES

A COMPOSIÇÃO E A RECEPÇÃO DO TEMPO NA ARTE DOS VIDEOGAMES

Master's thesis submitted to the Languages and Literature Graduate Program (Programa de Pós-Graduação em Letras-PLE) of the State University of Maringá (Universidade Estadual de Maringá-UEM) in partial fulfillment of the requirements for the degree of Master of Languages and Literature (Mestre em Letras), in the concentration area of Literary Studies (Estudos Literários).

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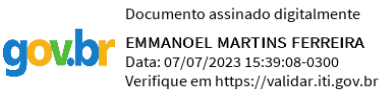

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ABSTRACT

The present master's thesis investigates time in the art of videogames through a techno-aesthetic perspective, aiming to understand how this art form inaugurates new imaginative variations on the basis of which social and subjective perceptions of time can be poetically reconfigured. In dialogue with literary and media studies, we begin our journey by investigating how the technology of writing was capable of conditioning specific models of temporal perception in literate societies, which were subsequently re-elaborated by literature. We then compare this techno-historical development with that of digital technology and the art of videogames, proposing the remainder of the thesis as an in-depth investigation on the ways through which the latter is capable of re-elaborating new temporal models conditioned by the former. In order to establish our theoretical groundings, we dedicate one chapter to discussing and defining the concepts of narrative, fiction, medium, and videogame; and another chapter to a literature review of ten previously developed theories of videogame time, as well as to the articulation of our own theoretical proposition. Finally, we turn to the analysis of specific videogames – mainly selected among the nominees of 2014-2023 editions of *The Game Awards*, the *BAFTA Games Awards*, the *Game Developers Choice Awards*, and the *Independent Games Festival* – to examine the poetic and aesthetic nuances of their temporal configuration based on the three analytical categories of order, duration, and frequency. The results of our investigation allow us to conclude that the art of videogames consolidates itself in the context of a temporal regime of punctuality – marked by the emphasis over a present that unfolds into its immediate future – and responds to it by way of poetically elaborating on the temporal mastery of its players.

Keywords: time; poetics; aesthetics; digital art; videogames.

RESUMO

Esta dissertação investiga o tempo nos videogames a partir de uma abordagem tecno-estética, buscando compreender como essa forma de arte permite novas variações imaginativas a partir das quais podemos reconfigurar, poeticamente, nossa percepção social e subjetiva do tempo. Em diálogo com a teoria literária e os estudos de mídia, começamos por investigar como a tecnologia da escrita pôde condicionar modelos próprios de percepção temporal nas sociedades letradas, que foram então reelaborados pela literatura. Em seguida, traçamos um paralelo com a tecnologia do digital e a arte dos videogames, propondo o restante da dissertação como uma investigação de maior fôlego que busque compreender as formas a partir das quais esta última é capaz de reelaborar os novos modelos temporais condicionados pela primeira. Para estabelecer nosso referencial teórico, dedicamos um capítulo a discutir e definir os conceitos de narrativa, ficção, mídia e videogame. Posteriormente, dedicamos um capítulo de revisão bibliográfica a analisar criticamente dez propostas de teorização do tempo nos videogames e, a partir delas, articulamos nossa própria proposta. Por fim, voltamo-nos à análise de casos específicos – selecionados, prioritariamente, entre as nomeações dos eventos *The Game Awards*, *BAFTA Games Awards*, *Game Developers Choice Awards* e *Independent Games Festival* ocorridos entre os anos de 2014 e 2023 – para examinar as nuances poéticas e estéticas da configuração temporal dessa forma de arte a partir de três categorias norteadoras: a ordem, a duração e a frequência. Os resultados de nossa análise permitem concluir que a arte dos videogames se consolida em relação a um regime temporal de pontualidade – em que o presente é acentuado em seus imediatos desdobramentos futuros – e responde a ele elaborando poeticamente o domínio de seus jogadores sobre o tempo.

Palavras-chave: tempo; poética; estética; arte digital; videogames.

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1 INTRODUCTION

To study time as a subject of poetic and/or philosophical knowledge calls for interdisciplinary dialogue with a broad tradition – so broad indeed that it may be difficult to list, amongst the artists, thinkers, and philosophers we have inherited from the humanist canon, those who *have not*, at some point, put forth an opinion on the matter of Time. On one hand, this intellectual and artistic precedent offers to the present study the safety of academic legitimacy. This is not something to be underestimated, especially in the context of a study which, like ours, is stigmatized from its very inception – not only because of its insistence on defending the somewhat unpopular opinion that videogames should be understood as one of our most prominent contemporary forms of artistic expression, but also because it dares to do so inside the boundaries of the already established academic institution of Literary Studies.[1] On the other hand, the great volume of works, authors, and disciplines that necessarily intersect the subject of time may also bring about some additional difficulties – more specifically, the challenge of finding, amidst so many other voices, something new that would still be worth saying.

In this respect, we hope that the relative novelty of our chosen object of study may help justify our endeavors. The cultural relevance of videogames is undeniable, to the point we could even argue in favor of their status as the paradigmatic art form of the twenty-first century. As an example, let us consider the (at the time of writing) latest report from the Entertainment Software Association (2022).[2] In the field of entertainment – which has always been one of the main social functions of art –, videogames occupy a growing percentage of the free time of children, adolescents, and adults. The ESA reports that, in the year of 2022, 66% of the entire population of the United States played videogames with an average regularity of 13 hours a week. In addition to that, there is the unavoidable matter of monetary value: the 2021 market is evaluated by the ESA in over sixty billion USD. As catalysts of social relations, videogames

[1] The study of videogames through the lens of literary studies and/or classic narratology becomes, at the turn of the century, a divisive point among game scholars. However, historically speaking, the role of literary studies in the academic insurgence of videogame studies should not go unrecognized: for instance, the pioneer dissertation of Mary Ann Buckles, *Interactive fiction: the computer storygame "Adventure"* (1985), which is carried out in the context of a German Literature PhD degree.

[2] An organization dedicated to collecting data on the profile of videogame players/consumers. Although it focuses only on information related to the US market – and therefore should not be taken as representative of the global videogame industry –, it should provide a good enough illustration for the purposes of our brief argument.

have also been assuming an increasingly significant role. In this subject, data from the ESA report can be interpreted in light of the recent COVID-19 pandemic, which has forced the need for physical distancing and promoted virtual socialization: if, in the year of 2020, 60% of players had reported playing with other people online or in-person, two years after the beginning of the pandemic, that number had risen to 83%.

Now, in the field of art "proper" – meaning by that a vague notion of "high culture," legitimized by an equally vague notion of "value," which has eluded academics for so long –, the discussion is complicated even further. In the past, the demonization of videogames used to be a popular stance both in mainstream media and academic discourse, being justified, amongst other things, on the moral grounds of the supposed violence these digital artefacts were capable of inciting (TAVINOR, 2009, p. 150-171). Although the debate surrounding a possible "artistic elevation" of videogames has not yet been fully resolved, especially in more conservative circles, it appears to cause less commotion and resistance with the passing of each year. In the context of this transition, some important milestones can be highlighted. In 2004, the British Academy of Film and Television Arts (BAFTA) inaugurates the segment *BAFTA Games Awards*, exclusively dedicated to celebrating the most prominent videogame publications of the year. In its 2005 edition, the category "Art Direction" is included for the first time, being replaced in the following year by the category "Artistic Achievement." Finally, 2017 sees the inclusion of the category "Games Beyond Entertainment" (BAFTA, c2018). Another significant case occurs in the year of 2012, when the Museum of Modern Art (MoMA) acquires a list of fourteen videogames – *Pac-Man*, *Tetris*, and *The Sims* among them – to be included in its permanent collection. The games in question are allocated as part of the "Applied Design" installation, sharing space with architectural projects (ANTONELLI, 2012). Lastly, another important event is the inauguration of *The Game Awards* in 2014, a global ceremony also dedicated to nominating and awarding the best videogames of each year, following a model already consolidated by the film industry (THE GAME AWARDS, c2021).

Keeping this information in mind, the present thesis adopts the stance that videogames are an independent art form of their own, one of the most expressive of the twenty-first century. Consequently, not only do they *allow*, but in fact *demand* to be academically considered in poetic, aesthetic, semiotic, and sociocultural terms – in other words, the same treatment that has long been dedicated to the arts of cinema, painting, music, and literature. As mentioned, we have also made the option for approaching videogames through the subject of *time* – a topic

considered by many to be a signature mark of literature, especially in its narrative form. This selection has been purposefully made in part because it can help us justify the incorporation of the present research into a Literary Studies post-graduate program. However, beyond this pragmatic dimension, we also believe there to be a question of intellectual gravity and urgency in the intersection of videogames, literature, and time – a tangled web of tension points that deserves to be unraveled because of its capacity to synthetically embody the effects of rapid socioeconomic, technological, and cultural transformations. It is in order to understand and situate these transformations on a broader timeline of artistic, technological, and social changes that we aim, with the present study, to attempt to answer the following question: *how is it that, through videogames, we are able to represent, (re)interpret, (re)invent, and respond to our present-day temporal experience?* This is the main guiding question to which all aspects of our present investigation converge, and its relevance may be better clarified if we approach it from two different angles: one technical, the other aesthetical.

The popularization of the technology of writing – first in its chirographic mode, later in its printed mode – is widely understood as having represented a point of no return in the history of human collectives: with the written word, we have come to think about the world, organize our communities, and even signify ourselves in a radically different manner. Therefore, the transition from orality to writing as main intellectual technology has rightfully inspired a number of scholars from the fields of psychology, sociology, and philosophy, and has been widely discussed and documented in the Humanities as a whole. Likewise, the invention of the computer and the perceptible reordering of social relations entailed by it has caused a commotion if not of similar proportions, at least of a similar nature. That which Pierre Lévy (1990) called, over ten years ago, the technology of "informatics," shall be referred here as the technology of the "digital" – that is, the broad communication network established among the many computing machines that currently populate our lives, including personal computers, laptops, cellphones, videogame consoles, and so on. Because of the multiple possibilities it affords us, the digital is also capable of changing our ways of thinking, organizing, and signifying ourselves – thus motivating a series of academic speculations about its supposed benefits and drawbacks, as well as its destructive and liberating potential. The temporal question is one that receives frequent attention, especially from the pessimist: new technologies and digital devices seem to accelerate the rhythms of existence, turning professional life away from quality into quantity, and social life away from meaningful connections into superficial encounters.

Unsurprisingly, these technical transformations are accompanied by artistic transformations. With the emergence of cinema, graphic novels and, more recently, of contemporary videogames, literature loses its privileged status as narrative art *par excellence*. Other technologies, and the art forms derived from them, have proved to be equally well versed in the practice of storytelling, and eventually surpassed literature in popularity. If, however, "the medium is the message" (MCLUHAN, 1994), it should also be assumed that these artistic manifestations inherited from new media necessarily condition different possibilities for representing and reinventing the matters of life. The discussion surrounding the referential nature of narrative art forms is old and contested, as is the discussion surrounding the tendency of artworks to reflect certain facets of the societies in which they are created. Without dedicating here too much space to the subtleties of these debates, we can say for now that we adhere to the general lines of Paul Ricoeur's (1984, 1985, 1988) proposition, argued in the course of *Time and narrative*'s three volumes: that every work of art, despite lending itself to be structurally analyzed as a self-contained universe, always originates in life, and ultimately returns to it. This is the premise that leads Ricoeur (1984, p. 3) to declare that "time becomes human time to the extent that it is organized after the manner of narrative; narrative, in turn, is meaningful to the extent that it portrays the features of temporal experience."

We can therefore see how the question of time is grounded in both technical and aesthetical dimensions of our discussion – after all, since media and technologies are the materials of art, the two cannot be wholly separated. Taking this tangled web of artistic, temporal, and technological issues as a starting point, the following chapter is dedicated to a systematic untangling of their relationship. The first two sections explore in depth the technology of writing and its paradigmatic art form, literature; the last two sections do the same with digital technology and its paradigmatic art form, videogames. This initial exploration aims to find answers to the following questions: how have we (re)interpreted and (re)invented time in the technology of writing by way of the art of literature and, more recently, in digital technology by way of the art of videogames? What changes from one technological regime to the other, and what can these changes mean? The answers provided at the end of the chapter outline our research hypothesis and prepare the ground for following developments.

The third chapter takes a detour from our main object of study (time in videogames) to clarify some key terms required by subsequent discussions – namely, the contested concepts of narrative, fiction, medium, and the very definition of videogame. The first section, dedicated to

answering the question "what are narratives?", turns to traditional definitions provided by structuralist narratology, as well as to modern developments in contemporary branches of the discipline, to understand how the concept has been adapted and transformed in service of art forms not exclusively based on verbal language. This discussion also leads to a debate surrounding the concept of fiction – which, at some point in the history of game studies, was adopted as a more palatable replacement to the concept of "narrative."[3] The next section, dedicated to answering the question "why not medium?", explores the multifaceted notion of media and the many (oftentimes incompatible) ways in which it is academically employed; it then goes on to explain, as the title suggests, the reasons why the concept has been mostly avoided in the course of the present master's thesis. Finally, the section dedicated to answering the inquiry "what are videogames?" further develops on the concept of fiction before finally considering two competing definitions for the digital objects in question: one which takes them to be a subcategory of "game," only transported into a digital environment, and another which takes them to be an autonomous cultural phenomenon – strictly dependent neither on narrative composition nor on game-like structures bound by rules, objectives, and winning/losing outcomes.

The fourth chapter finally returns to our main object of study, being dedicated to a literature review of other works which have also, in the past, attempted to theorize videogame time. Ten different theoretical propositions, published throughout the years of 2001 and 2020, are carefully discussed and contrasted in their respective gaps and contributions. Based on this foundation, we then articulate a theoretical proposition of our own, which serves to ground the interpretive and analytical movements of following chapters. Finally, chapters five through seven are entirely dedicated to examining specific videogames based on the classic categories of temporal analysis established by Genette (1980) in the context of literary poetics: order, duration, and frequency. In this way, we attempt to identify which new forms of temporal refiguration are introduced by videogame poetics, as well as to speculate on how these phenomena could be related to broader tendencies in social, cultural, and technological developments.

[3] To cite Jesper Juul (2014), one of the first game scholars to advocate for this replacement: "Given that games by definition allow players to influence the course of events, which contradicts many definitions of narratives, I find that it is preferable to discuss video games using the broader concept of fictional worlds. Since a fictional world may or may not contain a fixed sequence of events, the concept of fiction is a more precise tool for examining video games than is narrative."

2 MEDIATED TIME

The comparative approach adopted in this chapter demands a few preemptive warnings. Firstly, we would advise against the impulse towards hierarchization that often makes itself noticed whenever technologies and art forms are contrasted. Be it an underplaying of the realm of the oral in favor of the realm of letters, an underplaying of the realm of letters in favor of the realm of the digital, or a demonization of the realm of the digital because of the threat it supposedly poses to the realm of letters, we consider this line of thinking to be unproductive, if not completely misguided. In its place, we invite the reader to compare the technologies in question based not on any pre-assumed intrinsic value they may hold, but instead on the affordances and limitations each of them invariably presents to the social groups that employ them. A quote from Pierre Lévy may help to inspire us in this regard:

> A technology is neither good nor bad (depending on context, use, and point of view), or even neutral, for that matter (since it conditions or constrains, exposes or closes off, the range of possibilities). It is a question not of evaluating its "impact" but of identifying those points of irreversibility where technology forces us to commit ourselves and provides us with opportunities, of formulating the projects that will exploit the virtualities it bears within it and deciding what we will make of them. (LÉVY, 2001, p. 8)

Secondly, we count on the reader's discretion to excuse any gaps that will undoubtedly arise in the course of the following exposition. Limited time, space and scope of investigation prevent us from supplying a complete account of the social, cognitive and artistic repercussions associated with all major technological developments in recent human history. Many important authors have not been included in our discussion, as well as many technologies of decisive cultural impact: for instance, the television, the radio, the camera, and even the separation of writing into its printed and chirographic modes will not figure significantly in our historical review.

Finally, it should be outright recognized that older and newer technologies co-exist, interact and often potentialize one another. Comparative approaches such as this may erroneously impart the impression that previous technologies are always surpassed and supplanted by their successors. Quite the contrary: aspects of oral communication still heavily influence written communication; and writing was not only crucial to the development of all technologies that came after it, but to this day still represents a large portion of all digital

content. This chapter will proceed to discuss technological transitions and their cognitive and social effects as if they were isolated phenomena – a division that is clearly artificial, but nonetheless necessary, or so we believe, for the efficiency of scientific discourse.

2.1 WRITING AS MAIN INTELLECTUAL TECHNOLOGY

This section is mainly based on considerations developed by three previous studies: Pierre Lévy's (1990) *Les technologies de l'intelligence*; Walter Ong's (2002) *Orality and literacy*;[1] and Marshall McLuhan's (1962) *The Gutenberg galaxy*. Our review dedicates special attention to the temporal issues that arise from the social and cognitive technological affordances mentioned by these studies. For a less targeted approach to the same general topic, we recommend the direct reading of our sources.

An understanding of the cognitive, social, and cultural consequences of writing as main intellectual technology[2] should take into consideration the affordances and limitations offered by it in direct comparison with the hegemonic intellectual technology immediately preceding it – that of oral communication. This is because, when discussing technologies which so deeply inform our way of thinking, it may be difficult to maintain an appropriate level of distancing and objectivity without selecting an external point of comparison. In fact, McLuhan (1962), Ong (2002) and Lévy (1990) all subscribe to this same approach, opting for contrasting the literate societies in which they are inserted with either contemporary or past oral societies. We shall then follow in their footsteps and dedicate a few paragraphs to the investigation of oral communication as main intellectual technology – with a special focus on the temporal experience conditioned by its affordances and limitations.

A good starting point might be the intimate relationship oftentimes identified between orality and time, which can be traced back to the physical properties of human auditory and articulatory apparatuses. The consecutive and ephemeral nature of hearing as a sensory channel

[1] First published in the year of 1982.
[2] Throughout this chapter, we adopt the concept of "intellectual technology" in reference to technologies that play a central role in the organization of thought and mediation of communicative expression in any given social group. It is a term often employed by Pierre Lévy, who attributes its creation to Jack Goody (LÉVY, 1998, p. 193).

determines the temporal ordering of any sound – spoken language included. Therefore, the experience of sound, when compared to any other sense, appears to nourish a privileged connection with time, as remarked by Ong:

> All sensation takes place in time, but sound has a special relationship to time unlike that of the other fields that register in human sensation. Sound exists only when it is going out of existence. It is not simply perishable but essentially evanescent, and it is sensed as evanescent. When I pronounce the word 'permanence', by the time I get to the '-nence', the 'perma-' is gone, and has to be gone. (ONG, 2002, p. 31-32)

Visual experience is a different case entirely. In fact, the main thesis argued by McLuhan (1962) in *The Gutenberg galaxy* is that the technology of alphabetic writing (especially in its printed form) was responsible for a total rearrangement of the cognitive relationship established between human beings and their surroundings, on account of its ability to relocate language from the auditory and tactile realm proper of oral communication to an essentially visual realm. According to McLuhan (1962), the social isolation and visual augmentation made possible by writing are responsible, amongst other things, for the emergence of an abstract, distanced perspective over the world which is fundamentally incompatible with the techno-social affordances of primary orality.

McLuhan (1962) refers to the example of a sociological research/intervention the results of which were published by John Wilson in 1961. During the intervention, moving images were employed in the teaching of an African oral community about sanitary techniques for getting rid of standing water. Wilson reports that, after showing an instructional film illustrating the appropriate procedure, he asked the audience for what they had seen and received as an immediate response: "a chicken." The animal had appeared for a few seconds on a corner of the footage. Wilson explains that the reaction of an oral audience to being first introduced to the technology of film was to inspect the presented visual information for details, scanning it segment by segment (WILSON, 1961 apud MCLUHAN, 1962, p. 36-37). McLuhan, on the other hand, interprets this finding more in light of the technology of writing than in that of film, claiming that such response would actually be connected to the (absence of) conventions associated with literacy:

> Literacy gives people the power to focus a little way in front of an image so that we take in the whole image or picture at a glance. Non-literate people have no such acquired habit and do not look at objects in our way. […] Thus they have no detached point of view. They are wholly *with* the object. (MCLUHAN, 1962, p. 37)

Therefore, oral communication tends to unfold its segments in time, whereas writing – by making the visual prevail over the aural – inaugurates the ability to apprehend the totality of an image at a glance from a more distanced perspective. McLuhan's thesis (1962), which heavily emphasizes the importance of sensory channels in the understanding of social organization, has been rightly criticized for the "rude caricature" it makes of the complex relations established among technological, social, and cognitive factors (LÉVY, 1990, p. 170). Still, the author's comments seem to resonate with a similar argument advocated by both Ong (2002) and Lévy (1990), which is that writing prioritizes abstract thinking, whereas primary orality tends to favor a type of thinking often described as situational[3] – best suited to the simultaneous apprehension of the global circumstances shaping the here and now of communication.

> The word in its natural, oral habitat is a part of a real, existential present. Spoken utterance is addressed by a real, living person to another real, living person or real, living persons, at a specific time in a real setting which includes always much more than mere words. Spoken words are always modifications of a total situation which is more than verbal. They never occur alone, in a context simply of words. (ONG, 2002, p. 99)

To support this argument, both Ong (2002, p. 49) and Lévy (1990, p. 104-105) resort to a survey conducted during 1931-1932 by soviet psychologist and ethnologist Alexander Luria, who interviewed members of oral communities in Uzbekistan and Kyrgyzstan, some of which were undergoing an initial process of literacy. One experiment of great repercussion required participants to group together objects (hammer, saw, log and hatchet) into categories according to their likeness. In general, interviewees with no literacy background argued that all objects were similar, because they were all related to the ordinary activity of woodwork. On the other hand, a literate interviewee who had completed two years of formal education at the local school grouped objects into abstract categories: hammer, saw and hatchet were therefore all classifiable as "tools," excluding the log. This example, among others, points to the conclusion that the technology of oral communication, taken in isolation, tends to privilege a mode of thinking structured around everyday practical situations, while writing privileges a mode of thinking that is abstract, categorial and classificatory – i.e. decontextualized from the experience provided by immediate life situations.

[3] The terminological dichotomy between "abstract" and "situational" thinking is borrowed from Ong (2002, p. 48).

This situational and pragmatic mode of thinking is also connected, as pointed out by Lévy (1990), to the matter of memory in oral communities – which is, in turn, strictly related to the practice of storytelling. The author states that, without the extension and externalization of memory provided by writing, transmission of knowledge and configuration of collective memory in oral communities depends on constant reiteration, meaning that non-recurrent information is bound to be forgotten (LÉVY, 1990, p. 95). Thus, the (re)telling of stories becomes a prominent practice in the maintenance of collective memory, especially considering the highly effective mnemonic structure of stories and myths: they are built around relationships of cause and effect, they tend to evoke prior knowledge regarding tangible and familiar situations, and they are heavily emotionally charged (LÉVY, 1990, p. 93-95). Myths, therefore, stand out in oral societies for their effectiveness as transmitters of information precisely because of the subjective, causal, and situated structure in which they inscribe knowledge – quite different from the cold objectivity of lists and tables, typical structures of knowledge transmission in literate societies which, nevertheless, make the task of memorization immensely difficult.

Thus, one important difference between oral and written communication seems to be the contrasting modes of abstract *versus* situational thinking. But oral storytelling relates to yet another neighboring issue of temporal relevance worthy of further scrutiny: that is, the emphasis placed by oral communication on the *present moment*, which can be identified in the structuration of orally told stories as well as in the social circumstances surrounding their production and reception. Regarding oral storytelling, Ong (2002, p. 143) comments that:

> The singer is not conveying 'information' in our ordinary sense of 'a pipeline transfer' of data from singer to listener. Basically, the singer is remembering in a curiously public way—remembering not a memorized text, for there is no such thing, nor any verbatim succession of words, but the themes and formulas that he has heard other singers sing. He remembers these always differently, as rhapsodized or stitched together in his own way on this particular occasion for this particular audience. (ONG, 2002, p. 143)

Therefore, it seems highly significant that, in the poetic process that is particular to oral storytelling, singers actualize a series of themes and formulas apprehended throughout their past experience in such a way as to put the past at the service of the present. Ong describes the past of oral communities as "the domain of the ancestors, a resonant source for renewing awareness of present existence" (ONG, 2002, p. 96); accordingly, McLuhan argues that mythical discourse prevails in oral culture because, "until literacy deprives language of this

multi-dimensional resonance, every word is a poetic world unto itself, a '*momentary* deity' or revelation" (MCLUHAN, 1962, p. 25, our highlight). The word in the regime of the oral is often understood as *action*, event, actualization – inseparable from its enunciator and its moment of institution. The word in the technological regime of writing becomes *object*, inert and everlasting – its existence independent from that of the authorial figure who gave it life, now relegated to a distant past.

Additionally, it also seems significant that oral storytelling often requires (re)told stories to be adapted to particular audiences, a common practice that occasionally motivates reconfigurations of the past. Ong points out that "oral societies live very much in a present which keeps itself in equilibrium or homeostasis by sloughing off memories which no longer have present relevance" (ONG, 2002, p. 46). The author then resorts to ethnographic accounts of the Nigerian Tiv people in order to provide an example for his argument. He reports an interesting discrepancy among two ethnographic studies carried out four decades apart: the first record identified four genealogies among the Tiv (a type of social division employed by members of the community to resolve legal disputes, amongst other things), whereas the second identified only three. When asked about this matter, members of the Tiv people maintained that their genealogies had remained the same, and that the previous record was simply wrong. Ong, however, provides a different explanation for the discrepancy: "What had happened was that the later genealogies had been adjusted to the changed social relations among the Tiv: they were the same in that they functioned in the same way to regulate the real world. The integrity of the past was subordinate to the integrity of the present" (ONG, 2002, p. 47). Lévy seems to corroborate Ong's argument by commenting on the collective memory of oral communities that: "Things change, techniques are imperceptibly transformed, stories are altered according to circumstances, because transmission is always recreation, and no one knows how to measure these oscillations for lack of a fixed point" (LÉVY, 1990, p. 95, our translation).[4]

Therefore, a detailed examination of our theoretical sources indicates two main temporal features that could be associated to oral communication as primary intellectual technology: a tendency to firmly inscribe knowledge production and transmission in the course of time, and an associated tendency to subordinate the past to serve the interests of the present. In order to facilitate further technological comparisons, these features can be more conveniently reworded

[4] "Les choses changent, les techniques se transforment insensiblement, les récits s'altèrent au gré des circonstances, car la transmission est toujours aussi recréation, mais nul ne sait mesurer ces dérives, faute de point fixe."

into two distinct properties: primary orality therefore conditions 1) the *timeness* of thought and communication; and 2) the subordination of past to present.

Writing, on the other hand, introduces a radically different temporal configuration, starting with the seemingly redundant property of the "timeness" of thought and communication. It should be made clear that, strictly speaking, no human activity – thought included – can be conceived as empirically dissociated from the boundaries of space and time. What we propose, however, is to understand writing as a technology that inaugurates a *functional denial* (in opposition to an effective denial) of the passage of time as a new way to think about the world. As previously stated, the inauguration of an abstract and categorical mode of thinking – which manages to remove language and thought from temporal consecutiveness by emphasizing paradigmatic relations over syntagmatic ones – is often attributed to writing. This new conception of the word-as-object – which comes to replace that of the word-as-action – seems to decouple the existence of language proper from the temporally bound acts of speaking, reading, and writing. The printed book provides a convenient example: by presenting multiple words at a time, it configures itself as a material artifact capable of safeguarding the continued existence of both the "perma" and the "nence," in Ong's (2002, p. 31-32) terms. Hence, if primary orality conditions the *timeness* of thought and communication, the technology of writing appears to condition their *timelessness*.

One consequence that arises from this timeless configuration is a principle of universality which tends to govern production of knowledge in literate societies, especially in relation to religious and scientific institutions.[5] Writing often imposes great distances between interlocutors in space as well as in time – it "desynchronizes and delocalizes" (LÉVY, 1998, p. 51) –, presenting a serious communicative deficiency in relation to its oral predecessor. It therefore requires the creation of systems dedicated to the remediation of this spatial-temporal gap, like those of *theoretical knowledge* – which turns the limitations specific to writing into "fruitful constraints" (LÉVY, 1990, p. 102) – and of the *hermeneutic tradition* – which argues for the existence of an underlying "essence" to written texts in an attempt to reinstate a certain level of stability to their meaning.

[5] This is the point where the distinction between chirography and printing seems to become most relevant. Both Ong (2002) and McLuhan (1962) agree that printing intensifies and consolidates the cognitive, communicative, and social processes initiated by handwriting. However, we shall refrain from investigating the nuances of this distinction in the present master's thesis.

Lévy (1990) postulates that Theory, an institution that strives for autonomy and self-containment, becomes the standard mode of knowledge production in the technological regime of writing. At the same time, the externalization of social memory – now no longer passed forward by members of a well-integrated community, but impersonally archived in libraries – encourages the search for a "truth independent of the subjects who bear it" (LÉVY, 1990, p. 107, our translation).[6] In other words: the content of the written message acquires by approximation the same rigidity of the word-as-object that can now be affixed to the pages of a book. An entity in and of itself, this immutable word appears to be carrying an immanent meaning that is equally immutable. Ironically, it is only in response to the oppressive climate of uncertainty originated in the technology of writing itself that the need for such a conception of the written word as carrier of fixed meaning seems to arise.

Another procedure that serves to remediate this newfound separation of interlocutors in space and time is the self-sufficiency and self-referentiality which have come to be expected from written records. No longer able to rely on the real-world referents immediately available to oral communication, written language needs to establish the terms of its own reception. In this regard, a premature incursion into the field of literary theory can serve our present technological investigation, especially through the writings of Wolfgang Iser (1978). Motivated by ordinary language philosophy and speech-act theory, Iser (1978, p. 54-62) comes to the conclusion that, even though fictional discourse[7] does not benefit from the same levels of situatedness and contextualization as daily oral communication, both types of verbal interaction can still be said to resemble one another in their symbiotic reliance upon ambiguity and indeterminacy. After all, effective communication can only take place once all indeterminacies are eliminated; paradoxically, however, it is the very existence of indeterminacies that creates the need for any communicative effort.

After having identified this shared similarity between oral (day-to-day) and written (literary) communication, Iser (1978, p. 60) then proceeds to compare and contrast the procedures of indeterminacy resolution adopted by each of them: whereas oral communication mostly relies on previously determined conventions, procedures, and guarantees of sincerity, a reader who attempts to communicate with a written fictional text should first have to "discover for himself the code underlying the text, and this is tantamount to bringing out the meaning"

[6] "[…] d'une vérité indépendante des sujets qui la portent."
[7] Iser's main object of study are narratively structured and prose-oriented literary texts, which the author often invokes under the general denomination of "fictional texts."

(ISER, 1978, p. 60). A considerable portion of the theory developed by Iser (1978) in *The act of reading* is then dedicated to explaining this textual "code" which governs meaning-making as a process. First, one must identify the social, historical, and cultural elements/norms selected from extratextual reality, as well as from already consolidated literary conventions, to make up what Iser (1978, p. 68-85) calls the textual *repertoire*. Then, these elements must be (re)combined following a series of procedures which Iser (1978, p. 86-103) calls textual *strategies*. The fictional text is therefore part of the real and responds to it, but it does so by isolating and recombining discrete elements of reality in order to create an independent world, endemic to the self-contained aesthetic object that is the literary work.

Of special interest to our present investigation is the fact that Iser's textual repertoire is composed not only of elements selected from various sociopolitical systems, but also of elements inherent to the art of literature, in the form of set conventions and expectations shared among readers and writers. Writing thus establishes its own systems of sociability and communication, parallel to (and extremely influential over) the many other systems of political life. This is one of the strategies that the technology of writing resorts to in order to remediate the instability of meaning inaugurated by its spatial-temporal decontextualization, as pointed out by Ong:

> I have to know the tradition – the intertextuality, if you wish – in which I am working so that I can create for real readers fictional roles that they are able and willing to play. It is not easy to get inside the minds of absent persons most of whom you will never know. But it is not impossible if you and they are familiar with the literary tradition they work in. (ONG, 2002, p. 173)

It should also be noted that this self-referentiality proper of written communication, which we have previously identified as a founding element of both institutions of Theory and Literature, is capable of affecting not only the process of textual reception, but also that of textual production. Reception-wise, the field of hermeneutics inaugurates the search for the latent meaning of literary works, and the extension of collective memory into books encourages the search for a truth that is independent from individual enunciators. Production-wise, the timelessness conditioned by writing seems to foster, among other things, an ambition for the achievement of individual eternity. McLuhan, for example, points out that, from the very beginning, one of the most obvious affordances presented by writing to its adopters was "the fact of printed publication as the direct means of fame and perpetual memory. For, until the modern movie, there had been in the world no means of broadcasting a private image to equal

the printed book" (MCLUHAN, 1962, p. 131). Ong, accordingly, notes a close and paradoxical association of writing with death:

> The paradox lies in the fact that the deadness of the text, its removal from the living human lifeworld, its rigid visual fixity, assures its endurance and its potential for being resurrected into limitless living contexts by a potentially infinite number of living readers. (ONG, 2002, p. 80)

Therefore, if orality takes advantage of language's subordination to time, writing tries to fight this subordination at all costs. But a functional denial of time can only take us so far. Since the pressing reality of the march of time invariably makes itself known, we may now turn our attention to the second temporal property previously associated with oral communication and the way it is transformed in this new technological regime. If the temporal emphasis of the spoken word falls upon a present that is supported by its past, writing turns this relationship on its head: the past takes center stage, having the present as its subordinate, its derivation, and its consequence. The circular time of orality, which depends on constant reiteration, is replaced by a time that is rigid, linear, and evolutionary. For this reason, Lévy (1990, p. 87) describes writing and, in fact, inscription technologies of all kinds as irreversibility locks (*cliquets d'irréversibilité*) which force time to unfold in only one direction. These locks, somewhat durable and reliable, allow for the emergence of History as an objective elaboration of chronological events pertaining to human societies, only this time dissociated from the volatile needs of a social group or the individual recollections of its members:

> As we move from ideography to the alphabet, and from calligraphy to printing, time becomes more and more linear, or historical. The sequential order of signs appears on the page or monument. The accumulation, the potentially infinite increase of the transmissible corpus stretches the circle of orality until it breaks. Calendars, dates, annals, archives, by establishing fixed points of reference, allow the birth of *history* if not as a discipline, at least as a literary genre. (LÉVY, 1990, p. 106, our translation)[8]

The "potentially infinite increase of the transmissible corpus" is strictly related to the emphasis placed by writing over the past. The ever-growing stacks of written records now stored in archives and libraries make a visual and spatial argument for the grandiosity of a past that swells in proportion to an increasingly punctual and (temporally) insignificant present.

[8] "Au fur et à mesure que l'on passe de l'idéographie à l'alphabet et de la calligraphie à l'imprimerie, le temps se fait de plus en plus linéaire, historique. L'ordre séquentiel des signes apparaît sur la page ou le monument. L'accumulation, l'augmentation potentiellement infinie du corpus transmissible distend le cercle de l'oralité jusqu'à le briser. Calendriers, dates, annales, archives, en instaurant des références fixes, permettent la naissance de l'*histoire* sinon comme discipline, au moins comme genre littéraire."

Moreover, the passage into the past seems to become a decisive criterion to the question of whether someone or something is worthy of "record," a concept now equated to being worthy of entering the externalized collective memory of a social group.

Another finding which also indicates the preference established by writing for the past over the present is that the institutions of Literature and Theory, previously approximated on the basis of their self-referentiality, can also be said to benefit from a retrospective procedure of composition. McLuhan notes that:

> The method of invention, as Edgar Poe demonstrated in his 'Philosophy of Composition,' is simply to begin with the solution of the problem or with the intended effect. Then one backtracks, step by step, to the point from which one must begin in order to reach the solution or effect. Such is the method of the detective story, of the symbolist poem, and of modern science. (MCLUHAN, 1962, p. 45)

Certainly, not all literary genres and schools are equally prone to the same poetics of retrospection. However, the issue becomes especially interesting if, alongside McLuhan's comment, we should also consider Ong's observations regarding the rigorously structured plot of detective stories: that, in the transition from orality to literacy, this genre marks the highest point of influence of the technology of writing over artistic poetic processes, previously still strongly influenced by the episodic structure of oral narratives and later destabilized by modern and avant-garde literature (ONG, 2002, p. 145-148) – which, it should be noted, had already begun to respond to social, political and cognitive arrangements governed by new technologies.

Moreover, the aforementioned field of hermeneutics also helps illustrate the emphasis that writing places upon the past. If, in the context of oral communication, the message tends to bend itself in order to fit its present audience, in the context of written language, the responsibility for the filling of the gap between text and recipient often falls on the latter, because readers frequently need to undertake a long journey towards the sociocultural references of a text's author in order to understand it. At this point, a useful analogy can be drawn with translation studies – the problems found by translators in their craft often being emblematic of the obstacles posed by written communication as a whole. In the essay *On the different methods of translating*, Friedrich Schleiermacher (2021)[9] distinguishes among two contrasting translation procedures, which Lawrence Venuti (1995) will later rename, in light of

[9] Essay based on a lecture originally presented in the year of 1813.

their respective political implications, as the processes of *foreignization* and *domestication*. Schleiermacher poses the question:

> Now as for the translator proper who truly wishes to bring together these two quite separate persons, his writer and his reader, and to help the reader, though without forcing him to leave the bounds of his own native tongue behind him, to acquire as correct and complete an understanding of and take as much pleasure in the writer as possible – what sorts of paths might he set off upon to this end? In my opinion, there are only two possibilities. Either the translator leaves the writer in peace as much as possible and moves the reader toward him; or he leaves the reader in peace as much as possible and moves the writer toward him. (SCHLEIERMACHER, 2021, p. 56)

As we have seen, oral communication tends to bring the message closer to its audience, whereas writing, as a technology often decoupled from any mediating figure, tends to place upon readers the burden of moving towards interpretation, sending them in pursuit of the resolution of linguistic indeterminacies. This never-ending search for the signifying essence of written texts leads hermeneutics, the science of interpretation, to create increasingly denser textual masses which serve to further elongate the trail of the past to be traveled by the reader. The dilation and expansion of the past as an inadvertent byproduct of an attempt to annul the temporal distance between author and reader is the very paradox of interpretive activity, which Pierre Lévy explains well:

> Even though it aims to reduce the distance between the moment of writing and that of reading, interpretation produces these differences, this time, this history it had wished to extinguish. This is because, when an exegesis is put on paper, when somehow a reading is written, an irreversibility is erected. Averroe's successors will no longer be able to read Aristotle as his predecessors. (LÉVY, 1990, p. 101-102, our translation)[10]

Finally, to resume a previous point regarding the book as a source of immortality, it also seems significant that writers, seeking to make themselves eternal, aim at positioning themselves in a hypothetical past archived in the collective memory of their people, intended to be recollected by following generations. The emphasis provided by writing over the past also makes itself evident in this case because the only way authors can enjoy the perpetual existence provided by the timelessness of a printed book is by firmly inscribing themselves in the past of their readers.

[10] "Alors même qu'elle vise à diminuer la distance entre le moment de la rédaction et celui de la lecture, l'interprétation produit ces différences, ce temps, cette histoire qu'elle voulait annuler. Car, en couchant l'exégèse sur le papier, lorsque l'on procède en quelque sorte à l'écriture d'une lecture, on construit une irréversibilité. Les successeurs d'Averroës ne pourront plus lire Aristote comme ses prédécesseurs."

Before we move on to discussing the temporal role played by literature within the technological regime of writing, a short summary of this section is in question. The regime of oral communication conditions a cognitive and communicative model firmly inscribed in time, which tends to center temporal perception over a present supported by its past. The possibilities conditioned by the regime of writing appear to take the opposite form: writing grants a newfound timelessness to cognitive operations, and tends to emphasize temporal perception over the past, to which the present now constantly resorts. From these relations, one last observation can be derived regarding how time is generally experienced and understood by members of social groups organized around each of these technologies. If, in oral communication, the present is prioritized and the past is called to support it whenever necessary, the dominant form of temporal perception becomes circular, cyclical, and recurrent: thus, we should be able to speak of a *circular time*. Writing, on the contrary, prioritizes the conservation of the past and that which it bequeaths to the present, thus establishing an unfolding temporal relation marked by linearity and evolution: in other words, a *linear time*.[11]

2.2 LITERATURE AS THE ART OF WRITING

According to Vítor Manuel de Aguiar e Silva (2009, p. 1-42), the lexeme "literature" makes its first appearance in most European languages only during the second half of the fifteenth century, and is initially employed to designate all knowledge related to practices of reading and writing, including scientific as well as artistic scholarly discourse. It is only during the first half of the eighteenth century that the lexeme begins to assume the contours nowadays associated with it, as "a particular art form, a specific category of artistic creation, and a body of texts resulting from this creative activity" (AGUIAR E SILVA, 2009, p. 10, our translation).[12] This vocabulary restriction arises in response to the sociopolitical changes happening in Europe at the time, which would culminate in a widely accepted antinomy between the notion of humanistic culture on one side, and that of scientific-technological culture

[11] We borrow the terms "circular time" (*temps circulaire*) and "linear time" (*temps linéaire*) from Pierre Lévy (1990, p. 131).
[12] "[...] uma arte particular, uma específica categoria da criação artística e um conjunto de textos resultantes desta actividade criadora."

on the other. It is therefore during this period that literature and science become semantically distinguished as designating different, if not opposite, fields of social life.

Before the consolidation of "literature" as the authoritative denominator of the main art form associated with writing, other terms of historical significance also grappled with it for exclusive rights of designation. According to Aguiar e Silva (2009, p. 11-13), "poetry" was also a strong contender for the role of unitary word,[13] but was ultimately ruled out in favor of "literature" due to a qualitative and quantitative growth in prose-oriented texts[14] which marked literary production in Pre-Romanticism:

> […] a marked valorization of prose-oriented literary texts and genres could be perceived in European literary traditions since the first decades of the eighteenth century, from the novel to the essay and the political satire. If neoclassic rationalism and the "philosophical spirit" of the Enlightenment played an important role in the valorization of a literary prose well fitted to communicating and debating ideas, Pre-Romanticism opened new possibilities to literary prose, such as the novel, the short story, the memoirs, the biography and the autobiography – literary genres which then acquired an aesthetic and sociocultural status unknown to them in previous centuries. (AGUIAR E SILVA, 2009, p. 11, our translation)[15]

The cultural importance of prose-oriented literary forms played an important role in the selection of a unitary word which could include them not in a marginalized position, but as equal in importance to its verse-oriented counterparts: therefore, "literature" was preferred over "poetry." Two important conclusions can therefore be drawn from Aguiar e Silva's (2009) considerations: firstly, that the concept of "literature" as an art form has been related to the technology of writing from its very inception; and secondly, that its adoption over other terms,

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[13] Aguiar e Silva (2009, p. 11) retrieves the expression "unitary word" from E. D. Hirsch Jr. as a way of designating simple nouns which come to replace compound nouns and phrases when the notion encompassed by the unitary word gains a newfound relevance for its users. This was the case with "literature," which replaced compound expressions such as *belles lettres* and "verse and prose."

[14] Although, academically speaking, the notions of "verse," "poem," and "poetry" should not be confused, Aguiar e Silva's (2009) historical review is not exclusively concerned with academic conceptualizations. In this context, the semantic association often established between "verse" and "poetry" remains relevant: following the increasing stabilization of "literature" as a unitary word in the second half of the 18th century, "poetry" becomes either a particularized domain of versified literature, or a general concept pertaining to artistic/natural beauty which transcends the literary sphere (AGUIAR E SILVA, 2009, p. 11).

[15] "[...] verificou-se nas literaturas europeias, desde as primeiras décadas do século XVIII, uma acentuada valorização de textos e géneros literários em prosa, desde o romance ao ensaio e à sátira ideológico-política. Se o racionalismo neoclássico e o 'espírito filosófico' iluminista desempenharam importante papel na valorização de uma prosa literária apta à comunicação e ao debate de ideias, o pré-romantismo rasgou novos horizontes à prosa literária, com o romance, a novela, as memórias, a biografia e a autobiografia – gêneros literários que adquiriram então um estatuto estético e sociocultural de que não usufruíam nos séculos anteriores."

such as "poetry," was ultimately determined by the prominence of prose-oriented, largely narrative-based, textual genres.[16]

In the current state of literary studies, there seems to be a consensus regarding the threefold nature of literature as distributed along the lyric, epic, and dramatic genres – a division first introduced by Aristotle (ROSENFELD, 1985). This tripartite notion of literature understands poems and theater plays as unequivocal literary phenomena, a stance which integrates into literature – if not in whole, at least in part – the visual and performative (i.e. non-verbal) elements of the latter, as well as the mnemonic elements of rhythm, rhyme, and repetition which the former inherits from oral communication. Nevertheless, from a techno-artistic point of view, the historical context informed by Aguiar e Silva (2009) remains significant: the technological development of writing (especially in its printed mode), and the popularization of prose-oriented narrative genres seem to converge in the consolidation of our current understanding of the word "literature." This context might be able to explain why, as will be the subject of the following pages, time is refigured by the lyric and the epic literary macro-genres in so strikingly different ways.

Before we begin, it might be worth to turn out attention to the socioeconomic context in which the printed book is established as one of the most relevant knowledge production/dissemination technologies in human history – allowing, amongst other things, the consolidation of the current semantic contours of the word "literature." The sociologist Robert Escarpit (1974) understands the mass adoption of the printed book as a result of the communicative needs of a commercially structured industrial society marked by a drastic increase in population density. In response to newfound demands, "the nascent industrial society reacts in the way that could naturally be expected from it: by resorting to the machine, that is, the book" (ESCARPIT, 1974, p. 23, our translation).[17] Thus, it is important to understand both the book and the printed word in relation to other modern "machines" which converge in the constitution of a new model of society, as well as a new conception and experience of time.

[16] In this case as well, the academic concepts of "narrative" and "prose" should not be equated. However, the present discussion is concerned not only with academic conceptualizations, but also with how these terms were used and consolidated in common parlance. We therefore believe that it should not be taken as a coincidence that Aguiar e Silva (2009) mostly resorts to narrative genres – the novel, the short story, the biography etc. – to provide examples of prose-oriented literature. In the third chapter of the present thesis, readers will be able to find an in-depth discussion of different academic conceptualizations of "narrative."

[17] "[...] la naciente sociedad industrial reacciona del modo que naturalmente puede esperarse de ella: recurriendo a la máquina, es decir, al libro."

Benedito Nunes (2013), in a work which addresses the matter of time primarily through a philosophical lens, agrees that the time period dominated by the novel is also:

> […] the time period of the emergence of modern History and, not coincidentally, also the period which marks the beginning of the timekeeping of work and production, leading to mechanical clocks, after they had acquired a certain level of precision, to exert a generalized influence over all aspects of social life. (NUNES, 2013, p. 48, our translation)[18]

Never before has chronological time been so precise, so necessary and so present in general community life – a change that is significant insofar as it contributes to deepen the dichotomy between two equally important but philosophically incompatible facets of time: that of *world time* as a natural force that imposes itself over and involves all physical beings; and of *lived time* as a phenomenological act subjectively experienced and constructed by sentient beings. As opposite constructs which constantly battle over our common understanding of time, these two conceptions only become truly irreconcilable in a society that, after having internalized the technologies of writing and printing, is capable of organizing itself through widely distributed calendars and schedules, through the accuracy of mechanical clocks, and the publication of newspapers and magazines which periodically and consistently take note of the passage of days, months and years.

Therefore, "literature" as such is born in a context marked by the industrialization and chronologization of life, which may help explain Paul Ricoeur's (1988, p. 128-132) main thesis regarding the temporal role played by fictional narratives: that they provide imaginative variations from which the relationship *world time vs. lived time* can be refigured, thus offering poetic solutions to this temporal schism. Ricoeur's (1984, 1985, 1988) *Time and narrative* will be discussed in more detail below, since its main topic of investigation – namely, the relationship between time and literary fictional narratives – coincides with our own. However, before turning to Ricoeur, we will allow ourselves a quick detour along the earlier contributions of Tzvetan Todorov (1966) and Gérard Genette (1980)[19] – two authors which, largely unconcerned with philosophical issues, manage to provide a more exhaustive theorization of the structural properties of time in the epic (or narrative) literary genre.

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[18] "[...] é a época do surgimento da História moderna e, não por acaso, também aquela em que está começando a cronometria do trabalho e da produção, que levou o controle dos relógios mecânicos, depois que se tornaram mais precisos, a estender-se sobre toda a vida social."

[19] Todorov's (1966) *Les catégories du récit littéraire* has been consulted in its original language, whereas Genette's (1980) *Narrative discourse: an essay in method*, originally published in 1972 as part of a larger work, refers to an English translation.

The most important aspect of time in the literary narrative – which somewhat mirrors the previously mentioned aporia between world time and lived time – is its division into what Genette (1980) calls story time (*temps de l'histoire*) and narrative time (*temps du récit*); or what Todorov (1966) calls story time (*temps de l'histoire*) and discourse time (*temps du discours*).[20] In a founding essay for the development of narratological studies, the latter examines a few poetical consequences derived from the productive conflict established between a "linear" discourse time and a potentially "pluridimensional" story time (TODOROV, 1966, p. 139). Starting with the matter of "temporal deformity," or the discrepancy between the organization of fictional events as they happen in the story and as they are presented in the text, Todorov (1966, p. 140) goes on to distinguish among cases of sequencing (*enchaînement*), alternance (*alternance*), and insertion (*enchâssement*): respectively, the narration of different stories one after the other; the alternated narration of events pertaining to different stories; and the insertion of a complete second story (with beginning, middle, and end) into an initial story. Finally, Todorov (1966, p. 141) concludes his considerations by addressing the issues of enunciation time (or time of writing) and perception time (or time of reading) – a theoretical addition which will later be criticized by Genette (1980), as we shall see. Todorov's argument is that these two dimensions only become a viable subject for literary studies when they are inserted into the fictional plane of a work – for example, when the narrator mentions the time of his own writing, or when an author assumes the reading time of their target audience, verbalizing this information through the narrator.

Genette (1980), in turn, begins his essay by making an important caveat regarding the theoretical laxity of what he calls "narrative time."[21] The author identifies this category as a "false time," or a "pseudo-time," because it is metonymically borrowed from the act of reading, and is therefore subject to the idiosyncratic variations of each particular reader – something quite incompatible with Genette's text-centered structuralist approach. The author himself associates this "pseudo-time" with the visual spatiality that replaces, in writing, the purely temporal existence of oral storytelling: "produced in time, like everything else, written narrative exists in space and as space, and the time needed for 'consuming' it is the time needed for *crossing* or *traversing* it, like a road or a field" (GENETTE, 1980, p. 34). This spatiality, being

[20] Ricoeur (1985, p. 77) traces this duality back to Günther Müller, who proposes a terminological distinction between the time of narrating (*Erzhalzeit*) and narrated time (*Erzahlte Zeit*).
[21] Similar to what Todorov (1966) terms "discourse time." While Todorov (1966) employs "narrative" to refer to the totality created by the combination of story and discourse, Genette (1980) employs it to refer more exclusively to the verbal materiality of narrative discourse.

the only concrete evidence available to the literary researcher, is converted into time only through the act of reading – but the precise terms of this conversion can never be exactly and universally determined.

As for the option made by Todorov (1966) of including the time of writing and of reading in the broader composition of narrative time, Genette (1980, p. 29-30) strongly disagrees, believing instead that any aspect of narrative discourse concerning the communication between narrator and narratee should be considered not as part of the theoretical category of *time*, but of *voice*. Consequently, Genette (1980) confines the realm of time to the three major phenomena which have become, since the publication of his book, part of the *lingua franca* of narratology (MEISTER, 2014). These are the phenomena of order, duration and frequency, which are further stratified into the two previously addressed poetic faces of time as "the temporal *order* or succession of the events in the story and the pseudo-temporal order of their arrangement in the narrative"; "the variable *duration* of these events or story sections and the pseudo-duration (in fact, length of text) of their telling in the narrative"; and the "relations between the repetitive capacities of the story and those of the narrative" (GENETTE, 1980, p. 35).

From these preliminary observations on the poetics of time in literary narrative, we can already infer literature's propensity to play with the rigidity of temporal linearity without necessarily giving up on that which Ricoeur (1984, p. 38-42) terms the "paradigm of order" of the narrative plot – i.e. its ability to configure a concordant "whole" which organizes the discordance of chaos. Even though Genette (1980, p. 33) identifies the duality of time as a trait also present in oral narrative "at all its levels of aesthetic elaboration," it should still be noticed that the technology of writing significantly emphasizes the existing temporal gap between the two levels of story and discourse. With the emergence of written records, temporal deformity in narrative becomes increasingly complex, acquires a broader range of procedures,[22] and ultimately becomes an established convention among readers and writers – capable of and even expected to interfere in the meaning-making process of a literary work.

On this matter, we can turn once again to Walter Ong's (2002) comments on the *in medias res* beginning typical of classic epic poems – an oral genre which has been transmitted to modern culture through incipient forms of writing. Ong (2002) goes against the

[22] Todorov, for instance, comments that oral storytelling "ne peut pas connaître l'alternance" (1966, p. 140), claiming the structure of alternance to be a mark of genres that have lost connection with orality.

chirographic/typographic bias of some critics and researchers, who assumed the structure *in medias res* to be an intentional temporal deformity employed by orators in order to achieve deliberate effects derived from the mismatch of the two temporal frames. Contrarily, Ong (2002) explains that beginning in the middle of the action is a natural consequence of the episodic structure the act of oral narration invariably assumes:

> Oral poets commonly plunged the reader in medias res not because of any grand design, but perforce. They had no choice, no alternative. Having heard perhaps scores of singers singing hundreds of songs of variable lengths about the Trojan War, Homer had a huge repertoire of episodes to string together but, without writing, absolutely no way to organize them in strict chronological order. There was no list of the episodes nor, in the absence of writing, was there any possibility even of conceiving of such a list. If he were to try to proceed in strict chronological order, the oral poet would on any given occasion be sure to leave out one or another episode at the point where it should fit chronologically and would have to put it in later on. (ONG, 2002, p. 141)

Therefore, it is possible to speculate that the dual temporality which today constitutes our understanding of narrative structure is consolidated by reason of the passage from orality to literacy; or, in other terms, as a result of the virtualization of one of narrative's times into a "pseudo-time" transmuted into space. Having investigated some of the structural aspects of the literary narrative, we can now turn to a broader philosophical approach which attempts to address the subject of time in literature by tracing the influence held by art over ordinary life. To this end, we can finally call upon Paul Ricoeur's (1984, 1985, 1988) *Time and narrative*.

The double thesis that guides Ricoeur's argumentation is that narrative, in both its historical (bound to what "truly" happened) and fictional (detached from what "truly" happened) manifestations, takes time as the basic feature of its composition, while simultaneously presenting itself as one of the most important tools through which we can refigure our human experience of time. In order to defend this position, the author bases his argument in equal measure over the foundations provided by Augustine's proto-phenomenological meditations on time (RICOEUR, 1984, p. 5-30) – together with the aporias of temporality it manages to both inaugurate and, to some extent, solve –; and by Aristotle's procedures of plot composition (RICOEUR, 1984, p. 31-51).

Augustine presents his readers with two temporal aporias: that of the being and nonbeing of time, and that of the measurement of time. He then attempts to solve these aporias by subdividing temporal apprehension into three presents – the present of past things, the present

of present things, and the present of future things –, while also maintaining that time exists as a continuum only insofar as the past is retained in the present as memory and the future is anticipated in the present as expectation. This is the distention of the soul (*distentio animi*) which, for Augustine, explains temporal progression as a phenomenon bound to human consciousness. Inspired by this reasoning, and after having reflected on Aristotle's composition of plot as a model of discordant concordance, Ricoeur (1984, p. 52-87) proposes the structure of the threefold mimesis as a possible solution to the matter of narrative time. Plot as such, or $mimesis_2$, functions as a mediating force in a larger process which also includes the lived experience preceding ($mimesis_1$) and succeeding ($mimesis_3$) the literary text.

This is the method through which Ricoeur (1988) will later be able to argue in favor of the reinsertion of narrative configuration in ordinary life as a tool for refiguring temporal experience. In this sense, all narratives answer to the fundamental aporia of time (that of the schism between world time and lived time), as well as to the secondary philosophical aporias which are instantiated by phenomenology itself. Historical narrative fulfills this function by reinscribing lived time into a universal time – thus generating a third, *historical time* (RICOEUR, 1988, p. 104-126), which serves a conciliatory purpose of appeasing these temporal aporias. The main resources of historical time in the accomplishment of this task are: 1) the calendar, together with its chronological time; 2) the segmentation of social groups into generations, encompassing contemporaries, predecessors, and successors; and 3) the traces of the past which are made present in the form of documents, monuments and archives. Fictional narrative, on the other hand, employs radically different resources to the solution of the same aporias, with also radically different results. These solutions, inflammatory rather than appeasing, are the most relevant to the present thesis, and as such are explored in more detail below.

Ricoeur (1988, p. 128) describes the possibilities of temporal configuration opened by fictional narrative as "a treasure trove of imaginative variations applied to the theme of phenomenological time and its aporias." The expression "imaginative variations" is of central importance. Fictional narratives, freed from the obligation of answering to real referents and submitting lived time to world time, can exercise more flexible and creative ways of temporal manipulation. This is why Ricoeur (1988) postulates that fictional narrative neutralizes historical time, giving way to myriad alternatives for the reconnection of lived time to world time. It can, for instance, incorporate real characters and events of human history into a

malleable fictional context, and it can also make the option of prioritizing the inconsistent experience of lived time over the material objectivity of world time – thus subverting the latter's linearity. In concordance with the conclusion previously provided by Todorov (1966) and Genette (1980), Ricoeur states:

> […] it appears that the major contribution of fiction to philosophy does not lie in the range of solutions it proposes for the discordance between the time of the world and lived time but in the exploration of the nonlinear features of phenomenological time that historical time conceals due to the very fact that it is set within the great chronology of the universe. (RICOEUR, 1988, p. 132)

Therefore, the relationship between time and fictional narrative holds at its center the possibility of playfully exploring the nonlinear spectrum of temporal experience that exists between memory and expectation. However, in addition to the fundamental aporia generated by the dissonance between lived time and world time, there are other aporias of temporality to which fictional narrative is also capable of responding. Ricoeur (1988, p. 132-138) highlights three of them, to be developed in the following paragraphs: the problem of unifying the temporal flow; the problem of the temporal limits of death and eternity; and the problem of the remythicizing of time.

The unification of the temporal flow concerns the basic question of the passage of time: if we take time to exist and to pass, how is the transition from past to present, and from present to future, conceived as composing a coherent line? This question, answered by Augustine with the structure of the threefold present, by Husserl with the phenomenon of "coincidence," and by Heidegger with the phenomenon of "repetition" (RICOEUR, 1988, p. 132), can also be answered by literature in many different ways – for example, by combining different durations of story and of discourse, thus regulating specific speeds/tempos of reception for a literary work; or by representing the mental processes of characters while they (re)claim the past as memory and the future as expectation in the thickness of the lived present. The temporal limits of eternity and death – the conceptual others of time – are also topics frequently thematized by the fictional narrative. Benedito Nunes (2013) particularly emphasizes these possibilities of literary representation – so much so that the author considers the poetical articulation of timelessness and eternity, or "the conceivable limits of temporal experience" (NUNES, 2013, p. 73, our translation)[23] to be the privilege of narrative. Narrative accomplishes this deed by,

[23] "[...] o limite pensável da experiência temporal"

for example, indefinitely dilating a single punctual event; or by contracting into a single moment two events which time would normally separate (NUNES, 2013, p. 25).

Finally, the problem of the remythicizing of time is to some extent similar to that of the temporal limit of eternity, and deserves to be discussed in more detail because it marks, in our line of argument, a return point to oral storytelling which may also serve as a good transition point into the discussion about time in the lyric genre. Ricoeur's (1988) mythic time, which has long been abandoned by modern societies built over the technology of writing, is a circular time that unifies where linear time tends to fragment. In mythic time, lived human experience, cycles of life and death, history and the movements of the cosmos are all blended together and harmonically integrated into a great time that envelops all that exists:

> This mythic time, far from plunging thought into a night where all cows are black, initiates a unique, overall scansion of time, by ordering in terms of one another cycles of different duration, the great celestial cycles, biological recurrences, and the rhythms of social life. (RICOEUR, 1988, p. 105)

Moreover, by inhibiting the fundamental aporia of the discordance between lived time and world time, mythic time is capable of contesting temporal linearity in such a way as to cast doubt upon the validity of its temporal status. Nunes (2013), for instance, is of the opinion that:

> Strictly speaking, there is no *mythic time*, because the myth, the sacred history of the cosmos, of men, of things, and of cultures, abolishes temporal succession. Whatever it is that the myth narrates, it always talks about what happened in a unique time of its own instantiation, and in which what has happened continues to happen whenever it is narrated. It would be more accurate to say that myth reports on a generic event which never ceases to create itself: a collective origin – such is the drama of Eden – and the repetition of this origin – the nostalgia for a *paradise lost* in a timeless present, which insinuates itself over the mutable line of individual life. (NUNES, 2013, p. 63-64, our translation)[24]

On a fictional level, literature can also reinstate the cyclicality of mythic time by forcing the past to meet the present in impossible ways, such as with Virginia Woolf's *Orlando*, a title character whose four-century lifespan connects the beginning of the Modern Era with the contemporaneity of their author; or with James Joyce's *Ulysses*, in which characters from

[24] "Em rigor não há um *tempo mítico*, porque o mito, história sagrada do cosmos, do homem, das coisas e da cultura, abole a sucessão temporal. O que quer que o mito narre, ele sempre conta o que se produziu num tempo único que ele mesmo instaura, e no qual aquilo que uma vez aconteceu continua se produzindo toda vez que é narrado. Será mais correto dizer que o mito relata um acontecimento genérico que não cessa de produzir-se: uma origem coletiva – tal o drama do Éden – e a repetição dessa origem – a nostalgia do *paraíso perdido* num presente intemporal, que se insinua na linha mutável da vida individual."

twentieth century Dublin retrace the steps of their ancient Homeric counterparts – to borrow two prominent examples from Nunes (2013, p. 64) himself.

But the idea of a rhythmic cyclicality, not coincidentally echoed in Ricoeur's (1988, p. 105) choice for the word "scansion," brings us into a different field of literary production, that of the lyric genre. The paradoxical timelessness Nunes identifies with mythic time is once again brought up by the author when talking about the lyric: "The recurrence of rhythm, together with this reflective return [of language over itself], absorbs the marks of temporal succession that characterize epic and drama, imposing over lyric expression the impress of immediacy" (NUNES, 2013, p. 10, our translation).[25] Similarly, Anatol Rosenfeld (1985, p. 23-24), while contrasting the fundamental stylistic traits of the three literary macro-genres, comments that the events and feelings represented in the lyric tend to be situated in an "eternal moment" dissociated from temporal succession. Hence, eternity and myth are presented as liminal temporal experiences capable of monopolizing the attention of literature in more than one of its branches.

If mythic time is, as stated by Ricoeur (1988), a time capable of unifying and ordering all different cycles of life, it should come as no surprise that the poem, through its structural recourse to meter, rhyme, and rhythm, is capable of compositionally simulating this cyclical temporal organization. In concordance with the self-referentiality of writing, the poem also presents itself as a system capable of defining its own rules of operation. However, even though the verse may be considered an emblematic compositional structure of lyric, it is not its only possible manifestation, as attested by the tradition of the prose poem. It is precisely to the prose poem that Todorov's (1990, p. 60-71) essay "Poetry without verse" resorts to in order to investigate what are the transcultural, transhistorical, and essential traits at the heart of poetry: "If poetry is not verse, what is it?" (TODOROV, 1990, p. 60). The author refers to a previous work carried out by Suzanne Bernard, which argued for a poem's timelessness as its most distinctive feature, either achieved through a principle of *repetition* responsible for the suspension of time, or through a principle of *incoherence* responsible for its abolishment. Based on this differentiation, Todorov dedicates his essay to the testing of the hypotheses presented by Bernard against the works of Baudelaire and Rimbaud.

[25] "A recorrência do ritmo, juntamente com esse retorno reflexivo [da linguagem sobre si mesma], absorve as marcas da sucessão temporal que caracterizam o épico e o dramático, impondo à expressão vivencial da lírica o cunho da imediatidade."

Todorov identifies the principle of repetition (1990, p. 62-66) in Baudelaire's figurations of duality, which often take the form of implausibility, ambivalence, or antithesis. The principle of incoherence (1990, p. 66-71), on the other hand, is analyzed under Étienne Souriau's framework of "representation" vs. "presentation" and identified in the works of Rimbaud. If, in the *presentative* arts – such as music and architecture –, all poetic elements are considered to be inherent to the artwork, in the *representative* arts, there is a basic ontological distinction between representation and represented object – the former being somewhat independent from the latter. This is the distinction that, in literary narrative, allows for the separate existence of story time and discourse time. Broadly speaking, literature's tendency as an artform is that of representation; Todorov, however, posits that Rimbaud's lyric style, by working to destroy the mimetic illusion language tries to establish between signifier and signified, gives rise to a presentative form of literature. When the representational layer responsible for establishing story time is destroyed, we are left only with the time of discourse – which, as Genette would remind us, is more space than time proper. By renouncing the process of (re)creating a fictional world, Rimbaud's technique also makes away with the categories of space and time, thus achieving a temporal escape which, albeit successful, comes at the cost of meaning and representation itself. Even though Todorov is, from the start, suspicious of Bernard's thesis regarding the fundamental timelessness of poeticity, he seems ultimately unable to disprove it completely, choosing instead to conclude his reflections on a caveat:

> Atemporality which for Bernard constituted the essence of poeticity, is only a secondary consequence of the rejection of representation in Rimbaud, of the order of correspondences in Baudelaire; it would thus be a violent distortion of the facts to try to equate the one with the other. (TODOROV, 1990, p. 71)

Todorov's (1990) unfinished conclusion, however, finds an interesting complement in the contrasting ideas of a preceding text, Gaston Bachelard's (2013) "Poetic instant and metaphysical instant."[26] Bachelard (2013) describes lyric poetry as capable of instantiating a vertical time that interrupts the temporal horizontality of prose and everyday life by replacing extension with depth. In his temporal philosophy, the poem is a gateway to the poetic/metaphysical instant, or the genuine temporal experience ordinarily veiled by the illusion of duration (taken in Bergsonian terms). Bachelard explains that the poetic instant is capable of challenging the sequentiality of time by harmonically contracting two antithetical elements into

[26] Essay originally published in 1939.

a singular ambivalent relationship; to this end, it comes as no surprise that Bachelard should resort to a quote from Baudelaire himself in order to illustrate his point:

> "When I was a child, my heart used to be haunted by two contradictory feelings: the horror of life, and the ecstasy of life." Instants when these feelings are experienced together bring time to a standstill, for they are experienced as associated by an intense fascination for life. They abduct being from ordinary duration. Such ambivalence cannot be described in terms of consecutive time, as a common balance sheet of fleeting joys and pleasures. Contrasts as sharp and fundamental as that belong to a metaphysics of the immediate. (BACHELARD, 2013, p. 62)

Although Bachelard (2013) insists on maintaining the temporal status of his vertically ordered time – time being, in his view, "order and nothing but order" (BACHELARD, 2013, p. 59) –, his conclusion on the matter should still be subject to dispute. If horizontal time and vertical time develop in axes perpendicular to one another, it would be reasonable to question whether the contraction of ambivalences in the poetic instant – similar to the merging of past and present into a single moment, often attempted by literary narratives – could not be considered a denial of temporal experience through the instantiation of timelessness, instead of being taken as a time in and of itself. In any case, even if we do admit Bachelard's (2013) verticality as a temporal alternative to the paradigm of horizontal time, it still serves to illustrate, as many other authors have also done in the course of the present section, a general impulse towards the defiance of the linear succession of time made possible by both epic and lyric literary genres.

Having dedicated a few pages to discussing how these two literary macro-genres poetically devise the matter of time, we can now summarize our findings. Literature, as the paradigmatic art form of writing, seems to respond to the main temporal traits of its founding technology – that is, the timelessness of thought and communication, and the emphasis on a past supported by its present – with a bit of compliance and a bit of defiance. As such, it could be said to fulfil two essential functions. The first and more defiant one is that of reinstating the nonlinearity of consciousness suppressed by the many linear and ordered times of social life made possible by writing. In this manner, art becomes a tool through which we can represent our lived experience of time, reestablishing in fiction the priority it has lost in the plane of reality.

The second task is perhaps more compliant to the affordances of writing, and relates to the ability of fiction to provide a space within which we can exercise our imaginative

speculations about the other of linear time, often identified under the general umbrella of "timelessness." Building on the *functional denial* of time made possible by the technology of writing, literature frequently attempts, to the maximum extent of its poetical ability, an *effective denial* of time. If oral storytelling manages to achieve such a denial through recourse to mythical cyclicality and repetition, written poems and narratives – although also capable of relying on the techniques inherited from their oral predecessors – often count on the more destructive poetical procedures of antithesis, ambivalence and incoherence. This second function may even be described as "compensatory," because it responds to a human desire older than any specific technology or art form: that of escaping the temporally bound phenomena of change and death. In literature, therefore, we may seek a poetic consolation to this impossible quandary in the form of a temporal suspension radically foreign to our actual lived experience – we may, in other words, provisionally realize our impossible desire to escape time.

2.3 THE DIGITAL AS MAIN INTELLECTUAL TECHNOLOGY

Unfortunately, we cannot begin this chapter on digital technology in the same way we have before initiated our discussion on writing, as the laws of symmetry would require, by providing a concise list of a few source texts. The reason for this is that, despite the range of studies carried out on the topic of the digital, there are significantly less research dedicated to specifically contrasting it with the technology of writing. We have therefore decided to adopt a different approach, recruiting different authors as needed. From the previous section, however, we keep Pierre Lévy's *Les technologies de l'intelligence*, a pioneer study in its attempt to investigate the transition from orality to literacy, and from literacy to digital culture, even before the turn of the century.

The uncommon nominalization of "the digital" is here adopted in reference to a technology which extends far beyond the unitary devices of "the computer" or "the cellphone." We base our definition of the digital on the conceptualization provided by Nicholas Negroponte (1995), who understands digital technology to be a particular means to transmit information: if books and newspapers convey their respective messages through an assortment of atoms, the

digital builds itself upon their virtual shadow, the assortment of bits. According to Negroponte, the bit:

> […] has no color, size, or weight, and it can travel at the speed of light. It is the smallest atomic element in the DNA of information. It is a state of being on or off, true or false, up or down, in or out, black or white. For practical purposes we consider a bit to be a 1 or a 0. (NEGROPONTE, 1995, p. 14)

From these tiny building blocks, the main traits of the digital emerge. One of them in particular, the unprecedented *speed* displayed by this new technology, is of special interest to Negroponte (1995, p. 12) and Lévy (1990, p. 42) alike. Since they are not subjected to the physical laws that regulate the transmission of atoms between cities, countries, and continents, digital bits can easily and quickly move from one point to another. Moreover, because they establish their own virtual space in which information is exhibited, immediate access is ensured to anyone, anywhere in the world, who has a connected digital device at hand. The indifference displayed by bits over the notion of spatial distance is precisely what grants the digital its striking speed relative to other informational and intellectual technologies. As Negroponte explains, the massive reach of the digital inherits its scale from the industrial era, but with fewer physical limitations:

> The industrial age, very much an age of atoms, gave us the concept of mass production, with the economies that come from manufacturing with uniform and repetitious methods in any one given space and time. The information age, the age of computers, showed us the same economies of scale, but with less regard for space and time. (NEGROPONTE, 1995, p. 163)

Additionally, bits also grant considerable *plasticity* to the digital. Negroponte (1995) explains how easily bits combine with one another, resulting in the "multimedia" character of this new technology and allowing for the simultaneous treatment of visual and aural data of various types. This is the reason why the digital can accommodate most communication and art forms which have preceded it – a literary work, a film, and a newspaper can all be digitally accessed. At this point, an interesting parallel emerges between digital technology and writing. McLuhan (1962) argues – with, it should be mentioned, the cultural disdain of imperialist anthropological thought – that alphabetic writing, by representing sounds instead of ideas or syllables, reaches such a level of fragmentation and plasticity that it is capable of absorbing other languages/cultures in a process not necessarily commutable:

> [...] any society possessing the alphabet can translate any adjacent cultures into its alphabetic mode. But this is a one-way process. No non-alphabetic

> culture can take over an alphabetic one; because the alphabet cannot be assimilated; it can only liquidate or reduce. (MCLUHAN, 1962, p. 50)

Despite the scientific and anthropologically questionable validity of McLuhan's (1962) position, the parallel remains pertinent in its metaphorical value: in a similar way, the digital also absorbs, with relative ease, other cultural forms that could not in turn absorb its speed and plasticity. This brings us to the final property of the digital to be discussed in this section, that of *interactivity* – a term which, although diluted by its exhaustive use,[27] is perhaps the most often employed and most culturally relevant to describe the particular affordances of the digital. In part because of the speed and plasticity of bits, the new technology allows for an enhanced process of creating, modifying, and remixing all sorts of content. This, together with the many-to-many (MURRAY, 2012, p. 56) decentralized structure of content dissemination proper of digital networks, ensures the remarkable "interactive" difference between the digital and the television, or the digital and the printed book.

At this point, it might be interesting to test the older impressions of Lévy (1990) and Negroponte (1995) against more recent data. A good point of comparison is provided by Elizabeth Marsh and Suparna Rajaram's (2019) research on the mnemonic and cognitive implications of widespread internet use,[28] the results of which were published in an article entitled *The digital expansion of the mind*. In short, the cognitive properties listed by the authors (who, admittedly, had no intention of being exhaustive) to describe the affordances of the Internet appear to still corroborate the validity of theories elaborated thirty years ago. Of the ten properties, summarized below in Table 1, the third and seventh are directly related to the *speed* of the digital; the first, the third and the fourth to its *plasticity*; the sixth, the eighth and the tenth to its *interactivity*.

Table 1 – Ten properties of the Internet that have consequences for memory and cognition

Property	Definition
1. Unlimited scope	Any topic may be addressed
2. Inaccurate content	There is no guarantee information is accurate

[27] For a critical discussion on possible definitions of the term, see Aarseth (1997, p. 47-51).
[28] Although we understand that the internet should not be equated to the totality of the digital, it certainly represents today a significant portion of its artistic, communicative, and social possibilities.

3. Rapidly changing content	Content can be added, deleted, or changed quickly
4. Many distractions and choices	Many pictures, ads, hyperlinks pepper content
5. Very accessible	Does not require tech-savviness; available to many
6. Requires search	Search terms must be input to find information
7. Fast results	Hits are almost instantaneous
8. The ability to author	Anyone can be an author
9. Source information is obscured	Authorship may be hidden
10. Many connections to others	Easy to share and receive information with others

Source: MARSH; RAJARAM, 2019, p. 2

Let us look at how these cognitive properties relate to the temporal properties we have previously associated to preceding technologies, starting with the timeness of primary orality and the timelessness of writing. McLuhan (1962) and Ong (2002) both believed that the new technologies invented in their respective times would be able to reinstate some of the social and cognitive traits conditioned by oral communication. McLuhan designates the oral and auditory emphasis often identified in writing's technological successors as a "secondary orality," and creates the expression "global village" to refer to an integrated world he conceives as being reconducted towards orality by the radio and the television. Both expressions are still found in *Orality and literacy* (ONG, 2002, p. 133), a book first published in the 1980s. Of the three authors addressed in our first section, it is only with Lévy (1990) that McLuhan's beliefs will begin to lose popularity – perhaps in part because of the leading role written verbal language will come to play once again in relation to the personal computer, compared with the dominance of oral language in radio and television.

Still, many contemporary philosophers insist on the apocalyptic reading that new digital technologies are about to be responsible for the collapse of literate humanist thought – as stated by Sloterdijk (2009) in his controversial essay *Rules for the human zoo* – or, more broadly, for

a complete destabilization of social life as we know it, including its temporal aspects – as suggested by Byung-Chul Han (2022) in his recently published *Non-Things*. On our part, we believe no doubt should be fostered on the matter: the timeless thinking inaugurated by writing represents a cognitive change that cannot simply be reversed by subsequent technological advancements. At an individual level, the abstraction afforded by written words enables an irreversible reorganization of how we perceive the world; and, at a social level, the invention of any of the great technologies which have followed writing would have been impossible without it. Having said that, some properties listed by Marsh and Rajaram (2019) might be able to explain the uneasiness of the aforementioned philosophers, especially regarding the digital's communicative tendency to reinstate a marked sense of timeness.

Most strikingly, the combination of "rapidly changing content," related to the speed and plasticity of the digital, with the "many connections to others" allowed by its interactive nature contributes to the creation of virtual spaces capable of being populated by an expressive number of people distributed around the globe – but who can still share the same moment and context of communication. A pertinent example can be found in any popular social media, such as Instagram or YouTube, or in the chat box features provided by Twitch, Discord or Google Meet. The first two cases present users with "multimedia" content which, although capable of being somewhat permanently recorded, is still quickly lost in the avalanche of flowing content incentivized by the business model of these platforms. Criteria of novelty, popularity, virality, relation to other content liked by the same user etc., are all employed to algorithmically determine what is prioritized and what is abandoned to oblivion. The three last cases, on the other hand, present a context of communication which is usually determined by an external event of timely occurrence (such as a livestream on Twitch, a gameplay session on Discord, or a class being thought via Google Meet), so that written messages, even if they are recorded for further consultation, are so contextually determined they might become irrelevant or incomprehensible to anyone who has not shared the synchronous moment of oral and/or audiovisual exchange.

As for the temporal emphases favored by orality (past subordinated to present) and writing (present subordinated to past), they are also drastically altered in the digital regime. The new configuration of temporal perception becomes that of a *present* which is constantly directed towards its immediate *future* – which could at least partially explain the general cultural impression of a return to orality on the basis of the once again central emphasis placed on the

present time. This transition can be demonstrated via the discussion undertaken by Lévy (1990) regarding 1) the contrast in different forms of information storage developed in the regimes of writing and of the digital; and 2) the paradigmatic knowledge structures conditioned by each of these technologies.

Lévy (1990, p. 129-131) points out that writing and its appendages – books, libraries, archives – are mainly concerned with the accumulation and conservation of knowledge, whereas the digital and its appendages – databases, expert systems – can hardly be thought of as responding to the same concerns. Databases, for instance, serve the function of "mirrors" more than of "memories" by providing an image of the current state of a particular market or area of knowledge. Moreover, they are kept not for the benefit of the general public, but to be selectively accessed by experts seeking specific information amidst the potentially infinite storage of digital files. In the same vein, the so-called "expert systems" mentioned by Lévy (1990) – advanced databases capable of drawing conclusions from the information they store – aim not at the conservation of knowledge, but at its constant evolution, which leads to these systems existing only in their most up-to-date format, with no record kept of previous states.

An unprecedented configuration of knowledge production which emerges from the informational affordances of the digital is that of knowledge by way of simulation (*connaissance par simulation*) – which, according to Lévy (1990, p. 137-140), offers an alternative to the paradigm of Theory previously consolidated by the technology of writing. If theoretical knowledge (*connaissance théorique*) operates under the principles of searching for the Truth and critically evaluating past theories, thus keeping itself in constant dialogue with the tradition solidified by previous texts, knowledge by simulation operates under the principles of effectiveness and pertinence in relation to a specific objective, and can therefore only be evaluated with regards to how well it fulfils that objective. A simulation, by definition, does not present a copy of reality, but rather a model deliberately created from selected variables of that reality – what Zeigler, Muzy and Kofman (2019, p. 29) call the "experimental framework," the frame from which the authors of a simulation decide to simplify the world.[29] Therefore, if theory prioritizes the re-reading and re-interpreting of the past, seeking to justify a knowledge that is

[29] In the authors' words: "An experimental frame is a specification of the conditions under which the system is observed or experimented with. As such an experimental frame is the operational formulation of the objectives that motivate a modeling and simulation project. For example, out of the multitude of variables that relate to a forest, the set lightning, rain, wind, smoke represents one particular choice. Such an experimental frame is motivated by the interest in modeling the way lightning ignites a forest fire." (ZEIGLER; MUZY; KOFMAN, 2019, p. 29)

both timeless and completely independent of any context other than the one it creates for itself, this new simulative model of knowledge production is necessarily contextualized by the objective to which it responds, and is constantly directed to the future by the expectation of its fulfillment. In short, theory separates itself from the world and finds its own self-contained justification; simulation, on the other hand, always relates back to the conditions of its own production (the experimental frame) and is validated by the idea of the imminent satisfaction of its guiding purpose.

Lévy (1990, p. 140) argues that simulation, partly as a result of its procedural and operational structure, mirrors the process of trial and error, or of mental bricolage, which precedes any rational exposure and effective communication of knowledge – a stark difference with the model provided by the institution of Theory, which tends to present knowledge in an organized and persuasive manner. Following this line of argument, the modes of information storage provided by writing could be conceptualized as extensions[30] of memory, whereas the digital seems to be a tool capable of extending more dynamic mental processes, such as imagination itself (LÉVY, 1990, p. 141-142). This same subject is addressed in a recent paper from Benjamin Storm (2019) in response to the already cited *The digital expansion of the mind*, by Marsh and Rajaram (2019). Considering the new cognitive and mnemonic affordances conditioned by the Internet (see Table 1), Storm (2019) proposes that, in our current technological environment, it may be more useful to conceptualize the global operations of the human mnemonic system as a balance between *internal systems* – the traditional biological systems conditioned by the brain – and *external systems* – accessory systems conditioned, for example, by digital technologies. In this way, memory and cognition should expand to include things we may not know right now, but could come to know with the help of a quick browsing on a search engine, directed by our personal goals and needs:

> In the everyday use of memory, therefore, as online information becomes increasingly available and easy to access, and as more of what we know involves a confluence of information stored internally and externally, perhaps the line between what is in the head versus not in the head becomes a little less consequential. [...] If someone can use a search engine to retrieve information, and they can do so quickly and easily, and for a goal-directed purpose, perhaps it makes sense to say that such information is in the person's extended memory system – a system that encompass not only information in

[30] The term is employed here in a McLuhian sense to mean the externalizations and enhancements, by technological means, of human beings' innate capabilities.

> the brain but information potentially accessible online and via other transactive memory partners. (STORM, 2019, p. 29)

It should be noticed that the proposition of an "extended memory system" becomes viable not via the static technologies of writing and the printed book, but rather via the procedurally inclined technology of the digital. In this way, the digital expansion (or extension) of the mind not only allows us to record more content – as a way of increasing the storage capacity of the human brain – but, more crucially, it also allows us to prolong the dynamic process of archival and recovery of information as applied to specific objectives. Once again, human relationship with knowledge production, storage, and dissemination under this new technology appears to be directed by a utilitarian principle, which points present time in the direction of its next imminent update, or its immediate future.

We have previously called attention to the way digital technology re-establishes orality's timeness regarding communication, while maintaining the cognitive timelessness associated with writing. If we were to venture into a defense of a digital timeness that could also be extended to the realm of cognition, the most promising argument would probably be found at this point in our discussion. The utilitarian bias enforced by digital technologies in the production of knowledge could be said to somewhat mirror the situational thinking conditioned by oral communication; consequently, the pragmatic conditions dictating the interests of everyday life – the tools and log unified by the context of "woodwork" – are once again brought to the fore.

To conclude, our preceding observations regarding the social and cognitive affordances of the digital seem to configure a novel temporal relation among this technology, the people who use it and their social and individual understanding of time. Firstly, however irreversible the cognitive timelessness inaugurated by writing may be, the digital seems to re-establish, at least regarding communication, a relative timeness previously associated with oral communication, as summarized by Pierre Lévy (1990, p. 142, our translation):[31] "Knowledge by way of simulation and interconnection in real time value the opportune moment, the occasion, the relative circumstances, as opposed to the molar sense of history or the truth dissociated from time and place, which were perhaps just effects of writing." Secondly, the digital tends to shift the temporal emphasis of writing (of the present as subordinate to and

[31] "La connaissance par simulation et l'interconnexion en temps réel valorisent le moment opportun, l'occasion, les circonstances relatives, opposées au sens molaire de l'histoire ou à la vérité hors temps et hors lieu, qui n'étaient peut-être que des effets d'écriture."

generated by the past) into a new configuration in which the present once again assumes a central position, being now mainly directed towards its immediate future. Consequently, the temporal regime conditioned by the digital can be described as that of a real time, or a *punctual time*:[32]

> The notion of real time, invented by computer scientists, summarizes the main trait, the spirit of computer science: condensation on the present, on the operation in progress. The operational type of knowledge provided by computer science is in real time. In this way, it would be opposed to hermeneutical and theoretical styles. By analogy with the circular time of primary orality and the linear time of historical societies, we could speak of some sort of chronological implosion, of a *punctual* time established by computer networks. (LÉVY, 1990, p. 130-131, our translation)[33]

It is, therefore, in the context of this new regime of punctuality that a new art form, native to digital technology, will emerge to represent time via its own specific resources and limitations. Having traced the historical and technological path leading from primary orality to writing, and from writing to the digital, we are now left with the task of examining the art of videogames from a techno-aesthetic point of view, just as we have previously done with the art of literature. As a means of concluding our present section, we provide a concise table (Table 2) contrasting the temporal properties associated with each of the three major intellectual technologies we have chosen to investigate.

Table 2 – Comparing the temporal properties of the intellectual technologies of primary orality, writing, and the digital

Primary orality	**Writing**	**Digital**
Timeness	Timelessness	Relative timeness
Present supported by past	Past leading to present	Present directed to future
Circular time	Linear time	Punctual time

Source: the author

[32] In the course of this master's thesis, we have opted to prioritize the more precise terminology of "punctual time" over the more general "real time."

[33] "La notion de temps réel, inventée par les informaticiens, résume bien la pointe vive, l'esprit de l'informatique: la condensation sur le présent, sur l'opération en cours. La connaissance de type opérationnel portée par l'informatique est en temps réel. Elle s'opposerait en cela aux styles herméneutiques et théoriques. Par analogie avec le temps circulaire de l'oralité primaire et le temps linéaire des sociétés historiques, on pourrait parler d'une sorte d'implosion chronologique, d'un temps ponctuel instauré par les réseaux informatiques."

2.4 VIDEOGAMES AS THE ART OF THE DIGITAL

It seems appropriate to start this section by isolating the main trait that separates the art of videogames from the majority of preceding art forms, and which is made possible by the combined speed, plasticity and interactivity afforded by the digital. Alexander Galloway (2006, p. 2) has previously identified this trait by stating that, if photographs are composed of static images and films of moving images, then videogames could be thought of as being composed by actions.[34] Therefore, effective actions[35] carried out both by the player and by the computing machines hosting/mediating the artwork are the basic unit of composition of the art of videogames. This affirmation may give way to a controversy related to the passive nature of artistic reception: after all, if we maintain that the difference between videogames and other art forms is that the former are made of actions, we would necessarily be implying that reception processes prompted by other types of artworks do not involve any meaningful action.

Although we agree with the general proposal, popularized in literary studies by reader response theories, that the meaning-making processes involved in artistic interpretation are active efforts on the part of recipients and should be acknowledged as an integral element of artworks, we will argue for a distinction in the nature of the two types of actions being considered here. Nearing the turn of the century, Espen Aarseth's (1997) famous *Cybertext: perspectives on ergodic literature* attempted to theorize the difference between ordinary texts, hypertexts, and cybertexts by identifying different types of "user functions" (AARSETH, 1997, p. 64). The most pervasive function, common to all textual and artistic manifestations, is the interpretive one, to which other functions can be added. The explorative function allows users (or readers) to choose between different predefined paths in the textual materiality, and its presence is what defines the class of "hypertexts." Additionally, the configurative and textonic

[34] Of traditional art forms, the one most easily compared to games in this regard would be that of theater – which, nevertheless, rarely includes the need for spectatorial action in its composition, and may even dispense with the need for actors' real actions if taken, as is often the case in literary studies, solely through the verbal materiality of the dramatic text.

[35] We understand "effective" action in opposition to "fictional" action. Only the presence of the former could be said to differentiate the art of videogames, since the latter is clearly part of the plot of any narrative.

functions respectively allow users to change the superficial structure or the deep structure of textual signs,[36] and the presence of any of them is what defines the class of "cybertexts."

Aarseth's (1997) typology demonstrates that it is possible to conceptualize a difference between actions that are interpretive in nature and actions which fundamentally affect the material configuration of a work without necessarily equating interpretation to passivity. However, since interpretation is a function endemic to all artistic and communicative phenomena, it is not distinctive enough to account for the "interactivity" debate which arises in digital environments. Moreover, the diverging compositional consequences entailed by each type of user "action" must also be recognized: whereas interpretation allows for a re-organization of elements at the level of meaning, other functions allow for an observable re-organization of the semiotic materiality of the artwork.

Having clarified our argument, we can now restate our initial point: what distinguishes the art of videogames from other art forms is its poetic structuration around actions capable of modifying the semiotic representation of artworks. To cite Galloway (2006, p. 5) once more, these actions may come from two places: they can be executed by operators, or they can be executed by the software-hardware combination of the computing machine hosting the game. This (re)active dance which takes place between human and machine is what guarantees the dialogical movement responsible for implementing the constitutive "interactivity" of that which we culturally take to be "digital objects." It is with this configuration in mind that Janet Murray (1997, p. 126) develops the aesthetic concept of "agency" to designate the "satisfying power to take meaningful action and see the results of our decisions and choices," which she takes to be a fundamental property of the digital. Murray (1997) distinguishes agency from the broader concept of "interactivity" by positing that agency derives from the specific responses a digital work is able to provide to the intentional inputs of its operator, establishing a clear causal relationship. In other words, we experience agency whenever we plan to influence the state of the digital object in a certain way and manage to do so by deliberately employing our power to act. As would be expected, the temporal poetics and aesthetics of the art of videogames is also deeply influenced by the property of agency. In fact, as our fourth chapter will be able to demonstrate, previous research which has analyzed the category of time in videogames –

[36] To understand the difference between these two functions, it is necessary to understand the distinction made by Aarseth (1997) between *scriptons* and *textons*, or, in the author's own words, between "strings [of signs] as they appear to readers and strings [of signs] as they exist in the text" (AARSETH, 1997, p. 62). The configurative function refers to the manipulation of scriptons and the textonic funtion to the manipulation of textons. A more detailed explanation of the theory can be found in Aarseth (1997, p. 60-65).

sometimes drawing explicit parallels with literary theory – has identified the possibility of temporal control associated with player agency as a peculiar manifestation of the temporal poetics of videogames.

In this regard, the semantic association so easily established between "agency" and "control" may be worthy of attention. Bill Nichols (1988), in a text not specifically concerned with videogames, but more broadly with the many cultural changes motivated by the genesis of cybernetic systems, argues that simulations – previously discussed as a paradigm of knowledge production in the digital regime – are associated with a new sociocultural form of desire. Nichols (1988) argues that the previous fetish for possession motivated by the masculine gaze of the cinematic camera is displaced in favor of a different fetish, albeit also of masculine nature, related to the possibility of exerting control over a finite and dynamic system of rules: "The desire to exercise a sense of control over a complex but predefined logical universe replaces the desire to view the image of an Other over which the viewer can imagine himself to have a measure of control" (NICHOLS, 1988, p. 32). This becomes especially relevant to our discussion when we understand simulations to be, in addition to a new model of knowledge production, also an emblematic structure for the poetics of videogames. Game developer and researcher Gonzalo Frasca (2003) has defended the position that, just as the process of representation is at the base of every narrative, the process of simulation should be considered to be at the base of every videogame.

In order to provide an early example[37] of how temporal control is articulated in videogames, we can turn to the temporal duality of literature and its related phenomena of order, duration, and frequency identified by Genette (1980). It is notable that the option for theorizing temporal poetics as two parallel planes of existence has also found resonance in the study of videogames. Jesper Juul (2004) becomes a pioneer in the temporal analysis of videogames by establishing a distinction between "play time (the time the player takes to play) and event time (the time taken in the game world)"[38] – a division that, although extensively criticized and revised by other researchers in the following years, has remained popular for its simplicity. The similarity between both twofold structures leads us to the assumption that the variations of

[37] This is a preliminary incursion into a subject which will be more fully developed in following chapters of the present thesis.
[38] Later revised by the author to "play time" and "fictional time" for the publication of *Half-real: video games between real rules and fictional worlds* (JUUL, 2005).

order, duration, and frequency may find analogous parallels in the art of videogames – being, however, conditioned by the agency/control inscribed in the category of "play time."

Regarding the order of events in a story, two poetical structures often utilized in the art of videogames are those in which the player is given the possibility to choose which narrative events to experience first – as with the side quests of any RPG – and which events to experience in place of others – such as in videogames structured around narrative branches. For temporal duration, it is common to find cases in which the player is able to speed up or slow down their own access to fictional time, as in the urban planning and management series inaugurated by *SimCity* (MAXIS, 1989). In relation to frequency, the example of the time loop triggered by the untimely death of an avatar causes players to repeat the same situations and actions until a successful performance is achieved. This temporal phenomenon of repetition has even been integrated into the fictional world and themes of many games – as is the case with the classic *Prince of Persia: the sands of time* (UBISOFT MONTREAL, 2003) or the more recent *Twelve minutes* (ANTONIO, 2021).

Examples such as these illustrate how player agency shapes the elaboration of videogame time in a very particular way, by incentivizing a poetics of temporal control. Moreover, this poetics seems to be surprisingly compatible with previous theoretical frameworks created by structuralist narratology and aimed at the art of literature. Having established this superficial compatibility, we can more properly investigate the deep correspondences among the treatment of time in the arts of literature and of videogames, as well as focus on what new elements are introduced by the latter. This will be the general objective of our analytical chapters. However, to conclude this section about preliminary considerations on videogame time, it is also worth mentioning the aesthetic structure of *aporia* and *epiphany* highlighted by Espen Aarseth (1999) as a fundamental temporal aspect of what the author calls "ergodic art." For Aarseth:

> The word 'ergodic' is appropriated from physics, and it is constituted by the two Greek words *Ergos*, 'work,' and *Hodos*, 'path or road,' and in this context it is used to describe a type of discourse whose signs emerge as a path produced by a non-trivial element of work. (AARSETH, 1999, p. 32)

Through the notion of ergodicity, Aarseth (1999) conceptualizes the power held by the recipient over the material representation of a given artwork in the context of digital environments – similar, maybe, to the composition through units of actions previously highlighted by Galloway, or the concept of "agency" put forth by Murray. However, whereas

Janet Murray (1997) attempts to reconcile this new phenomenon with more traditional narrative configurations, Espen Aarseth (1999) seeks to completely dissociate them at a conceptual level, postulating ergodicity as a distinct mode of discourse capable of existing alongside the narrative mode without, however, being confused with it. The author believes that, because ergodic discourse and the art forms derived from it represent an alternative to narrative discourse, they are also capable of configuring different arrangements for the representation of time (AARSETH, 1999, p. 32). One of them, proposed by Aarseth in the cited chapter, is the aesthetic structure of aporia and epiphany, easily identified in puzzle games and characterized by the imposition of a "roadblock" and the sudden awareness of its resolution:

> In narratives, aporias are usually informal structures, semantic gaps that hinder the interpretation of the work. In ergodic works such as *Doom*, the aporias are formal figures, localizable "roadblocks" that must be overcome by some unknown combination of actions.
>
> When an aporia is overcome, it is replaced by an epiphany: a sudden, often unexpected solution to the impasse in the event space. Compared to the epiphanies of narrative texts, the ergodic epiphanies are not optional, something to enhance the aesthetic experience, but essential to the exploration of the event space. Without them, the rest of the work cannot be realized. (AARSETH, 1999, p. 38)

By limiting and determining the very rhythm of a recipient's progression through the artwork, this aesthetic structure indicates a temporal configuration which we have previously discussed under a different, more technological, perspective: Lévy's (1990) "punctual time" as the paradigmatic temporal relation conditioned by the digital. Aporia imposes its urgency by preventing player progression and directs player attention/expectation towards the immediate future in the form of the search for a solution. When the solution makes itself present as epiphany, it is sudden and evanescent; the clearance of the path previously blocked discharges the emotional tension accumulated by the recipient, and immediately redirects them towards the next obstacle – which, in turn, will result in a new epiphany, and so on.

Aarseth's (1999) structure of aporia and epiphany remains relevant even outside the most pertinent example of puzzle games. Simulations, which have been highlighted by Frasca (2003) as the underlying structure of videogames, also tend to guide user attention towards the immediate future by affording direct user manipulation and presenting constant, dynamic updates. Even in cases where the user of a simulation is not conducted by specific objectives determined by the rules of a game, intervention is still generally driven by curiosity about possible developments of the simulated system. This temporal bias towards the immediate future can also be found at the heart of the aesthetic phenomenon of agency, since it is based

on a user's capacity to make predictions and influence the changes of state in a simulated system in accordance with the causal relations triggered by their actions.

To summarize: regarding the poetics of time, videogames, in line with the new technological configurations afforded by the digital, open an unprecedented possibility of exercising control over the compositional dimensions of order, duration, and frequency. Moreover, this art form seems to prioritize a temporal representation which mirrors the new punctuality of lived time conditioned by digital technology – focused on the present and its immediate future developments. Having established our preliminary conclusions, we can proceed to a general balance of the techno-artistic considerations undertaken throughout this chapter.

2.5 FINAL REMARKS ON MEDIATED TIME

If writing encourages a conception of time as linear (prioritizing the past in its relationship with the present), the digital encourages a conception of time as punctual (prioritizing the present in its relationship with the future). Literature, informed by the former technological context, seems to favor the subjective experience of lived time – which is superseded by the objectivity of world time in the technological regime of printed writing – and the compensation of a personal as well as social desire to aesthetically imagine, elaborate and speculate on the radically foreign experience of timelessness. Videogames, on the other hand, seem to favor the compensation of a desire to control time – for example, through the modification of the past or the testing of multiple future developments derived from all possibilities contained in the present moment. Moreover, a preliminary analysis of their temporal poetics seems to indicate a certain predisposition of videogames to echo in their composition the "punctual time" characteristic of digital technology – representing and duplicating it through recourse to player agency, simulation, and the aesthetic structure of aporia and epiphany.

We are now left with the task of attempting to more broadly interpret the conclusions allowed by our historical and techno-artistic review. We have, after all, previously set ourselves to answer a twofold question: what changes from one techno-artistic regime to the other, *and*

what can these changes mean? Our search for an answer brings us back to Wolfgang Iser's (1978) *The act of reading*, in which the author makes an interesting proposal regarding the social function of art in general and literature in particular. The author believes that literature – being one among many systems of meaning that govern the social, political, and cultural beliefs of a given time – tends to respond to other social systems in that which they prove to be more deficient. In this manner, fiction, often considered the "opposite" of reality, establishes with "real" systems of meaning not a relationship of opposition, but of complementation:

> […] literature answers the questions arising out of the system. Through it, we can reconstruct whatever was concealed or ignored by the philosophy or ideology of the day, precisely because these neutralized or negated aspects of reality form the focal point of the literary work. At the same time, the text must also implicitly contain the basic framework of the system, as this is what causes the problems that literature is to react to. In other words, the literary work implicitly draws an outline of the prevailing system by explicitly shading the areas all around that system. (ISER, 1978, p. 73)

It is important to note, however, that this fictional complementation of reality can be articulated for both revolutionary and reactionary purposes. Broadly speaking, art can serve to attenuate the deficits of other sociopolitical systems and appease any dissatisfactions that may arise from them; or, on the contrary, it can name, identify, and ostensibly draw attention to such deficits, encouraging awareness and igniting dissatisfaction: "[…] in both cases literature takes on its function through the weakness of the prevailing system – either to break it down or shore it up" (ISER, 1978, p. 78).

Iser (1978) proposes a framing through which the previously mentioned poetic traits of literature and of videogames can be now reassessed. At first glance, literature may seem to show a more rebellious disposition towards the temporal systems of meaning built over the social, political, cultural, economic, and technological conditions of the time which saw its highest point in popularity, while videogames seem, on the contrary, more prone to harmonically integrate said systems into their poetics. From this viewpoint, it would be easy to conclude that such difference arises from the fact that literature belongs to the realm of real art and high culture, and would thus carry within its very form and substance the critical potential of elevating the soul and emancipating thought. Videogames, on the other hand, would be complacent to social structures because they ultimately belong to the realm of mass entertainment, and consequently fulfill the function of maintaining dominant ideology by protecting it from any type of social insurgence.

These conclusions, naturally, do not hold up under the weight of scrutiny. One immediate rebuttal would be that literature is not an art form of consistent inclination for the critical emancipation of its readers. Iser (1978) himself calls attention to this matter by illustrating both the inflammatory and conciliatory functions of art with examples taken from literature. Moreover, classifying the emancipatory potential of a work of art is a complex task which requires a measured consideration of the many extraliterary aspects composing the social context in which it is created, received, and politically evoked. Finally, it is questionable whether it would be fair to compare the many centuries of development both of literary art and its field of study with the significantly shorter life span of videogames and game studies as an academic discipline.

With these refutations in mind, it might be productive to consider the possibility that videogame's tendency to mimic the structure of punctual time and to fictionally elaborate the possibilities of temporal control may come from a certain psychological and/or social need to process, interpret, and comprehend the abrupt changes, both individual and collective, inaugurated by digital technology. Maybe not coincidentally, Benedito Nunes (2013, p. 49) highlights that the predominant temporal configuration in nineteenth century novels was that of chronological time – in alignment with the prevalent socio-cognitive conception of "linear time" –, before being decidedly subverted by the chaotic representation of temporal subjectivity preferred by twentieth century literary modernism. This should remind us that art may also serve the function of elucidating the workings of social systems of meaning still in the process of stabilization and maturation.

Also important is to consider that our preliminary investigation on the temporal poetics of videogames, based on the foundational yet somewhat dated contributions of Murray (1997) and Aarseth (1999), does not paint a complete picture of the current state of videogame research and development. Our primary concern in the present thesis is, after all, to provide an in-depth investigation of this very subject – and our work has only begun. In view of the intriguing poetic, technological, and social entanglement that emerges at the intersection of videogames, literature, and time, we pose the following question as a general guide to the remainder of our investigation: *how is it that, through videogames, we are able to represent, (re)interpret, (re)invent, and respond to our present-day temporal experience?* To this end, we have determined the following specific objectives: 1) to theorize time in videogames based on contributions bequeathed both by narratology and game studies; and 2) to elaborate with greater

precision the temporal poetics of videogames, as well as the aesthetic effects derived from it, through the analysis of contemporary examples. At the end of our investigation, we will be able to return once again to the enigma of temporal poetics in the art of videogames, hoping to then be better equipped to contribute to its solution.

3 CONCEPTUAL CLARIFICATIONS

This chapter is dedicated to the clarification of two main concepts central to our investigation, but which may suffer either from a lack of specification or from the ambiguity generated by the multiple perspectives that have accumulated around them over the years. These are the concepts of "narrative" and "videogame", which have been in constant interaction, with varying degrees of friction, ever since the inception of game studies as a discipline. In a conflict that we believe is well represented by the antithetical and complementary essays of Murray (2004) and Aarseth (2004), published in the same journal, the enlistment of narratology in aid of the study of games has been categorically opposed by some researchers (self-denominated "ludologists") who defended both the inadequacy of the previous discipline to explain the phenomenon of videogames and its propensity to colonize the new object/field of research, effectively suffocating any academic development aimed at approaching it organically. As one might expect, this initial wariness eventually gave way to a much less apocalyptic scenario, one in which narrative theories were extensively adapted to serve game studies without being able to monopolize the development of the field. Despite the decades that separate us from the historical moment when the *narratology vs. ludology* debate was most relevant, it may still be useful to unravel possible confusions regarding the two concepts of "narrative" and "videogame" as to specify how each of them will be understood in the course of our work. This conceptual journey will also lead us to discuss some adjacent terms, such as fiction, medium, and game. To provide a summary: this chapter will review the main controversies that inform the academic understanding of the terms in question; provide brief, non-exhaustive, and circumstantial definitions that will aid the further development of our investigation; and explain our choice to think the cultural genre of videogames as an art form, rather than a medium.

3.1 WHAT ARE "NARRATIVES"?

It would be impossible to ignore that the roots of narratology, as a formalized academic discipline, are firmly grounded in written verbal language and literary artworks. Wolf Schmid (2010, p. 1-5) and Marie-Laure Ryan (2005, p. 1) have both called attention to the fact that the

initial academic project of structuralist narratology, established through authors like Todorov and Bremond, did not impose on the discipline any constraints related to semiotic system or mode of representation. Narrative, in their view, was instead defined by the structure of its content, being in natural opposition to descriptive discourse. However, the long tradition of literary criticism which preceded structuralist narratology exerted undeniable influence over its academic development. Genette (1980, p. 25-32), for instance, opens one of his most famous books by discussing three different vernacular senses for the word "narrative" (*récit*), finally settling on "narrative discourse" (i.e. the oral or written sentences that give verbal form to an event or series of events) as its most appropriate meaning.

Although Genette is a bit exceptional in his overt defense of an exclusively verbal definition of "narrative" (PRINCE, 2003, p. 58; CHATMAN, 1990, p. 109-110), we shall see that even more flexible narratologists of his time also implicitly adhere to verbal communication and literature as prototypical situations of narrative. Even Todorov (1971), who has made the effort of trying to define narrative by the common properties of its content structure and not by its mode of representation, can be found in a previous text referring to narrative discourse as the "actual speech spoken by the narrator to the reader"[1] (TODOROV, 1966, p. 138, our translation). Similarly, one edition of Gerald Prince's (2003)[2] famous *A dictionary of narratology*, even though it concedes to the discipline the task of studying narrative nature, form and function "regardless of medium of representation" (PRINCE, 2003, p. 66), still insists on defining narrative as the "representation (as product and process, object and act, structure and structuration) of one or more real or fictive EVENTS communicated by one, two, or several (more or less overt) NARRATORS to one, two, or several (more or less overt) NARRATEES" (PRINCE, 2003, p. 58). Even in as recent a work as *Narratology: an introduction*, Schmid (2010, p. 2-7) posits the existence of a broader and a narrower conception of narrative – the former pertaining to representations that merely address changes of state, the latter to works that also represent the mediating authority of the act of telling, i.e. the narrator. Schmid ultimately legitimizes the second option as the stronger, proper conception of narrative by adopting as his frame of reference only "literary texts that present a story and thereby represent, more or less explicitly, the mediating authority of a narrator" (SCHMID, 2010, p. 7).

[1] "parole réelle adressée par le narrateur au lecteur"
[2] First published in 1987.

The problem shared by all three aforementioned approaches is that the confinement of narrative to the communicative borders enclosed between narrator and narratee seems to render inevitable a close association with verbal language – so much so that Seymour Chatman (1978, p. 146-151), when trying to adapt structuralist literary narratology to film studies, had to posit the "implied author" as a more appropriate obligatory surrogate figure for an authorial creative force. In Chatman's extremely influential communicative model of narrative, the telling-figure of the "narrator" becomes an optional participant in narrative exchange. More recently, Jan-Noël Thon (2016), by trying to theorize the narrator as a transmedial concept, comes to the conclusion that this telling-figure is most useful to narrative studies when limited to a verbal existence:

> […] I have proposed to understand narrators as narrating characters to whom recipients may attribute the kind of narratorial representation that prototypically takes the form of verbal narration. This narratorial representation can be distinguished from non-narratorial representation that prototypically takes the form of audiovisual representation in films, verbal-pictorial representation in comics, or interactive representation in video games, and that will usually not be attributed to narrators but rather to hypothetical authors or hypothetical author collectives. (THON, 2016, p. 165)

In summary, to reduce narrative to a communicative process established between a teller and a listener/reader is to essentially limit its mode of representation to verbal language. Given this verbal precedent so often favored, implicitly or explicitly, by prominent narratologists, it should come as no surprise that, many years after the discipline's first structuralist developments, a few researchers interested in segregating narrative from the study of games would resort to this argument as a means to prove their point of view. For example, Markku Eskelinen (2001b, p. 176), in a paper that will be thoroughly discussed in a later chapter, has posited that, since most videogames lack communication between a narrator and a narratee, they could not possibly be considered narrative instances. If, however, we are to believe – as have Todorov, Bremond and other literary scholars – that narrative is a phenomenon independent of any specific material representation, then theater plays, films and videogames should by no means be considered, on principle, incompatible with it. Thus, let us now turn an analytical eye to some definitions of narrative that attempt to locate its core significance somewhere beyond the narrator-narratee paradigm. Starting with Todorov (1971) and Ricoeur

(1984), we shall slowly make our way into more current research endeavors carried out in the fields of cognitive and transmedial narratology.[3]

It should be outright recognized that early definitions of narrative not centered on verbal communication seem to dedicate a significant conceptual role to the notions of time and change – the latter being incapable of existing without the former. In *The 2 principles of narrative*, Todorov (1971) identified *succession* and *transformation* as the two core properties that make a text narrative. In accordance with the previously mentioned distinction between narrative and description, Todorov begins by establishing that descriptive passages are "not sufficient for narrative, which requires the development of an action, i.e. change, difference." (TODOROV, 1971, p. 38). As such, the chronological and oftentimes causal concatenation of events over a temporal line is identified as narrative's basic structure. Additionally, narrative units or functions – taken by Todorov in a Proppian sense (PROPP, 1958) –, can also be connected to one another through negation, inversion, repetition (with some degree of inevitable alteration), interdiction, actualization of intentions etc. – in other words, through relations of *transformation* which establish associations between events on a different plane beyond that of strict sequential ordering and causal logic.

Nevertheless, for the purposes of our research, it should be emphasized that both narrative principles of succession and transformation ultimately work together to configure narrative temporality as a whole, the relations between them responsible for construing different possible refigurations of our phenomenological experience of time – as argued by Ricoeur (1984), to whom we may turn shortly. Finally, Todorov (1971) concludes by remarking that his considerations with regards to literary narrative should also be extended to other symbolic systems – to the point of stating that, at his time of writing, society's main providers of narratives were no longer writers, but filmmakers. The last sentence is dedicated to the assertion that such medium-unspecific theorizations should "pertain less to poetics than to a discipline

[3] Both cognitive and transmedial narratology could be considered subdomains of narratology in its "postclassical" stage (see footnote 4). In this thesis, we take Marie-Laure Ryan (2004, 2005, 2007, 2016) to be the most prominent researcher of the latter and David Herman (2007, 2009, 2013) of the former, although both authors have also written extensively outside these subdomains. Herman (2013) identifies Manfred Jahn (1997) to be the first proponent of the term "cognitive narratology" and, even though a clear inaugural text seems harder to identify in the case of transmedial narratology, the book *Narrative across media: the languages of storytelling*, edited by Marie-Laure Ryan (2004) with contributions from many important authors, seems to mark an important historical turning point in the field.

which seems to me to have a solid claim to the right of existence, and which could be called *narratology*." (TODOROV, 1971, p. 44)

Another time-centered approach to narrative can be found in the many volumes of *Time and narrative*. Ricoeur (1984, p. 36) comes closest to a definition of narrative in the second chapter of his first volume, dedicated to discussing the Aristotelian concept of emplotment. The author's approach, although exclusively based on written works of literary fiction and historiography, takes a surprisingly transmedial turn when Aristotle's concept of *mimesis* – the process of representation, the act of creative artistic composition – is equated by Ricoeur (1984, p. 32-42) to that of *muthos* – the emplotment, the organization of events into a system. In other words, where the process of representation meets the organizing of events into a system – there is where narrative is to be found. Nevertheless, if muthos is the subject, the "what" of mimetic activity, it can still be realized in different modes, pertaining to its "how": for Aristotle, the author of an artwork can either take the role of a mediating narrator (as in the epic mode) or make characters speak for themselves (as in the dramatic mode). For Ricoeur (1984), however, since narrativity is basically defined by the "what" of its mimetic structure – a point his theory shares with current postclassical narratology, as we shall see –, both epic and drama can equally be considered narrative forms.

Another aspect of Ricoeur's (1984, p. 52-87) theory which will later be echoed by postclassical branches of narratology is the segmentation made by the author of the concept of mimesis into the three separate stages of $mimesis_1$ (prefiguration), $mimesis_2$ (configuration) and $mimesis_3$ (refiguration). Raphael Baroni and Adrien Paschoud (2021), in an article dedicated to establishing Ricoeur's *Time and narrative* as a forgotten link between the "narrative turn" and the development of postclassical narratology,[4] have eloquently summarized the matter by stating that this threefold model "sheds light on a possible articulation between cognitive models, the study of narrative structures, and the way the reading activity can reshape the experience of the audience" (BARONI; PASCHOUD, 2021, p. 334). By defining narrative as

[4] The "narrative turn" was a period around the 1980s in which multiple disciplinary fields related to the humanities (e.g. psychology, education, social sciences, cognitive sciences) developed an explicit interest in the concept and theory of narrative (HERMAN, 2009, p. 23-25). According to Baroni and Paschoud (2021), this "narrative turn" coincides with a period of theoretical stagnation inside the field of narratology itself. Later, in the 1990s and 2000s, this stagnation would be countered by a movement of theoretical renewal that would come to be known as "postclassical narratology" – a new stage in the history of the discipline concerned with matters such as experientiality and identity; the cognitive, political, and sociocultural implications of narrative; as well as other media and artistic manifestations beyond verbal language and literature (BARONI; PASCHOUD, 2021, p. 330-333; HERMAN, 2009, p. 30-32).

all mimetic activity concerning muthos as its subject matter, and by expanding the concept of mimesis to include, as integral parts of its whole, the creative and receptive processes that both precede and follow artistic representation, Ricoeur (1984) opens narratology's doors to cognitive, sociological, and anthropological questions that transcend the scope of a definition of narrative based solely on its materialization into verbal language. In this sense, both Todorov (1971) and Ricoeur (1984) present us with theoretical conceptualizations of narrative that focus first and foremost on its structuration as a sequencing of events in time following certain principles of artistic composition. The ground is then set to what would later develop into fully fledged cognitive and transmedial approaches to narrative.

As one final addition to our list of time-based conceptualizations of narrative, a much later contribution is made by Meir Sternberg (2001) in the essay *How narrativity makes a difference*, focused on finding possible answers to the question: "What is narrative and what becomes in it of the components shared with other discourse genres?" (STERNBERG, 2001, p. 115). Predictably, Sternberg's argument leads to an intrinsic differentiation between narrative and descriptive discourse, positing that narrative genres can integrate descriptive segments insofar as they serve to drive and enhance narrativity. For Sternberg, the essence of narrative lies somewhere in between the two temporal dimensions unavoidably superimposed in narrative discourse – those of "telling" and of "what is told" – and the temporally conditioned reception process entailed by their relationship:

> […] narrativity lives between the processes uniquely run together by the genre: actional and communicative, told and telling/reading sequence. This interplay between temporalities generates the three universal narrative effects/interests/dynamics of prospection, retrospection, and recognition – suspense, curiosity, and surprise, for short. (STERNBERG, 2001, p. 117)

Narrativity is thus equated, once again, to dynamism, change, and transformation, whereas descriptive phrases and equivalence patterns (STERNBERG, 2001, p. 120) assume the opposite role on the spectrum as static and spatially based forms of discourse. Sternberg's approach to the conceptualization of narrative stands out not only because of its time-centeredness (a trait which is not exclusive to the realm of verbal language), but also because it structures its definition of narrative around temporally conditioned effects – a theoretical strategy that seems to take the core of narrativity away from the textual properties of materialized representation and towards the aesthetic and cognitive responses of its recipients.

A measured consideration of all previously discussed authors seems to point to the conclusion that the category of narrative time enjoyed a special place in early theories attempting to conceptualize narrative beyond verbal language and the narrator-narratee paradigm. Going forward, we shall see that time will continue to play a significant role in theoretical branches of narratology which, beginning in the 1990s, ostensibly took upon themselves the task of reconfiguring the foundations of narratology in order to renew the discipline's scope and relevance in face of a changed technological, artistic and sociocultural background.

The reason why we have up until this point referred to cognitive and transmedial narratology conjointly is because, when it comes to the matter that our present investigation is most interested in – i.e. the definition of narrative –, these two branches of postclassical narratology tend to intersect. In an article called *'Cross the border – close that gap': towards an intermedial narratology*, Werner Wolf (2004), for example, lays the foundations for a transmedial narratological project[5] on the basis of a cognitive reconceptualization of narrative. The main argument underlying this reasoning is that narrative should be defined and identified primarily by its capacity to incite a certain cognitive frame, mode of knowledge and/or pattern of information processing in the minds of recipients. Consequently, any textual manifestation that succeeds in inciting such a frame can reasonably be called a narrative, independent of semiotic system or mode of representation. Wolf's (2004) definition, quite similar to Ricoeur's (1984) approach to mimesis as muthos, posits narrative as a cognitive frame that "mainly pivots on the perception, concatenation and representation of temporal experience, especially actions" (WOLF, 2004, p. 84). His main definition, which combines what the author perceives to be the core properties of narrative, reads as follows:

> A narrative as the concretisation of the corresponding cognitive frame is the representation of (elements of) a possible world that is 'dynamic' owing to a temporal dimension and can be (re-)experienced in the reception process; it comprises different states or events that are centred on the same anthropomorphic being(s) and are related to each other in a potentially meaningful way which includes more than mere chronological sequence. (WOLF, 2004, p. 89)

[5] As would be expected from such an early article in the history of transmedial narratology, terminology is a bit tentative. Wolf (2004) specifically favors the term "intermedial," but "transmedial" also appears in the text to mean a narrower case of intermediality. Nevertheless, "transmedial" will eventually become the more widely adopted option.

Wolf (2004) seems to echo Todorov's (1971) principle of transformation by asserting that narratives should be formed by strings of events which relate to one another in "meaningful" ways beyond mere chronology – hence the need for recurring agents, or "anthropomorphic beings," whose presence guarantees a non-chronological continuum. Additionally, a notable aspect of Wolf's definition is his option for taking narrative to be the "concretization of the corresponding cognitive frame," meaning that, even though his definition is centered on the cognitive frame induced by narrative, it still requires a concrete representational existence. As such, matters of representation and poetics are not incompatible with a narratology grounded on cognitive and transmedial foundations – quite the contrary, in fact, because studying how the particular informs the general, i.e. the processes through which different representations are capable of engendering a single, still identifiable, cognitive frame, should be part of the project of such a narratology (THON, 2016, p. 6).

A notable trend in current narratological research is that it tends to favor a less rigid approach to definition. Recent studies, like the ones analyzed below, seem more interested in devising "prototypical models" which define the properties of ideal, standard instances of narrative – even if none of these properties, by themselves, are capable of accounting for the essence of narrative; and even if actual instances of narrative may not display all selected properties. Some models may establish properties which are more central than others (WOLF, 2004); whereas some models may present a scalar definition of hierarchically fixed properties that cannot be switched or skipped and which, like the steps on a staircase, gradually take us from "less narrative" to "more narrative" cases (RYAN, 2005). Differences aside, all of them share a common concern for "narrativity" instead of narrative proper, meaning that marginal objects can still be meaningfully studied by these narratological approaches.

In summary, the cluster of properties that define narrative pertain not to its textual manifestation, but to the perceived structure of its content; and this cluster can materialize quite variedly and flexibly in any given concrete actualization of "narrative." Our search for a definition, then, becomes a simple matter of establishing the appropriate cluster of properties. Wolf (2004, p. 87-91) offers his readers a long – yet apparently non-exhaustive – list of *narratemes* the presence of which contribute to accentuate the narrativity of a given work. Among the most prominent, which figure in his already cited definition, are: meaningfulness; representationality; experientiality (i.e. imaginative and emotional re-experiencing of fictional events by recipients); anthropomorphic characters; action; happenings; time; space; selection,

combination and presentation of elements in discourse; chronology; causality, teleology (e.g. motivations which drive character action) and tellability (i.e. exceptionality and importance of events recounted). The last three narratemes are not specifically mentioned by the author as core properties of narrative, but could be considered as resources for creating meaningfulness beyond chronology, which itself figures as a core, albeit "potential," narrative property.

Some non-essential narratemes still considered by Wolf to be important for the schematization of a prototypical model are also enumerated: specific temporal and spatial settings, as well as specific (as opposed to general or collective) characters; factuality of events (even in the context of a fictional world); conflict; Aristotelian unity; thematic unity; conscious choice/action made by characters; repetition; suspense (as an aesthetic effect) and aesthetic illusion (related to emotional appeal and persuasion). However, the inexactness of Wolf's (2004) assertions makes it difficult to determine some issues of great importance – namely, 1) to what extent the specificity of characters, as well as of temporal and spatial settings, could in fact be considered accessory properties of a definition of narrative; 2) if meaningfulness is indeed a necessary property, given its adjectivization as "potential"; and, finally, 3) exactly which types of relations beyond chronology would be considered strictly necessary for a definition of narrative (e.g. causality, teleology, tellability and repetition).

After presenting his narratemes, Wolf (2004) decides to test his list against a liminal narrative case, that of single monophase pictures – i.e. individual paintings that depict a single moment in the time-space continuum of a scene. His chosen examples serve to illustrate one benefit of his prototypical-inter/transmedial-cognitive approach, which is that, under this theoretical model, even low narrativity cases can be profitably studied *as narratives* because, whereas their compatibilities help shed light over the essence of narrativity, their incompatibilities may still allow for a better understanding of their nature as non-narrative objects. Despite presenting the narratemes of space, anthropomorphic characters, representationality, experientiality, action and tellability, a painting like Füssli's *King Lear* (Figure 1) cannot be said to present any temporally conditioned narratemes beyond mere suggestion. The lack of explicit relations of chronology, causality, teleology, and repetition appears to threaten narrativity precisely in what could be considered its essence, so much so that "if 'read' under the auspices of the frame narrative, such pictures demand an extraordinary amount of inference and narrativisation on the part of the recipient" (WOLF, 2004, p. 95).

Figure 1 – King Lear Casting Out His Daughter Cordelia (Shakespeare, King Lear, Act 1, Scene 1)

Source: FÜSSLI, 1792

Wolf's treatment of single monophase pictures invites a curious parallel with the art of videogames, because *Tetris* (TETRIS HOLDING, c2022) – one of the most evoked examples of a videogame with no fictional, representational, or narrative inclination – provides an interesting negative to Füssli's *King Lear*. *Tetris*, as most games, excels at presenting changes that develop over time through chronological and causal relationships. It is also extensively built over patterns of repetitive action and its nature as a game provides a clear teleology – player action is, after all, executed *in order to* win or finish a game. It lacks, however, two of the "general" narratemes identified by Wolf (2004, p. 88) at the core of narrativity: a strong sense of representationality (because the colorful blocks could be argued to attest to nothing but their own pixelated existence)[6] and experientiality (because even though the player may be emotionally swayed by the experience of playing *Tetris*, aspects of that emotional experience are not textually represented or indicated). It could also be argued that tellability is missing:

[6] However, it could also be argued that, as is the case with any simulation, *Tetris* is a virtual system whose aim is to represent another (larger) system through a limited selection of its components – for example, the general laws of physics roughly inscribed in the falling and positioning of the blocks. As will become apparent later, this is how we will ultimately choose to understand the fictionality/representationality of videogames.

since games of *Tetris* always respond to the same set of rules and can be replayed *ad infinitum*, it would be difficult to argued for the exceptionality of events portrayed in any single one of them.[7] Therefore, works like Füssli's *King Lear* and *Tetris* seem to present enough narratemes to justify a narratological reading, but not enough to lead to their indisputable classification as "narratives."

Given the self-admitted open-endedness of Wolf's (2004, p. 87) list of narratemes, it may be beneficial to measure it against other (preferably narrower) theoretical propositions. Another prototypical model has been devised by Ryan (2007) in the text *Towards a definition of narrative*. The author begins by discussing previous definitional attempts, highlighting that, at their most basic level, conceptualizations of narrative usually entail the idea of a representation of events. On a further level of specification, definitions tend to include the matter of time – which takes us from a *representation of events* to a *representation of a temporally ordered sequence of events*. Only on a third level of specification, other (more varied) traits tend to appear, such as causality and experientiality (RYAN, 2007, p. 23). Working on the foundation set by previous attempts, Ryan then goes on to propose a prototypical model composed by eight conditions (spread across four dimensions) which assume an increasing degree of specificity, but which can be freely selected and combined in order to serve as "a toolkit for do-it-yourself definitions" (RYAN, 2007, p. 30). Having been a vocal proponent of transmedial narratology (RYAN, 2004, 2005, 2016), it is no surprise that the author bases her own model, transcribed below in its entirety, on the already mentioned presupposition that narrative, although always conveyed by some representational form or another, should primarily be defined by its content (RYAN, 2007, p. 24-26).

> **Spatial dimension**
> (1) Narrative must be about a world populated by individuated existents.
> **Temporal dimension**
> (2) This world must be situated in time and undergo significant transformations.
> (3) The transformations must be caused by non-habitual physical events.
> **Mental dimension**
> (4) Some of the participants in the events must be intelligent agents who have a mental life and react emotionally to the states of the world.
> (5) Some of the events must be purposeful actions by these agents.
> **Formal and pragmatic dimension**

[7] On the other hand, it could also be argued that the acts of winning or losing a game are what grant it tellability, however repetitive the gameplay itself may be. This argument, however, may be hindered by the fact that both acts usually mark the conceptual ending of game, whereas tellability in traditional narratives tends to be a more pervasive concept.

> (6) The sequence of events must form a unified causal chain and lead to closure.
> (7) The occurrence of at least some of the events must be asserted as fact for the storyworld.
> (8) The story must communicate something meaningful to the audience. (RYAN, 2007, p. 29)

Some of Wolf's (2004) narratemes are echoed in Ryan's (2007) model, with a few telling differences. (1) also concerns a spatially determined (story)world but seems to open up the notion of "anthropomorphic being" into the broader category of "individuated existents." (2) references time – with its correlate notion of chronology – and, together with (3), seems to address the "tellability" trait by positing that events/happenings in the world of (1) need to be non-habitual and somewhat disruptive of its natural order. By mentioning intelligent agents and emotional reactions, (4) seems to allude to "experientiality" and (5) finds a clear parallel in "conscious action" – which Wolf (2004, p. 91) admits being a somewhat accessory notion for a core definition of narrative, but nevertheless necessary for the specification of a prototypical model. (6), in turn, synthesizes the notions of causality, Aristotelian unity, and teleology. (7) pertains to the factuality of events in the (story)world, another of Wolf's accessory narratemes, and (8), most curiously, determines the meaningfulness of a story – a condition positioned by Ryan in last place presumably as to indicate its highest degree of specificity; and by Wolf at the very core of his notion of narrativity, thus indicating its utmost generality.

In any case, there is considerable overlap between the two. Both models discuss quite lengthy sets of properties, many of which may or may not integrate particularized narrative texts. Given their extensiveness and similarity, these models might benefit from being compared with a more concise, less opened definition. Such is the approach of David Herman (2009) in *Basic elements of narrative*, a book which posits the existence of four basic properties any of which, if absent, would seriously hinder the possibility of a given text to be considered a narrative by its interpreters. Being an outstanding proponent of cognitive narratology (HERMAN, 2007, 2013), Herman also adopts a cognitively oriented approach, mainly differing from Wolf (2004) and Ryan (2007) in his emphatic merging of the intricate cognitive and social aspects of narrative interpretation (HERMAN, 2009, p. 8). Accordingly, his model also avoids a binary (i.e. narrative *vs.* non-narrative) approach to definition. The author explains his understanding of narrative both in terms of (1) *centrality gradience* and (2) *membership gradience* (HERMAN, 2009, p. 12-13), meaning that (1) narrative, as a category space, is capable of simultaneously encompassing in its scope prototypical/central cases and marginal cases; and that (2) members of the category "narrative", especially marginally positioned ones,

may be close in proximity to adjacent categories, allowing for the establishment of hybrid forms such as that of "descriptivized narration." Thus, in Herman's quaternary model, each basic element can be fulfilled by any given text with varying degrees of "completion," although it would be hard to imagine any of them to be lacking altogether in a text widely considered to be a narrative. The four elements comprised by Herman's (2009) prototypical model of narrative are: (i) *situatedness*, (ii) *event sequencing*, (iii) *worldmaking/world disruption*, and (iv) *what it's like*, all explained in detail below:

> […] a prototypical narrative can be construed as
> (i) A representation that is situated in – must be interpreted in light of – a specific discourse context or occasion for telling.
> (ii) The representation, furthermore, cues interpreters to draw inferences about a structured time-course of particularized events.
> (iii) In turn, these events are such that they introduce some sort of disruption or disequilibrium into a storyworld involving human or human-like agents, whether that world is presented as actual or fictional, realistic or fantastic, remembered or dreamed, etc.
> (iv) The representation also conveys the *experience* of living through this storyworld-in-flux, highlighting the pressure of events on real or imagined consciousnesses affected by the occurrences at issue. Thus – with one important proviso – it can be argued that narrative is centrally concerned with *qualia*, a term used by philosophers of mind to refer to the sense of "what it is like" for someone or something to have a particular experience. The proviso is that recent research on narrative bears importantly on debates concerning the nature of consciousness itself. (HERMAN, 2009, p. 14)

The first element (HERMAN, 2009, p. 17-18) establishes a narrative's representational existence as both a cognitive frame and a textual object capable of triggering that frame, while also accentuating, in accordance with Herman's socio-cognitive approach, the creation-reception process of a narrative as shaped by the rules of the varying specific communicative contexts in which it may be situated. These rules may influence, for instance, expectations regarding the truth value of a narrative or inferences about the communicative goals of its producers. The second element (HERMAN, 2009, p. 18-19) is responsible for introducing the notion of a set of events that is simultaneously *temporally organized* and *particularized*. This, in turn, presupposes particularized temporal and spatial settings in which particularized agents suffer from events or cause them to happen. According to Herman, temporality is what distinguishes narrative from modes of discourse such as description, and particularization is what distinguishes it from modes of knowledge such as scientific discourse or the rules of physics, which aim at understanding events in their generality. A similar idea appears in Ryan's (2007) first condition via the notion of "individuated agents"; and Wolf (2004) also considers

the narratemes of specific agents, specific temporal setting, and specific spatial setting as parts of his prototypical model, even if not in a central position.

The third element (HERMAN, 2009, p. 19-21) recruits such particularized events, agents and spatial-temporal settings in the construction of a *storyworld*[8] – referred by Wolf (2004) as a *possible world* and by Ryan (2007) first as a *world* and then also as a *storyworld*. Moreover, this element establishes the disruption of said world's *status quo*, or the "dynamic of canonicity and breach" (HERMAN, 2009, p. 21) to be a core property of narrative structure, a trait which seems closely related to the notions of "tellability" and non-habituality of events featured, even if not as centrally, by previous models. Finally, the fourth element (HERMAN, 2009, p. 21-22) relates to narrative's ability to evoke qualitative aspects of lived and felt human-like experience – in accordance with Wolf's (2004) "experientiality" and maybe also with Ryan's (2007) fourth condition, although not as explicitly.

Given that the properties enumerated by Herman's model are also present in Wolf's and Ryan's – indicating a certain level of stability –, we are willing to take his comparatively more synthetic account of narrativity as a foundation for our approach to narratives and videogames in the present master's thesis. Narratives are therefore to be considered as concretized representations which trigger a specific cognitive frame for their interpretation, one that, as part of its mode of information processing: 1) situates particularized agents and events in a spatially and temporally developed world; 2) at least implies some events to be disruptive of the previously established canonical order of that world; and 3) communicates what it felt like for particularized agents to live through particularized events. These criteria may be realized more or less intensely by any given representation; but, for said representation to be considered a narrative, one should at least be able to reasonably argue for their existence.

As a concluding note, we should ask ourselves how videogames stand in relation to this conceptualization of narrative. Based on this definition, most videogames – indeed, the great majority of big commercial titles and most successful indie projects – seem to be representational objects that fit into the category of narrative. The possibility of exploring any virtual space is a guarantee of (1); the acts of winning or losing any game could be considered

[8] In footnote 13 of his first chapter, Herman (2009, p. 197) defines a storyworld as "[…] the world evoked by a narrative text or discourse. It is a global mental model of the situations and events being recounted – of who did what to and with whom, when, where, why, and in what manner. Reciprocally, narrative artifacts (texts, films, etc.) provide blueprints for the creation and modification of such mentally configured storyworlds."

enough disruption to characterize (2), even if they may come at the very end of a play session; and, as for (3) – which, admittedly, may be an easy condition for videogames to override –, it is often at least minimally realized through, for instance, simple animation of facial expressions, the health bar/life count of a player-character, or any change of soundtrack used to indicate distress.

However, it should also be immediately clear that it is not necessary for an object to fulfill these criteria for it to be considered a videogame. Let us turn once again to the liminal case of *Tetris* (TETRIS HOLDING, c2022). For the sake of argument, let us assume its status as a simulation and consequently understand *Tetris* as at least a marginally representational object – otherwise, all subsequent efforts would be futile. Is *Tetris* perceived to situate particularized agents and events in a spatially and temporally developed world? "Events unfolding under a certain time and a certain space" seems to be a reasonable (albeit extremely general) description of any given game of *Tetris*; but what about agents? Should the colorful blocks be considered agents responsible for their own movement? Or would that function befall an invisible force hidden somewhere beyond the game's surface, deep inside its encoded software? In that case, could it still be considered a "particularized" agent? More crucially: could the player be considered a particularized agent construed by the game's representation, even without a designated player-character to serve as their proxy?

The first criterion alone already provides enough uncertainty to risk the validity of the entire endeavor going forward. The second criterion could be submitted to the same sort of questioning, given that, as already mentioned, the repetitiveness characteristic of Tetris-type games, together with the absence of a clear winning state, could be argued to prevent any possibility of disruption of the game's ever-repeating underlying system. The third criterion complicates matters even further: how could it be reasonably argued that anything in the semiotic representation that is *Tetris* prompts players to mentally (re)construct what it feels like for someone to live through the depicted events? In conclusion, even though it is *possible* to defend the position that *Tetris* is a textual object capable of being classified under the label of "narrative," doing so might require a quick voyage beyond the realm of the reasonable.[9]

[9] *Tetris*' lack of narrativity should not, however, imply a lack of meaning. Janet Murray's (1997, p. 143-144) interpretation of Tetris as an allegory for the work overload troubling the lives of United Statians in late-stage capitalism has famously been criticized by Eskelinen (2001a) because of its supposed disregard for the "actual game" that is *Tetris* in favor of a "content" that is merely projected by the interpreter into the game. As Murray (2016, p. 144-146) herself has later pointed out, this sort of game essentialism denies (video)games any political relevance/influence in the social groups in which they are played, a position we do not consider to be defensible.

However, as postclassical approaches to narratology have taught us, *Tetris* does not need to be a clear-cut narrative example for it to be partially analyzed under a narrative frame – after all, profitable conclusions can still be drawn from their encounter. Furthermore, it seems relatively safe to state that *Tetris* does not best represent the current state of the art of videogames on this matter: despite the beliefs of early ludologists, narrative has embedded itself into the art form as a paradigmatic structure of its representational content.

Having aligned ourselves with a cognitive and transmedial approach to narrative, our analysis could now benefit from addressing the related and equally polemic concept of "fiction." Under classic narratology, fiction was often taken for granted as a constitutive part of literary narrative texts, synonymous to and indistinguishable from the notion of prose-oriented literature. According to Marie-Laure Ryan (2006, p. 31-32), first studies of fiction as an institutionalized theoretical issue date back to the 1970s and are inaugurated not by literary critics, but by members of the analytic school of philosophy, primarily interested in logics and linguistics. *The living handbook of narratology*, on the other hand, places the beginning of proper investigation of fictionality in the decade of 1990 (GJERLEVSEN, 2016), coinciding with what could be considered the beginning of postclassical narratological studies (BARONI; PASCHOUD, 2021).

Curiously, however, postclassical narratology – at least in its cognitive and transmedial branches – presents itself as not being aprioristically worried about the fictional insularity of its object of study: after all, narratives can be employed in conversation with the clear intention of truthfully recounting events which relate to the real world, and this fact does not interfere in the slightest with their suitability in relation to the definition systematized above (HERMAN, 2007). Which brings us to what is possibly the most stable and least contested point in the conceptualization of something as elusive as "fiction": its definition in opposition to factual events, actual existents, and the "real" world. Few would argue against a clear conceptual separation between the fictional and the real;[10] this separation, however, may not provide enough basis for a proper definition given that, as possible world theory often posits, fictional worlds should be distinguished from other nonfactual or counterfactual worlds created by sentences such as "If I had been Richard Nixon, I would have burned the tapes" (RYAN, 1980, p. 403).

[10] Which is of course not the same as denying fiction its capacity to reflect and in turn affect the real world with its influence.

Attempting to define it as a specific mode of communication (and not merely as a semiotic construct whose referents cannot be found in the real world), Searle's (1975) famous account of fiction established it as a form of *pretense* – understood not as deceit, but as overt performance (SEARLE, 1975, p. 324). His account places the existence of fiction primarily under authorial intent (SEARLE, 1975, p. 325) – "fiction" being any statement enunciated by its author with this added layer of pretense – and posits that in a work of fiction, like a literary narrative, statements that refer to real, historical characters, places and events are not fictional, because the author's belief in them is no longer strictly performed (SEARLE, 1975, p. 330). A few years later, Ryan (1980) improves on the overall cohesion of Searle's *fiction as pretense* theory by bringing it into possible world theory. Although maintaining that fiction should be understood as a particular way of speaking/writing (RYAN, 1980, p. 410) – echoing Searle's authorial intent –, Ryan prefers to understand fiction as an act of *impersonation*, which displaces it from under a speaker who performs belief in something that is not real, and places it under a speaker that pretends to be someone else entirely – assuming a different identity in a different, nonfactual, alternate possible world. Since "alternate worlds may present various degrees of overlap with the real world" (RYAN, 1980, p. 413), all sentences of a fictional work can be considered equally fictional, even though they may refer to historically known people and places.

But the insularity implied by a conception of fiction understood as an "alternate possible world" has been criticized as potentially alienating fiction from the real (WALSH, 2003). A different approach to fiction is provided by Wolfgang Iser (1993, p. 1-21)[11], who rejects a binary dichotomy between reality and fiction in favor of a triadic relationship between reality, fiction, and imagination. Through a process that involves selection and recombination of social, cultural, historical, and literary elements, fiction becomes an inherent act of transgression as the simultaneous crossing of both reality's and imagination's boundaries. Erratic and shapeless by nature, imagination is lured into form by fiction, acquiring a determinacy usually only afforded to reality; similarly, reality is deconstructed and recombined, and its determinacy is questioned by the plasticity of fiction. In other words, the act of fictionalizing "leads the real to the imaginary and the imaginary to the real, and it thus conditions the extent to which a given

[11] The chapter in question was initially presented as a conference in 1979, being later published as an article in 1983 and then as part of a book in 1991. We refer here to a translation into the English language made by Iser himself and published in 1993.

world is to be transcoded, a nongiven world is to be conceived, and the reshuffled worlds are to be made accessible to the reader's experience" (ISER, 1993, p. 4).

The conceptualization of fiction as structured imagination is also the approach employed by Kendall Walton (1990) in *Mimesis as make-believe*, a book where the transmedial and game-like aspects of fiction, which are of utmost interest to our present investigation, are exemplarily brought to surface. Walton defends that fiction happens whenever we are confronted by a rule or prescription (be it the product of an internalized habit or an explicit negotiation) which determines how something must be imagined: "a fictional truth consists in there being a prescription or mandate in some context to imagine something" (WALTON, 1990, p. 39). Following a logical model, the author rewords his explanation as follows: "If *p* is fictional, then should one be forced to choose between imagining *p* and imagining not-p, one is to do the former" (WALTON, 1990, p. 40). Walton's theory of fiction also takes a transmedial turn by admitting a significant intersection between "works of fiction" and the "representational arts" in general,[12] including paintings, novels, plays and films. All representational works of art, from *Gulliver's travels* to *La grande jatte*, are considered by Walton (1990, p. 37-39) to be "props," objects capable of instantiating fictional truths.

In this sense, the evolution of the conceptualization of fiction seems to mirror that of narrative: having begun its life in a context mostly limited by literature and verbal language, it is finally recognized as a cognitive phenomenon pertaining to a wide variety of semiotic systems, modes of representation, and art forms. Fiction, however, unlike narrative, seems to be strikingly indebted to the concept of "rule" – so much so that Walton (1990, p. 39) is compelled to state, in relation to the social aspects of fictional instantiation, that: "Anyone who refuses to imagine what was agreed on refuses to 'play the game' or plays it improperly. He breaks a rule." The convergence of both games and fiction into the notion of "rule" provides a promising common ground and a convenient point of transition to the second concept whose discussion and definition motivates the writing of the present chapter: that of "videogame." However, before advancing in our discussion, we shall take the opportunity of this interlude to address the question of "medium" – or, rather, to explain why, up until this point, we have purposefully avoided using the term medium/media in our approach to videogames. Given that

[12] The author, however, does concede that not all fiction necessarily pertains to the realm of the arts.

we have opted for allying ourselves with "transmedial" narratology and its view on the definition of narrative, the justification of such an avoidance now becomes a pressing matter.

3.2 WHY NOT "MEDIUM"?

Medium is, admittedly, a concept of inconsistent use and definition (THON, 2014, p. 334; RYAN, 2006, p. 16; WOLF, 2011, p. 165). Marshall McLuhan's (1994) *Understanding media*[13] famously established media as "extensions of ourselves," that is, technologies capable of potentializing certain human abilities and exempt us from direct labor and effort, often at the cost of some degree of cognitive, physical, and/or social desensitizing. At first, McLuhan's pioneering account of media may appear to be mainly associated with material objects, inventions, and technologies, as attested by one of the first concrete examples provided by the author: the electric light as a medium without message, transmission of pure information without content (MCLUHAN, 1994, p. 8). However, even this early account – being, as McLuhan's writing often is, more poetic than scientifically rigorous – already provides quite a bit of conceptual confusion, especially among the notions of medium, technology, and art. In the second part of his book, McLuhan seems to indiscriminately embrace, under the category of media, very distinct human-made objects and concepts: numbers, clothing, clocks, the radio, comics, games, and movies are just a few examples. It should not escape notice that McLuhan's (1994) list seems to cover all of our most popular contemporary art forms – even if some of them, comics and games especially, have transformed dramatically in the decades following his writings. His approach, however, is one that tends to take away from art any distinctive features that could separate it from other types of communicative and semiotic phenomena. On the one hand, McLuhan (1994, p. 204-219) grants equal treatment to artistic and non-artistic (e.g. non-fictional and non-aesthetical) uses of the medium of photography; on the other hand, he explicitly considers the press and the radio to be their own distinct and fully realized forms of art in par with photography and film (MCLUHAN, 1994, p. 319)[14] – a statement which does

[13] First published in 1964.

[14] While discussing film as a collective art form, McLuhan (1994, p. 319) states: "Film is not really a single medium like song or the written word, but a collective art form with different individuals directing color, lighting, sound, acting, speaking. The press, radio and TV, and the comics are also art forms dependent upon entire teams and hierarchies of skill in corporate action."

not seem to align itself with our current intuitive conception of what counts as a discrete art form, and maybe not even with that of McLuhan's contemporaries.

One notable exception to McLuhan's (1994) flexibilization of the notion of "art" is, of course, literature, which is not directly stated to be a medium at any point in his book, consequently keeping its distinguished status as art and being instead spread across the media of the spoken word, the written word, and the printed word. Considering McLuhan's academic history, it begs the question if his hesitation to call literature a "medium" could not be considered a direct product of his attachment to literature's distinct value as a cultural, semiotic, and communicative phenomenon – a distinction which would discourage the author from categorically equating it to objects such as the clock and the typewriter. And precisely therein lies our own hesitance in embracing the concept of "medium" in our present account of time in the art of videogames.

At first glance, our attempt to defend the perpetuation of the notion of "art" in academia could be considered an uncritical attachment to an elitist institution mostly concerned with maintaining hegemonic power through the vague notions of virtuosity, prestige, taste and geniality. However, to reject a clear differentiation between "art" and other communicative processes – that is, to ignore the special spaces art occupies in our public and private lives, in our social discourse and collective imaginary – is, we believe, to close our eyes to that which is consensually considered to be *valuable* in any given social group. Our view is that the systematic blindness the term "medium," as currently employed, generates with regards to this distinct value culturally afforded to "art" represents its most notable weakness, especially because it undermines our ability to identify and discuss political power and sociocultural implications which come associated to these distinctively valued objects and practices of communication. That is why we have heretofore made the option for clearly distinguishing art forms from the technologies that shape their existence – as attested by the structure of our second chapter.

Following McLuhan's account, terminological heterogeneity and indeterminacy become the norm in subsequent definitions of "medium," to the point that Thon (2014, p. 334), while trying to find a point of consensus on the matter, concludes that "the term is best understood as referring to a multidimensional concept." Marie-Laure Ryan (2006, p. 16-25) embraces this conceptual multiplicity in her narratological approach to media and identifies three different understandings of the term: a *semiotic* one, concerned with differences among

semiotic codes and sensory channels;[15] a *material/technological* one, concerned with the different raw materials and technologies supporting semiotic codes;[16] and a *cultural* one, concerned with means of communication which are socially and culturally regarded as distinct, irrespective of a possible lack of semiotic and/or technological particularity.[17] Once again, it could be argued that such a broad conception of media serves to neutralize possible differences between the very distinct notions of technology, art, and language (semiotic code), in addition to raising a handful of uncomfortable questions, such as: in the passage of literature from book to e-book, are we dealing with a change of medium? Are a stage play, its respective script and the broader notion of "theater" as an art form all to be considered different media? Are the bodies of actors onstage another medium of emotional expression distinct from the three already mentioned? One of Bresson's photographs exposed in an art gallery and a photograph of the Mona Lisa printed in a textbook are both to be considered uses of the same medium?[18] Here we come across a problem already accounted for by McLuhan (1994), which is that

> […] the "content" of any medium is always another medium. The content of writing is speech, just as the written word is the content of print, and print is the content of the telegraph. If it is asked, "What is the content of speech?," it is necessary to say, "It is an actual process of thought, which is in itself nonverbal." (MCLUHAN, 1994, p. 8)

The problem with such a circular reasoning should be clear enough, which is that it threatens to turn everything into a medium, down to the very "processes of thought" that inform our sense of self and of the world. Any concept that purports to be all encompassing necessarily loses its power of distinction, requiring other subdividing concepts to take its place. The same principle of circularity can still be identified decades later in better and more nuanced accounts of media such as that proposed by Bolter and Grusin (2000, p. 65), which states that "a medium is that which remediates. It is that which appropriates the techniques, forms, and social significance of other media and attempts to rival or refashion them in the name of the real."

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[15] Examples of media provided for this approach are: verbal language, images and music.

[16] Examples of media provided for this approach are: manuscript writing, print, radio, telephone, photography, film and television.

[17] Examples of media provided for this approach are: newspaper, books, drama, ballet, the opera.

[18] A multidimensional conceptualization of "media" would determine a positive answer to all these questions, sacrificing important nuances among the enumerated phenomena. As an intellectual exercise, it may be interesting to demonstrate how our preference for a differentiation between the notions of "art" and "technology," rather than their convergence in the notion of "media," is able to provide what we understand to be better answers to these questions: in the first case, we are dealing with the same art form (literature) being influenced and potentially transformed by two different technologies; in the second case, we are dealing with one art form (theater) and the myriad elements employed in its poetic composition; in the third case, we are dealing with two different art forms (photography and painting) and one technological equipment that plays a different role in each of them, respectively as a central material of poetic composition and as a means of distribution and dissemination.

Media are, therefore, defined by their relationship to other media – a line of thought that excuses us from ever needing to define them.

More recently, Ryan's (2006) cultural approach to media is recovered by Werner Wolf (2011, p. 166) in his less circular but equally impervious choice of conceptualizing media as any means of communication considered "conventionally and culturally distinct," defined not by their relationship to one another, but by their being *identified as media* by members of the social groups who effectively use them. However, as Thon (2014, p. 335) has already pointed out, this approach carries a few problems of its own: firstly, social consensus is often whatever is *perceived by researchers as* social consensus; secondly, this conventional distinction of media can change both over time and among different cultural groups; thirdly, actual manifestations of media objects can vary widely amongst themselves, even if they belong to the same medium. It could be argued in turn that the notion of "art" suffers from the same vagueness, circularity, and impermeability as that of "media" – and indeed, historically speaking, both notions of "art" and "narrative" have been susceptible to expansions which have occasionally threatened to completely dilute their meanings. An art form, however, is usually not confused with the materials, technologies, semiotic codes and means of dissemination that take part in its composition, whilst "medium" is often employed as a synonym for each and all of the above.

Finally, we believe that a theoretical framework that makes no basic distinction between the notions of art and technology is not well equipped to understand how technological developments may provide new affordances and limitations to an already established understanding of art – a transformation process that does not necessarily entail complete destabilization, but is instead part of the push and pull between innovation and canonization that shapes art as a whole. Since the notion of art can be singled out mainly through its many possible relationships (condensation, transmission, preservation, subversion etc.) to the notion of value, both processes of innovation and canonization can be considered telling signs of broader cultural, social, and political transformations: consequently, what does or does not survive in our intuitive conception of, say, *literature*, with the passing of time, changing of cultures, and development of technologies can point us to what is, for one reason or another, considered to be most valuable in a given society. Since these matters are of particular interest to our approach, we shall not be synthesizing contrasting notions into the concept of "medium," but will instead be referring to them specifically whenever appropriate: art, technology,

semiotic code etc. “Medium” will be employed, as it has been in the present chapter, only in reference to cited authors who have integrated it as part of their own vocabulary.

3.3 WHAT ARE “VIDEOGAMES”?

The present master thesis understands videogames to be a distinct and relatively stabilized art form, complete with its own poetic and aesthetic traditions. Prevented by the results of previous attempts, we will not insist on defining art as a hard *concept*, settling instead for a more general *notion*: any given art form is here understood to be an institution comprised of somewhat similar artworks in addition to traditions and practices which are subject to the opposed but symbiotic processes of innovation and canonization. Currently, fiction and narrative could be considered leading practices in many of such institutions – although by no means the only ones. These institutions are socially bound and mainly guided by what is considered culturally valuable in their respective communities; additionally, they are supported by various procedures of legitimization (the canon, awards, specialized criticism, integration into art galleries or museum collections, integration into school and university curricula etc.).

Videogames now have their own awards and critical/academic literature; they have been incorporated into traditional museums and have also spawned dedicated galleries;[19] they have managed to stabilize a series of poetic and aesthetic conventions and, as all previous art forms before them, have created for themselves a profitable market often subjected to circular arguments concerned with differentiating “mass produced” instances of videogames from “elevated” ones. Therefore, given the current state of affairs, we do not hesitate to call them a distinct art form. However, their relative novelty has brought into the artworld a series of unprecedented elements[20] which, we believe, can better our understanding of the cultural shifts caused by technological developments and sociopolitical transformations.

[19] One example of the former is MoMA’s “Never Alone” exhibition (ANTONELLI; GALLOWAY, 2022). One examples of the latter is Paolo Pedercini, Tenley Schmida, and Heather Kelley’s LIKELIKE gallery for independent games and playable art.

[20] Some of videogame’s most singular additions to the realm of the arts have been discussed by Tavinor (2009, p. 172-207) and Gee (2006).

At the same time, videogames themselves have also incorporated a series of stable elements associated with the realm of the arts, such as the already mentioned aesthetic structures of fiction and narrative. Fiction, especially, has become a staple of videogame theory ever since the publication of Jesper Juul's (2005) *Half-real: videogames between real rules and fictional worlds*; and has in fact been in close proximity to the study of games in general since Johan Huizinga's (1949) *Homo ludens: a study of the play-element in culture* first introduced the matter into the humanities. For instance, Huizinga's use of the notion of "magic circle" as a barrier defining the boundaries of play associates games to the seclusiveness of religious rituals and theatrical performances, and has found lasting repercussion in following academic writings. For Huizinga (1949), the tennis court, the stage, and the magic circle are all "forbidden spots, isolated, hedged round, hallowed, within which special rules obtain. All are temporary worlds within the ordinary world, dedicated to the performance of an act apart" (HUIZINGA, 1949, p. 10). Therefore, a clear separation from ordinary life is the common ground shared by both traditional notions of play and of fiction.

Roger Caillois (2001, p. 6), taking inspiration on Huizinga's work, maintains a game's "separateness" as one of play's basic defining qualities; however, on the specific topic of games and fiction, Caillois (2001, p. 9) is famously reluctant to accept a possible intersection between the two, positing that play can either be governed by rules *or* by a fictional "as if" principle of make-believe.[21] But such a relationship need not necessarily be interpreted as incompatible: as already mentioned, Kendall Walton's (1990) approach to fiction is one that unifies both concepts by taking the "as if" structure characteristic of fictional truths as a *rule* or a mandate that prescribes things to be imagined in a certain way. Jesper Juul (2005) also rejects an intrinsic incompatibility between rules and fiction by contending that both structures are equally and concurrently present in videogames – a proposition also aimed at rejecting the dichotomy between "narrative" and "games" which dominated the field of game studies at the time. Relying on Katie Salen and Eric Zimmerman's (2004) later reconceptualization of the magic circle, Juul (2005, p. 164-167) differentiates between the concepts of "game space," carved out by the magic circle of a game, and of "world space," referring to the space of a world that is either real or fictional. The main difference between the two concepts is that a "game space" exists *inside* the broader world in which a game is played, whereas a fictional world and

[21] A possible solution to this problem is proposed by Gonzalo Frasca (2001b, p. 4-11), who has suggested a slight revision in Caillois' concepts and terminology in order to differentiate between games that present rules which define winners and losers (*ludus*) and games that do not present this specific type of rule (*paidia*). Instances of fictional make-believe could be considered part of the latter without necessarily being part of the former.

everything in it should be considered a "world space" existing *outside* the space of the real world. The relationship between game and world space is quite straightforward in traditional non-digital games, seeing as a special "game space" is created in the real "world space." Some videogames, however, complicate this relationship by establishing both a fictional world outside the real world and a game space inside that fictional world space, as is often the case in videogames based on sports and championships.

Juul's model, however, still argues that, although videogame poetics often calls upon fiction, it is not necessary nor required for it to do so. With regards to fiction, Juul (2005, p. 131-133) posits the existence of different types[22] of games: *abstract games* present no fiction whatsoever, including games like *Tetris*; *iconic games* present few fictional elements which are not articulated into a full world, like the kings and queens in a card deck; *incoherent world games* present a discernable fictional world with elements that are often incongruous or contradictory (e.g. the fact that Mario has three lives and that pawns and bishops in chess are confined to certain patterns of movement); and finally *coherent world games*, which present a stable fictional world.

Despite the apparent harmlessness and straightforwardness of such a typology, we do believe that the proposition of understanding abstract games and fully representational (i.e. fictional)[23] games as two opposite sides of the same spectrum introduces a weak spot in Juul's videogame theory. The example of the invisible walls found in games like *Battlefield 1942* (JUUL, 2005, p. 165) provides an interesting insight into the matter. Juul understands this common videogame phenomenon as an instance of a (fictional) world space that continues whereas the game space ends. However, if a game space is the space dedicated to the playing of a game in a larger world space, should we consequently interpret that characters in the fiction of *Battlefield* conceptualize their battle as the playing of a game? The example of *FIFA* posits little challenge in this regard – characters on screen controlled by the player are clearly players themselves, acting in the context of a fictional match or championship. However, how do we

[22] It should be mentioned that Juul's (2005, p. 132) typology actually presents five categories, the fifth of which is called "staged games." This category refers to the specific instance of abstract or iconic games that can be found within videogames with robust fictional world – which would make it somewhat parallel to the concept of metadiegesis in narratological studies. Since we do not understand this category to be a distinct stage in the spectrum of videogame fictionality, we have left it out of our main argument.

[23] In the chapter of his book dedicated to the matter of "fiction" in videogames, Juul (2005) largely seems to equate fiction to the notions of representation (as opposed to abstract presentation) and semiotics. Although not all theories of fiction would agree with this approach, it should be noted that Walton (1990) adopts a similar stance by taking all representational art forms to be instances of fiction – a position that we are inclined to share, as will soon become apparent.

reconcile the distinction between game space and world space in a fictional videogame where, fictionally speaking, there is no game being played by the characters populating that world?

We believe this to be a good example of the inherent contradictions that arise from a videogame theory unwilling to harmonically reconcile the notions of fiction and narrative within the basic conceptualization of their object of study, instead thinking of them as superficial add-ons. *Half-real* (JUUL, 2005) admittedly represented a significant step in the remediation of the dichotomy between games and fiction, but it did not manage to escape from it completely. Under the principles of such a theory, fiction and narrative are fated to a perpetual state of competition with a videogame's "gameness," as the spaces and actions proper of play fight for ascendency over spaces and actions proper of fiction (and vice-versa) – so much so that we, as researchers, would find it difficult to provide an unambiguous answer to the question: in *Battlefield*, to "shoot" an "enemy" is a real or a fictional action?[24]

Juul's (2005) view requires us to understand videogames as inherently dissonant and contradictory objects – a position that could certainly be argued for, but will not be adopted by the present study. As previously stated, we understand contemporary videogames to be a relatively stabilized art form and, as such, we are inclined to understand their poetics as a collection of practices tending towards canonical incorporation and stabilization. Consequently, our theoretical proposition rejects the notion of inherently antagonistic forces at the core of the art of videogames. Instead, we posit that the art of videogames is, because of the materials and technologies at the base of its composition, an invariably representational one, in which systems of signs are employed in the making of meaning, and meaning is employed in the making of fiction – by virtue of its separateness from ordinary life, afforded both by its status as an art form and by its rooting as an object of play. Such a position can be reasonably argued for if, instead of embracing Juul's (2005) conceptual separation between world space and game space, we return to the work which inspired it. In *Rules of play: game design fundamentals*, Salen and Zimmerman (2004) resort to Huizinga's (1949) "magic circle" in order to explain the imaginary barrier which defines the spatial and temporal boundaries of play. The authors describe its functioning as follows:

[24] In the general spirit of *Half-real*, we believe Juul's (2005) answer to this question would most likely be: shooting an enemy in *Battlefield* is a real and a fictional action at the same time. Our answer, on the other hand, is that shooting an enemy in *Battlefield* is a *fictional action*, performed through the *real actions* of identifying and aiming at a particular pattern of pixels on a screen, followed by the pushing of a button or clicking of a mouse. Chapter four will address this matter more thoroughly.

> Within the magic circle, special meanings accrue and cluster around objects and behaviors. In effect, a new reality is created, defined by the rules of the game and inhabited by its players. Before a game of Chutes and Ladders starts, it's just a board, some plastic pieces, and a die. But once the game begins, everything changes. Suddenly, the materials represent something quite specific. This plastic token is you. These rules tell you how to roll the die and move. Suddenly, it matters very much which plastic token reaches the end first. (SALEN, ZIMMERMAN, 2004, p. [107])

For Salen and Zimmerman (2004), the rules of a game are capable of imbuing other game elements with special meaning and instantiating a new reality for its players. Under this assumption, the rule-based frontiers of the magic circle become strikingly similar to Kendall Walton's conception of fiction as prescribed imagination. Videogames could then be considered quite sophisticated instances of "props" whose function is to generate fictional truths: they stipulate rules not only for the imagining of specific objects, characters, spaces, and situations, but most notably for the imagining of dynamic processes capable of evolving in myriad – albeit still rule constricted – ways. This is what motivates Salen and Zimmerman (2004, p. [63-64]) to state that all games (videogames included) can be understood as *systems* – or as "a group of interacting, interrelated, or interdependent elements forming a complex whole." Gonzalo Frasca (2004), while attempting to theorize the specificities of videogames, has posited them to be not merely systems, but more precisely simulations: systems made to represent other systems. Following the precedent set by Frasca, we too make the option for understanding all videogames to be simulations: because of their nature as virtual, computer-mediated objects, and because of their status as an art form (which excuses them to relate to the real world on factual terms), we shall take all videogames to be *representations* of systems real or imagined – guided not by a Platonic principle of mimesis as copy of what *is*, but by an Aristotelian principle of mimesis as (re)presentation of what *could be*.

It follows that videogames introduce new practical configurations into the domain of artistic representation. If Walton's (1990) notion of fiction mainly relates to imagination as governed by a principle of "as if," it should be noted that rules governing the systems of videogames and the imaginative processes built upon them are considerably more varied.[25] We believe, however, that this should not be a reason to consider the rule-based structure of games as incompatible with the rule-based structure of fiction; instead, the incorporation of fiction into the art of videogames should lead us to consider that the scope and possibilities of fiction have

[25] For instance, a recurrent design frame in videogame coding is that of the "if-else" structure, which determines that, *if* the player fulfills a predetermined number of variables/conditions, the system is to respond in a certain way; otherwise, the system is to respond in a different way (UNITY TECHNOLOGIES, c2023).

been expanded by the emergence of a new art form. As Marie-Laure Ryan (2006) has proposed, fiction is precisely what we find at the intersection of two fundamental modes of thinking:

> One is narrative, the set of cognitive operations that organizes and explains human agency and experience. […] The other mode of thinking is what we may variously call "off-line thinking," "virtual thinking," or "nonfactual thinking": the ability to detach thought from what exists and to conduct mental experiments about what could be or what could have been. […] But fiction differs from other modes of virtual thinking in that it contemplates the virtual for its own sake, rather than using it as an instrument to shape the real. (RYAN, 2006, p. 31)

Simulations are themselves producers of alternate "could-be" scenarios: they are meant to grant their interactors insight into the many possible developments of a system constricted by a fixed set of underlying rules. Interacting with them is also a process that requires significant exercise in virtual thinking: to achieve desired results inside a simulation (say, in order to win a videogame), interactors must employ their compiled knowledge of the simulation's underlying rules and procedures in order to try to predict causal chains leading to those desired results. If we take "fiction" to be a manifestation of virtual thinking contemplated for its own sake, it would be hard to deny that even a game such as *Tetris*, indisputably classified as an "abstract game" in Juul's (2005) typology, serves as a prop in the generation of fictional truths. Therefore, our stance is that all videogames, when taken as artistic objects, should be considered elicitors of a fictional cognitive frame – both because of the (audio)visual and verbal semiotic representations they often construct and because of the underlying, dynamic, rule-based virtual systems that govern the actualization of those representations.

However, it might be worthwhile to investigate some of the particular rules of composition that guide the construction of fiction and fictional worlds in the art of videogames. A good starting point may be found in Juul's (2005) account of incoherent world games, as exemplified by the three lives of Mario, invisible walls, and the restricted moves of chess pieces – in summary, all game elements that dispense with the need for a comprehensible fictional explanation. As we have seen, *Half-real*'s (JUUL, 2005) theorization of fiction in videogames tends to present fictional elements and game elements as constantly fighting for stability and player attention, to the point that Juul (2005, p. 141) considers the imagination of a fictional world to be an activity presented as optional by game conventions. Despite the incompatibility such a view holds with our adoption of Kendall Walton's (1990) fictional principle – which proposes fictional regulation of imagination as a mandate –, this perception of videogame fiction as optional hints at a peculiar characteristic of videogame representation. In a later

revision of Juul's (2005) work, Jan-Noël Thon (2016, p. 106) argues that "incomplete and incoherent representations do not necessarily result in incomplete and incoherent storyworlds," positing that such inconsistencies should not be interpreted as optional, but rather require the application of a "medium-specific charity" on the part of players in order to determine which aspects of the semiotic representation should be considered highly relevant to the mental reconstruction of a given videogame's storyworld,[26] and which should be considered less relevant or even irrelevant:

> Put bluntly, it seems somewhat unlikely that a player's decision to let the avatars of Halo or Alan Wake run in circles for half an hour contributes to the representation of the characters of the Master Chief or Alan Wake in the same way as, for example, the games' cut-scenes do. (THON, 2016, p. 106)

It should be noted that the transformative relation between semiotic representation and fictional/narrative mental reconstruction permeates all representational artworks and is by no means – nor could it ever be – one of total and direct correlation. Thon (2017, p. 293) borrows the expression "representational correspondence" from Gregory Currie (2010) in reference to this phenomenon. Different art forms and genres tend to stabilize specific conventions for representational correspondence, so that songs and dances in musical theater, for example, are not taken to be the literal way through which characters communicate to one another, but are instead interpreted as metaphorical, non-literal portrayals of characters' thoughts and feelings. Similarly, literary works are not particularly inclined to detailed descriptions of physical spaces or characters' appearances, leaving instead many granular elements to be imagined by the reader.

In order to better describe this phenomenon, two remarkably transmedial concepts related to fictional meaning-making are highlighted by Thon (2017, p. 292-296): Ryan's (1980) *principle of minimal departure*, which theorizes that recipients tend to project upon a fictional world their own knowledge and understanding of reality unless otherwise specified by the text; and Walton's (1990, p. 183) *principle of charity*, which theorizes that recipients tend ignore paradoxical fictional elements in a representational artwork as long as they can provide extradiegetic (e.g. stylistic, practical) explanations for the existence of those elements. These relations of representational correspondence, which mandate either filling in on the part of the

[26] "Storyworld" is the terminology preferred by Thon (2016), whereas we will most often refer to "fictional world."

recipient or radical transformation/exclusion of representational elements into fictional reconstruction, are widespread practices already presupposed in any artistic genre.

Videogames are obviously not immune to these traditional correspondence conventions. To borrow a few of Juul's (2005, p. 131-132) examples, the restricted movement of chess pieces may not be understood as a literal restriction to be carried into the reconstruction of the fictional world implied by chess, but it could reasonably be interpreted under a metaphorical light as representing the different functions and levels of power/influence assumed by different social institutions in a war-ridden country. Similarly, the message "Warning! You are leaving combat area. Deserters will be shot" (JUUL, 2005, p. 165) – which, in *Battlefield 1942*, marks the invisible walls limiting player interaction with the world – could be reasonably (re)interpreted by players not as a literal warning message addressed to themselves, but as, say, a piece of information known and upheld by the character they are in control of. The character is unwilling to leave the battlefield, and therefore it is fictionally coherent that the player should not be afforded the ability to leave the battlefield. Fictional coherence is easy to sustain in this case because, as Ryan (1980) has explained, the "you" in a fictional world is not expected to retain the identity of the real recipient – who, in this case, understands themselves to be assuming a role and, consequently, inheriting the limitations and affordances that come with that role.

Juul's opinions on the matter have themselves evolved over the years. In a book chapter entitled *On absent carrot sticks: the level of abstraction in video games*, Juul (2014) incorporates game's rule-based affordances and limitations into his account of videogame fictionality. Fictional worlds are no longer evaluated in terms of their "incoherences"; instead, game elements and fictional elements are now classified in terms of their capacity to implement/explain one another: possibilities suggested by fiction may or may not be implemented into game rules (the latter resulting in limitations such as the impossibility of slicing carrots into sticks in the game *Cooking Mama*), and game rules may or may not be explained by fiction (the latter resulting in game-specific affordances as the infinite ingredients provided to the player in *Cooking Mama*). In either case, the interesting thing to note is that the "seemingly strange limitations that prevent video game players from making perfectly logical actions, such as cutting carrots into sticks or ordering takeout, are exactly the limitations that make video games part of the field of games" (JUUL, 2014, p. 190). In our view, this statement represents a theoretical shift from a semantically charged notion of inevitable incoherence

between games and fiction to a more general admission of videogames' particular affordances and limitations as an art form.

Based on Juul's (2014) more recent comments, we are willing to argue that the poetic relations of representational correspondence that can be found in videogames present some peculiarities in comparison to other art forms. The three lives of Mario (JUUL, 2005, p. 123-130) and the infinite ingredients of *Cooking Mama* (JUUL, 2014) seem to be of a different nature than, say, the pompous verses with which Othello expresses himself (even though we have no reason to think that the character is a particularly literary man), or the black and white footage of some movies (even if we have no reason to believe their fictional world exists in black and white) – to use some of Thon's (2017, p. 295) examples. After all, even though we do understand that the fictional character of Othello does not speak in verse in the context of his own fictional world, and that Dorothy – to provide an example of our own – does not actually live in a sepia-toned version of Kansas, we are capable of integrating the meanings generated by these more "presentational" (THON, 2017, p. 293) elements of the representation into our aesthetic and fictional understanding of the artwork. The sounds, rhymes, and rhythms of Othello's speech ultimately serve to give shape to the character's inner emotions, and the visual contrast between sepia-toned Kansas and colorful Oz serves to signify the latter's magical and imaginative qualities.

On the other hand, when Mario dies and is brought back to life, we are faced with the representation of an event that, in spite of being portrayed as having occurred inside the fictional world of the game, still needs to be excluded from our understanding of that world. If the principle of charity determines that the mental (re)construction of a fictional world need not include all elements that compose its representation, it still seems quite idiosyncratic that, in videogames, players have become accustomed to excluding explicitly represented fictional events from their fictional interpretation. In order to explain this peculiarity in the fictional correspondence of videogame poetics, we could resort to some "external" explanations, such as the interactivity of games (THON, 2017, p. 307) or the non-implementation (JUUL, 2014) of certain game rules into fiction. In any case, the artistic conventions that dictate videogames' correspondence between representation and fiction seem to be different from the conventions of other representational and largely narrative art forms, like cinema, theater, and literature.

Having discussed our option to understand videogames as a distinct art form, and having explained the peculiarities of their relationship to fiction and narrative, we can now turn our

attention to their definition. First attempts carried out in the field of game studies focused primarily on videogames' nature *as games*, only mediated through a different technology. Both the seminal works of Salen and Zimmerman (2004), and Juul (2005) develop extensive discussions on the definition of "game" before settling on their respective synthetic versions, which are also expected to refer to videogames. Salen and Zimmerman's (2004, p. [93]) exceptionally concise definition states that a game "is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (SALEN, ZIMMERMAN, 2004, p. [93]). The authors defend that the same definition should still apply to all digital games; they do however admit that the affordances provided by the computer (and other similar technologies) make videogames capable of more robustly embodying certain game traits, such as immediate interactivity, manipulation of information, incorporation of complex automated systems, and networked communication (SALEN; ZIMMERMAN, 2004, p. [99-101]). Jesper Juul (2005) takes into consideration a number of previous discussions, including that of Salen and Zimmerman (2004), in order to provide his own, comparatively more extensive, definition:

> A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable. (JUUL, 2005, p. 36)

Juul's definition shares with its predecessors the general notions of "system," "rules," and "outcome" – universally accepted as constitutive parts of the concept of "game" –, with a few additional specifications: some outcomes must be considered by players to be better than others; players must try to achieve a certain outcome and feel strongly about it; and the consequences of winning or losing can be negotiated amongst players. Juul (2005, p. 52-54), however, admits that the new development represented by videogames in the broader history of games and play may challenge some key elements of his definition: open-ended simulation games, for instance, may not prescribe some outcomes to be better than others, and consequently may not mandate the same emotional attachment between certain outcomes and the player. However, we believe that the most notable exceptionality granted by Juul to videogames is that the task of upholding the rules is now passed on to the computer (JUUL, 2005, p. 53), resulting in systems of rules that can be infinitely more complex and outcomes that can be quantified with considerably increased accuracy. Moreover, players no longer need to dedicate constant mental effort to the enforcement of the rules upon themselves and others,

and can, in fact, even interact with the game-object without previously knowing any of its rules. This crucial difference is isolated by Riccardo Fassone as being the defining trait of videogame's digital exceptionality in relation to other types of games:

> […] video games are an exceptional subset of games, since – because of their nature of digital objects – their rules must be stored, upheld, and executed by a computer. When playing a video game, we are always playing with and against a digital machine, an entity whose peculiar characteristics make it a unique sort of playful companion. A video game offers its players a world to inhabit or, in more minimalist cases, a series of rules and properties to interact with, but it is at the same time a piece of software in charge of executing certain procedures that ensure the consistency of that world or rule set. (FASSONE, 2017, p. 12)

In our view, this exceptional trait is precisely what has allowed videogames to incorporate some of the key elements associated with more traditional art forms. This is because the authoritativeness of the computer as a rule-enforcing machine, and the exponential complexity of the systems it creates, grants videogames a level of predictability and authorial control uncharacteristic of previously known non-digital games. Unlike, say, board and card games, videogames materialize as carefully controlled aesthetic experiences where the slightest details, down to the kinesthetic qualities comprising the movement of the player-character and the rustling of virtual leaves, are determined by encoded rules. Since the paradigm of creative genius/authorial intent has not been successfully displaced from the central position it still holds in our socially shared conception of "art," the present master thesis understands the inflexibility of code to have played a key role in the artistic integration of videogames. This same stability and inflexibility derived from the encoded rules upheld by a computer also guarantees a certain uniformity among otherwise idiosyncratic play experiences, allowing for a reconceptualization of videogames as artifacts distinctively detached from their process of reception. To provide a point of comparison, it seems that, in traditional non-digital games, the game itself cannot be reduced to the materials that give access to its playing. As Salen and Zimmerman (2004) put it:

> A fancy Backgammon set sitting all alone might be a pretty decoration on the coffee table. […] However, once you sit down with a friend to play a game of Backgammon, the arrangement of the pieces suddenly becomes extremely important. The Backgammon board becomes a special space that facilitates the play of the game. (SALEN, ZIMMERMAN, 2004, p. [107])

This most likely happens because such games are not defined in terms of their material support, but mainly in terms of the immaterial set of *rules* that regulate possible player action inside the magic circle. Critically, digital mediation displaces the importance granted to the

rules of a game in the minds of its players: rules now come packaged right into (and become, on practice, indiscernible from) the actualization process of a videogame's semiotic representation, to the point that players are no longer required to know them in advance. This newfound independence of the playing of a game from the prerequired knowledge of its rules makes videogames more prone to be considered discrete autonomous objects – which further corroborates their interpretation as carriers of artistic genius, or as artistic objects responsible for eliciting controlled aesthetic experiences. Consequently, whilst early research efforts on the topic were more inclined to define videogames in relation to the broader category of "game," later definitional attempts, partly backed up by the digital exceptionality of videogames and their progressive development as a stabilized art form, were more willing to consider these digital objects as composing a cultural genre of their own, irrespective of previous definitions of "game." It should not be taken as a coincidence that this alternative method of definition is precisely the one adopted by Grant Tavinor in *The art of videogames*, a work ostensibly concerned with theorizing videogames as a distinct form of art:

> X is a videogame if it is an artifact in a visual digital medium, is intended as an object of entertainment, and is intended to provide such entertainment through the employment of one or both of the following modes of engagement: rule and objective gameplay or interactive fiction. (TAVINOR, 2009, p. 26)

Tavinor's definition conceptualizes videogames as an art form proper of digital technology and concedes to them a distinctive visual component. Additionally, it refers to that which for millennia has served as the convergence point for both notions of "art" and "game": their prominent social functions as sources of pleasure and entertainment. More crucially, when it comes to listing the two possible ways in which something can be a videogame, Tavinor proposes that "interactive fiction" in and of itself is enough to characterize a videogame as such, regardless of a possible lack of objective-oriented gameplay. This account seems to destabilize Juul's (2005) and Salen and Zimmerman's (2004) previous game-centered definitions mainly in light of the elective position Tavinor (2009) dedicates to the notion of structured outcome: after all, classic notions of game usually prescribe more than one possible outcome, and some outcomes as being more desirable than others – meaning that a "game" cannot be conceived without the pre-stipulated existence of losers and winners. However, as already mentioned, the no longer compulsory presence of rule-determined outcomes had previously been noted by Juul (2005, p. 54) as one of the most significant ways in which videogames could contest the classic

game model. A similar position to that of Tavinor (2009) is adopted by Fassone, who states that:

> These enigmatic pieces of code, existing somewhere between the technological and the playful, can be described as a subset of games, a specific category of the broader class of ludic objects and, at the same time, as self-contained designed audiovisual objects, whose functioning relies on a set of computer-executed protocols that, when experienced by the player, present them with an array of audiovisual information. (FASSONE, 2017, p. 9-10)

Once again, computer mediation[27] and an (audio)visual component seem to be the only reliable elements at the core of an inclusive definition of videogame. All specifications beyond these broad categories appear to be non-essential – which should not by itself be considered a problem, seeing as literature as well is often defined, quite simply, as the art of verbal language. As already discussed, a big portion of videogames currently produced incorporate some level of narrativity into their composition, even though being a narrative object should not be a requirement for something to be considered a videogame. Current developments in the art of videogames seem to suggest that the same logic applies to their game-like structure: counterintuitive as it may seem, being a "game" (i.e. an activity regulated in equal measure by rules, objectives, and quantifiable outcomes) no longer appears to be a requirement for something to be considered a videogame.

One possible consequence of such a radical statement is that it may compel the adoption of a new terminology. After all, what is the point of using the word "videogame" if whatever game that has once existed in it has become optional? Researchers like Olli Leino (2012, 2013) have advocated for the position that single-player computer games, given the peculiarities that separate them from the broader field of "games," could be more accurately designated as "playable artifacts," that is, artifacts that present their players with more than mere "interactivity" – which could also be found, for instance, in interactive art installations –, but that are not necessarily tied to the specific structure of objective-driven engagement required from traditional non-digital games. Their uniqueness, according to Leino (2012, 2013), lies in their "playability," specifically defined by the author as a mode of engagement in which every player action affects the availability of further possible actions – meaning that past choices

[27] Computing machines of all sorts should be included here, such as cellphones, tablets, TV consoles, handheld consoles, personal computers etc.

affect the expansion or restriction of future player freedom (LEINO, 2013, p. 4). A more systematized definition reads as follows:

> Perhaps, instead of talking about single-player computer games, or, about technological artifacts in general, we would be better off talking about playable artifacts, defined as follows: Playable artifacts can be distinguished from games by the inseparability of process and materiality, and, can be identified as a subset of all technological artifacts based on their ability to evaluate the user's choices and open up or delimit freedom of choice accordingly, in other words by their ability to impose the gameplay condition on their users. (LEINO, 2012)

Crucially, Leino's (2012) playable artifacts are objects insofar as they are processes: in them, semiotic representation comes into being only during the act of play. This semiotic actualization of possibilities virtually inscribed in their coding requires constant dialogue between player, program and machine, conditioning, in the here-and-now, all further possibilities available to the player. This singular attribute differentiates them not only from previous forms of games but, if we are to take them as a new art form, also from previously known forms of art.

This peculiarity seems to be enough of a good reason to justify a terminological substitution of "videogame" for a less ambiguous concept such as that of "playable artifact" in academic discourse; however, this is not a position that the present master thesis is inclined to embrace. This is because the widespread use of the word "videogame" is made abundantly clear by current discourse and social practices surrounding this artistic institution, with no other terminological alternatives posing any competition for its sovereignty. Therefore, just as our following analysis will prioritize relatively stabilized practices of composition and reception in the art of videogames, we will also make the choice of adopting the vocabulary currently in-use, despite morphological inconsistencies. We do, however, reserve the right to refer to videogames – as the reader has certainly already had the chance to notice – as a unitary word, thus making clear our preference for understanding them as independent cultural and artistic artifacts, not as mere "games" adjectivized by the word "video." This choice necessarily entails the adoption of a broader, more flexible notion of what counts as a videogame. In order to prevent any possible confusion going forward, our general understanding of videogames as a distinct art form is summarized below:

Videogames are the paradigmatic art form of the digital. As such, they are digital systems the creation and reception of which are invariably mediated by computing machines

capable of interpreting player input and providing corresponding output in the form of semiotic (audio)visual information. Input-output correspondence is conditioned by a fixed set of encoded rules. All discrete digital objects which are structured in this manner, and which are created and/or receive *as artworks* (i.e. objects belonging to a broader ecology of relatively well-established artistic institutions, and capable of prompting aesthetic experiences) can reasonably be called "videogames."

3.4 FINAL REMARKS ON CONCEPTUAL CLARAFICATIONS

Although we do not think it possible, or even desirable, to permanently settle any of the terminological debates surrounding the concepts of narrative, fiction, representation, medium, art, and videogame, we have attempted to momentarily stabilize some of these concepts in the limited context of our own investigation. A summary of the provisional definitions – or, more accurately, of the *general notions* – adopted in the course of this chapter and followed in chapters to come is exposed below.

Narratives are concretized representations of any kind which trigger a specific cognitive frame for their interpretation – one that, as part of its mode of information processing: 1) situates particularized agents and events in a spatially and temporally developed world; 2) at least implies some events to be disruptive of the previously established canonical order of that world; and 3) communicates what it felt like for particularized agents to live through particularized events.

Fiction is imagination regulated by socially determined and shared rules. It instantiates an alternate "world" or "reality" of its own, meaning that fictional characters, objects, places, and events operate independently from ordinary life and real-world referents.

Videogames, here understood as constituting a distinct art form, are digital systems mediated by computing machines capable of interpreting player input and providing corresponding output in the form of semiotic (audio)visual information, and in which input-output correspondence is conditioned by a fixed set of encoded rules.

4 TIME AS THEORIZED IN THE ART OF VIDEOGAMES

This chapter is dedicated to the theorization of time in the art of videogames, and is guided by two main objectives: first, to systematically review and critically discuss some of the theoretical propositions previously developed in the academic field of game studies, highlighting their strengths, weaknesses, gaps, and contributions; second, as a result of this critical process, to articulate our own theoretical proposition for time in the art of videogames, which will then serve as a foundation for the analytical and interpretive movements of following chapters. We have, however, decided to present the results of our investigation in reverse chronological order, so as to facilitate the reading process. In the following pages, we start by contextualizing and explaining our theoretical proposition, so it can later be directly contrasted with its predecessors.

As previously discussed, time in literature is often understood as a twofold structure encompassing story (*what is told*) and discourse (*how it is told*).[1] Nonetheless, some theorists in the past have preferred to conceptualize the *time of reading* as an additional, separate dimension from that of the pseudo-time of discourse. Umberto Eco (1995, p. 54), for instance, defends that the communicative process established between model author and model reader entails textual strategies which may serve to increase or reduce the pace imposed on a reader's traversal through a text, thus generating a third independent temporal dimension related to reading time. For example, when an otherwise ordinary object is unusually described in narrative discourse, the resulting defamiliarization effect may require readers to pause for the time necessary to calibrate their own perception (ECO, 1995, p. 55-56).

[11] In addition to story and discourse, another temporally relevant literary dimension is that of "plot," a contested term which, from Aristotle's muthos, to Russian formalism's *sjužet*, to French narratology's *intrigue*, has assumed many different facets in the history of literary studies. Even though our theoretical proposition works with dimensions somewhat equivalent to those of story and discourse, we have opted for not explicitly theorizing an equivalent to plot. As a liminal category, plot – like story – is often conceived as independent of any specific semiotic system, although – like discourse – it is also related to the process of *how* a narrative is told (KUKKONEN, 2014). Seymour Chatman (1978, p. 43), for example, employs the expression "story-as-discoursed" in reference to plot. It should be noted that, even in the context of literature, plot has been occasionally considered an optional dimension (ECO, 1995, p. 34). Moreover, in narrative videogames, the ordering of events is often not strictly defined in advance, being instead subject to player choice. Seeing as the concept of plot has frequently been conceived as related to a strong sense of authorial design (KUKKONEN, 2014), this flexibility of narrative ordering may hinder its applicability to the art of videogames. Therefore, we reserve the right to speak of "plot" in narratively inclined videogames whenever the concept makes itself appropriate, without, however, explicitly theorizing it as a core dimension in our temporal model.

Eco (1995) describes a temporal model in which the same length of discourse time (or rather, the same word count of discourse space) may still result in two distinct reading times, depending on whether the passage conditions a faster or a slower reading speed. In literary texts, reading time is often dictated by the strategies adopted by a model author in the composition of discourse. On the other hand, if we attempt to apply a similar temporal logic to the art of videogames, we might notice that, instead of being faced with a "discourse" time capable of conditioning "reading" time, we are more likely to encounter the opposite situation. Because the poetics of videogames is marked by the incorporation of player intervention into the semiotic representation of the artwork, the pace of reception is often capable of regulating the temporal extension of the representation. This appears to indicate that the temporality of videogame poetics requires a theoretical model in which the dimension of player reception can be brought to the fore. With this in mind, we too have opted to explain the art of videogames on the basis of a threefold temporal structure. Our proposition for the theorization of time in the art of videogames, therefore, encompasses three dimensions: the *time of fiction*, the *time of representation*, and the *time of reception*.

A proper understanding of this temporal conceptualization requires a careful consideration of how the compositional building blocks of the art of videogames – namely, the actions performed both by the player and by the machine (GALLOWAY, 2006) – relate to and inform one another. In this manner, real actions performed by the player – the push of a button, the movement of a mouse, the choosing of an option – are projected onto the semiotic concretization of the game, thus being translated into actions, events, and happenings in the representational plane. Jesper Juul (2005, p. 172-173) had already drawn attention to this peculiarity of videogames in *Half-real: video games between real rules and fictional worlds*, referring to it as a "metaphorical substitution" of one difficult action for another. For Juul (2005), the act of pushing a button at the right time may function as a metaphor for the serving of a ball in a tennis (video)game, and two players competing to solve a puzzle may function as a metaphor for a duel of swords between two pirates, because both actions are assumed to relate to one another based on a comparable level of difficulty in relation to their respective (real or fictional) contexts.

We subscribe to this relational conceptualization introduced by Juul (2005), which was remarkably innovative in the historical context of its publication.[2] However, instead of positing a metaphorical approximation between the relative levels of difficulty of two distinct actions, we would rather conceptualize this relation, in semiotic terms, as an arbitrary association much like that of a signifier to a signified. To borrow one of Juul's (2005) examples, the signifier which indicates the serving of a tennis ball, being audio-visually materialized in the representational plane of the game, synthetizes the two signifieds of the serving of a real tennis ball (as part of the game's fictional plane), and of the real player action of pushing a button (as part of the game's receptional plane). This convergence into the representational signifier is what allows a player to think to themselves, while pressing the button: "I'm serving the ball."

This relationship between real actions which are converted into fictional actions will take center stage in our temporal theorization, so that we may be able to investigate relations of order, duration, and frequency that arise among real actions, represented actions, and fictional actions in a videogame. A conceptual consequence which emerges from this theoretical model is that fiction and reception never come into direct contact with one another, being instead constantly mediated by representation. Therefore, our threefold temporal structure will be divided into two analytical movements. Just as narratology is able to contrast story time and discourse time, our temporal analysis of the art of videogames proposes to investigate, on one hand, the relations between time of fiction and time of representation; and, on the other hand, the relations between time of representation and time of reception. Below, we provide a more detailed conceptualization of each separate dimension figured in our theoretical proposition.

Time of fiction is at least partially related to literary story time. It refers to the time of events understood as having occurred on the other side of the diegetic border. Inspired by developments of postclassical narratology, we understand this dimension to be a cognitive construct, meaning that the player does not access or comes into contact with a work's fiction, but rather mentally reconstructs it during and after their interaction with the semiotic materiality of an artwork.[3] "Fiction" here comes to replace "story" because, as already discussed, although

[2] *Half-real* (JUUL, 2005) is published amid the controversial dispute among ludology and narratology which shaped the field of game studies as we know it today. In a clear dialectical movement, Juul attempts a theorization of videogames which takes into consideration their dual nature as real and fictional objects, well-suited to both branches of academic study.

[3] An incipient form of this argument can already be identified in the earlier narratological writings of Todorov (1966, p. 127): "L'*histoire* est donc une convention, elle n'existe pas au niveau des événements eux-mêmes. [...] L'histoire est une abstraction car elle est toujours perçue et racontée par quelqu'un, elle n'existe pas « en soi »."

most contemporary videogames can be unambiguously classified as narratives, being so is not required for a given object to be considered a "videogame." It should also be highlighted that the fictional plane of a game – considered in its broader composition, and not only in relation to its temporal aspects –, being an abstract reconstruction, does not need to incorporate all compositional aspects displayed in the representational plane.

Time of representation, in turn, is related to the temporality of events as presented in the signifying plane of an artwork, and it invokes that which in narratology is regularly called "discourse time." In the context of literature, Genette (1980) thought of this temporal dimension as a "pseudo-temporality," because the passage of time related to the acts of telling a story and listening to a story is transformed by the written word into spatial extension. In cinema and videogames, the audiovisual language of moving images returns the passage of time to these art forms – so that, in relation to them, we are once again allowed to properly speak of the time occupied by "discourse."[4] Generally speaking, the art of cinema, in its traditional format, does not support any variation of discourse time among different watching sessions;[5] whereas, in videogames, the time of two different play sessions is expected to vary greatly, given the intertwining of reception and representation.

It should come as no surprise that the representational plane of videogames is dependent on the technological grounding which configures its semiotic affordances. With this in mind, authors such as Lindley (2005), and Tychsen and Hitchens (2009), while theorizing videogame time, have dedicated entire dimensions to the temporality of the software or engine existing below the semiotic surface. In light of this precedent, we should clarify that the present thesis has no intention of integrating this underlying technological plane into our theoretical model. Having made the option for interpreting videogames as an art form, we think it best not to include in our investigation a compositional aspect which remains largely ignored by the majority of players.[6] Instead, we shall limit our poetic considerations to the actualization of the

[4] Despite its ostensible roots in verbal language, the term "discourse" is assimilated into film theory through the writings of some prominent authors (CHATMAN, 1978). The present thesis, however, makes the choice of distancing itself from this specific verbal legacy in view of the audiovisual inclination of the art of videogames – thus adopting "representation" in place of "discourse."

[5] Although, nowadays, streaming services provide viewers with the options of pausing, going back, speeding up and speeding down a movie's temporal development, it should be highlighted that these interventions are nor considered, in the art of cinema, to be a constitutive part of the artwork: if someone pauses a two-hour movie to go make dinner and then comes back to watch the rest, this person is unlikely to later tell their friends that they watched a four-hour movie.

[6] As we understand it, there is a compelling and even politically revolutionary argument to be made regarding the ability of videogames to destabilize the concepts of artwork, author, and value through the poetical incorporation

underlying software and engine into the semiotic representational plane of a game, with which players interact directly. This representational plane, although it can only take form when triggered by player action, is still under the responsibility of its hosting machine, which interprets the coded instructions, manages the simulated spaces, and ultimately presents the strings of signs which form the representation. Given its broad nature, the representational plane encompasses all events, actions, and changes of state *as made into signs* by the machine – even those that are ostensibly contextualized as "player actions," often directly associated to a humanoid player-character. Studying the process through which players' real actions are translated/signified as actions in the representational plane of a game is, naturally, an undertaking which concerns the analytical intersection of reception and representation.

Finally, *time of reception* refers to the actual time of a recipient's contact with the artwork. In literature and in traditional cinema (notwithstanding the current development of the artform into streaming services), this dimension is temporally unable to influence that of representation: reception time is often incapable of extending/abbreviating the duration of a film or the word count of a book, and is powerless when it comes to modifying anachronies and anisochronies[7] between story and discourse. It is therefore understandable that a temporal dimension exclusively focused on reception has not figured widely in theoretical models designed for these art forms, being instead incorporated into the dimension of "discourse." However, a distinctive aspect of videogame poetics is that it allows for the establishment of new relations at the intersection of reception and representation. Reception time, therefore, encompasses the real actions executed by the player, in addition to the global duration of their contact with the artwork, and the chronological and historical time determined by their clock and calendar – the incorporation of which is not wholly uncommon in videogame poetics.

The two analytical movements we propose to follow – one intersecting representation and fiction, the other intersecting representation and reception – will be organized around the three temporal categories of order, duration and frequency proposed by Genette (1980), which we consider sufficiently broad and varied to allow for a systematic investigation of the many facets of time in artistic composition. In the following pages, we present two analytical examples which aim to demonstrate the practical uses of our theoretical model. Two historically

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of player intervention (PEREIRA; FLORY, 2023). However, even though we think that advocating for mass access to programming languages is a valid political strategy for digital activism, we still maintain that this does not represent the current paradigm of reception in the art of videogames.

[7] Respectively, dissonances of order (GENETTE, 1980, p. 35) and of duration (GENETTE, 1980, p. 86) between story time and narrative time.

removed and poetically distinct videogames have been selected so as to guarantee a wider analytical scope: *Tetris* (TETRIS HOLDING, c2022) and *The last of us part II* (NAUGHTY DOG, 2020).

A game like *Tetris* poses a productive challenge to the fictional dimension of our theoretical model – which, in this case, appears to be nonexistent at first glance.[8] However, if we consider the fictional dimension as a constitutive part of any videogame, based on a definition of fiction as imagination regulated by rules (see chapter three), then even *Tetris* could be said to configure, over the static surface of the screen, a simulated fictional space in which fictional blocks are represented as being piled up and destroyed. Although fiction might be trivial in this specific example, the theoretical ability to isolate the fictional plane from its representational counterpart in the art of videogames is still essential, because it allows for both trivial and elaborate fictionalities to be adequately accommodated under the same theoretical model.

Let us then think about order, duration, and frequency in the game *Tetris*.[9] Its lack of fictional elaboration results in a quite straightforward relation between representation and fiction: the order and duration of events in the former tends to indicate the order and duration of events in the latter; whereas frequency is, in Genette's (1980) terms, singulative, meaning that there are the same number of occurrences in both dimensions. However, it is still necessary to consider the different "fictional" ornamentations which, over the years, have helped distinguish the many versions of *Tetris* from one another. Although seemingly superficial, these representational embellishments are not at all insignificant to the configuration of player experience and the complexifying of the game's fictional plane.

To call upon an official example, the recent *Tetris effect* (TETRIS HOLDING, 2018) features levels with varying soundtracks and backgrounds which allude to different fictional elaborations. Level eighteen, in particular, provides a good illustration: in "Aurora Peak," tetraminoes are represented as blocks of ice, the background shows a snowy mountain that grows bigger as the level progresses, erratic snowflakes fly across the screen as if in front of the player's eyes, and the soundtrack of a windy blizzard complements the setting. Within this

[8] Juul (2005) classifies *Tetris* in the category of "abstract games," referring to a type of game that "[...] does not in its entirety or in its individual pieces represent something else […]; the game is the rules" (JUUL, 2005, p. 131).
[9] An in-depth theoretical explanation of the categories of order, duration, and frequency will be provided at the beginning of their respective chapters.

specific frame, the act of playing is easily recontextualized by fiction: suddenly, the fight against the time and rhythm of the falling blocks can be interpreted as the slow conquering of ground in the climbing of a mountain during a snowstorm, as well as the urgency related to the fight against hypothermia and the climber's own physical limits. A master touch of fictionalization is incorporated into the game's representation when, in the seconds following player destruction of a line, the remaining ice blocks light up with a pink or orange color, suggesting an ephemeral heat wave which pushes the cold away for a few seconds and provides the necessary strength to continue climbing (playing) for a few more meters (minutes). In this specific fictional interpretation, temporal duration between representation and fiction may be said to function like a "summary," because playing time is shorter than the time of the fictionally suggested action of climbing the represented mountain.

In terms of *Tetris*' temporal relation between representation and reception, player influence over the representational materialization of the work is of fundamental importance. The ordering of player action partially but not fully controls the order of events in the representational layer – so that the player cannot choose the blocks that appear at the top of the screen, but chooses their placement at the bottom. The cumulative consequences of player ordering, in turn, may affect the overall duration of the game, resulting in shorter matches for less experienced players and longer matches for more experienced players. *Tetris*' goal, as with many other traditional arcade games, is to play for as long as possible, and a good performance is rewarded with increased reception time. At a micro-compositional level, however, this duration ratio tends to be reversed: less experienced players use more of the total time made available by the game between the appearance and the positioning of a piece, while experienced players make their decisions faster and accelerate the moment of positioning. This in turn affects the temporal category of order, since experienced players tend to carry out matches with a higher density of ordered actions per minute.

In relation to frequency, *Tetris* follows once again the patterns of its arcade contemporaries, being a highly repetitive videogame at both levels of its representation and reception, because blocks basically appear, fall, are positioned, and disappear in an ever-repeating loop. This poetics of "infinite teleology" (AARSETH; SMEDSTAD; SUNNANA, 2003), based on the lack of a clear winning/ending state, not only ensures that individual matches can be extended for as long as humanly possible for their players, but also works in favor of replayability. Being, however, a typical "game of emergence" (JUUL, 2005, p. 73),

Tetris combines simple rules and repetitive elements to generate a broad space of movement for its players, so that the same seven pieces may result in an infinite combination of possible "walls." In the plane of reception, despite the limiting of controls to a few buttons, each player action effectively translated into the representational plane is accompanied by a series of invisible actions, such as paying attention to the preview of following pieces, planning their positioning, mentally considering all available options etc. However, even this great variation of mental actions tends to be streamlined. Players eventually get familiarized with certain combinations of piece placement which are more efficient than others, thus developing their own game-play *gestalts* and strategies (LINDLEY, 2005).

We believe these to be the main temporal relations which distinguish the experience of playing *Tetris* among the planes of fiction, representation, and reception. A very different approach is found in a videogame like *The last of us part II* (NAUGHTY DOG, 2020), whose ludic appeal is built around its compelling narrative and fictional world. Dissonance between time of representation and time of fiction here becomes more expressive, displaying some similarities with other narratively focused art forms such as literature and cinema. Players of *The last of us* engage with the game in order to play it, but also in order to uncover a narrative which is, from the start, presented as pre-determined.

Regarding the temporal category of order, it is evident that analepses are skillfully employed in the maneuvering of player expectation/anticipation over story events. From the start, players know that Ellie and Joel have, in the story's "present," recently been through some sort of altercation, the nature of which will be revealed only hours later, in the course of a flashback. Once that information is presented, we are then able to recontextualize the initial events of the game and understand, under a new light, what Joel's untimely death might have meant for an Ellie eager to make emends with her father figure. This understanding retroactively justifies the lengths to which Ellie has been willing to go with her vengeance quest up until that moment, and grants additional drive to the violence that is yet to come. Additionally, discursive manipulations of order assist in highlighting the story parallels between Abby and Ellie, the two main player-characters. At the beginning of the game, for example, players alternate between Ellie's and Abby's perspectives in gameplay segments which may last from half to one hour, whilst still being capable of understanding the juxtaposed segments as occurring simultaneously in story time based on cues from their surroundings: both stories begin before

sunrise, follow a snow storm which gets progressively worse, and culminate in the two characters' face-to-face encounter, when Ellie gets to witness Joel's murder.

Duration also undergoes a range of dissonances between representation and fiction. The game begins with the ellipsis of a four-year period, marking Ellie's transition from an adolescent to a young adult. Moreover, combat segments are also interspersed with moments of temporal deceleration, in which players get to throw a brick or land a punch in slow-motion on an enemy which is, fiction-wise, dashing full-speed at their character. As in most contemporary videogames, the player is also afforded the possibility of pausing the game at will – a representational pause which does not correlate to a pause in story time. Regarding frequency, we may assume an iterative relation between representation and fiction in certain segments of the game. We know, for instance, that Ellie and Dina's trip to Seattle lasts for several weeks, most likely consisting of many repetitive days crossing through woods and abandoned structures – of which players are invited to experience only one. The opposite relation, that of repetition proper, is often not articulated as a mandatory game experience, but may be employed in accordance with a player's desire or ability: if Ellie or Abby die, the player will be required to repeat a game section; or they may voluntarily select, in the game's menu, a chapter they wish to replay.

This repetitive relation is of critical importance to the intersection of representation and reception. Although fighting against a particular enemy one time or twenty times will nonetheless mean a single battle in the fictional plane, repetition is at the base of an aesthetic pleasure very particular to the art of videogames, that of achieving perfect mastery over a given gameplay situation (HANSON, 2018, p. 110-134). By replaying the same segment, recipients may test different and more efficient combat strategies against infected and humans; or may carefully scan areas for collectables and secrets which were not found during a first playthrough. Regarding time of reception, the temporal category of duration in *The last of us* is also significantly influenced by player intervention. Unlike games which rigidly regulate the duration of player experience (such as *Tetris*), interactive segments in *The last of us* usually allow players to take as long as they wish in the careful exploration and appreciation of game space. This type of engagement is not only permitted, but encouraged, because it is only through meticulous spatial exploration that players are able to trigger dialogues which further inform characters' relationships or assemble the necessary resources to improve their equipment.

Moreover, the visual luxuriousness of the dynamic lighting, the dancing grass, the colossal, abandoned buildings reclaimed by nature, all invite a temporal configuration Eco (1995, p. 58-59) called "circumnavigational time," or the length of time necessary to appreciate the richness of detail in exuberant works of architecture. The game is carefully designed so that, in most situations, this leisurely exploration of indefinite duration does not clash with fictional time. For the most part, in *The last of us*, players assume the command of characters in moments of low narrative urgency, whereas temporal segments which are central to the plot are represented in the form of cutscenes. Even then, the unhurried exploration afforded to players can sometimes come into conflict with fiction, such as when Ellie enters the Baldwin mansion in the beginning of the game and hears Joel's tortured screams. At this point, the player is free to leisurely explore the mansion for resources before the fateful descent towards the basement, where a cutscene will interrupt the flow of action. This is an example of the ways in which representation in videogames may sometimes require some degree of "fictional filtering" on the part of players: instead of recontextualizing the character of Ellie in light of this depicted indifference, recipients are more likely to filter Ellie's delay out of their mental reconstruction of the game's fictional plane.

A final comment of interest regarding duration is that, in spite of the relaxed pace with which players can explore spaces in *The last of us*, individual actions tend to be slightly abbreviated the closer we get to real-world reception time. As a general rule, a real action will be faster than its representation, and the represented action will be faster than its assumed fictional equivalent. Therefore, the simple push of a button (which may last for less than a second) results in a representation of Abby incapacitating an enemy by strangulation (which lasts for around five seconds), an action which would probably take a bit longer in fictional time. This poetic configuration of a time that gets progressively faster as we move towards players' reception time is how the sense of fluidity and dynamicity of gameplay is often achieved in action games.

Lastly, order of player action and its translation into representation is also influenced by a tightly plotted narrative composition. Because they are not afforded the possibility of, for example, choosing between two branching paths, players of *The last of us* are constantly aware of their role as executors of scripted actions in a story that is not properly theirs, but Ellie's and Abby's. Moreover, since characters themselves are often exploring environments unfamiliar to them, the fictional setting of *The last of us* can easily incorporate player action – after all,

whenever players get lost and start walking in circles, it is coherent to assume that characters would also be lost and walking in circles. Thus, *The last of us* makes an attempt at radically circumscribing player experience inside its fictional plane, allowing players to control the general duration of their contact with the artwork while restricting the ordering of their actions inside what would be expected of fictional verisimilitude. Spatial triggers which regulate the beginning of important events are often employed in the making of this restricted order effect: players may freely explore a given space for as long as they want, ordering their actions inside that space as they please, but the crossing of a specific door may then trigger an enemy to appear or a cutscene to unfold.

In this manner, the importance of time as an analytical category for game studies and the art of videogames is made evident by our preceding analyses of *Tetris* and *The last of us part II* – two very different games which, nevertheless, can still be approximated based on how deeply their poetics is influenced by temporal matters. We hope the two examples have managed to satisfactorily illustrate the flexibility and applicability of our theoretical proposition. As promised, we may now turn to a detailed literature review of previous theories which have helped ground and inspire it.

4.1 PREVIOUS THEORIZATIONS OF VIDEOGAME TIME

In this section, we carry out a literature review of ten theories of videogame time developed throughout the years of 2001 to 2020. In line with our purposes, we have attempted to include in this chapter only academic studies concerned with 1) the general phenomenon of videogame time – thus excluding analytical works of specific games and/or specific temporal phenomena; and 2) the formal, poetic, and aesthetic properties of videogames – thus excluding strictly philosophical, sociological, and/or cognitive approaches to the subject. Studies which do not fit into these categories but which nonetheless present useful contributions to a theoretical understanding of time in videogames may be cited throughout the following chapters whenever appropriate, in relation to the specific categories of order, duration, and frequency.

Our literature review begins with Markku Eskelinen's (2001b) *Towards computer game studies*, a pioneer text both in its theorization of the temporal dimension of videogames and in

its adaptation of narrative theory to game studies. Because one of Eskelinen's (2001b) main concerns was to theorize videogames as independent from previous art forms – literature, theater, cinema etc. –, the author seeks to differentiate videogames based on their lack of narrativity. As a way of properly arguing that videogames are not narratives, Eskelinen appeals to the literary definitions of classic structuralist narratology: since a classic narrative requires not only a temporal sequence of events, but also a situation of narrative communication between a narrator and a narratee, computer games could not be considered narratives (ESKELINEN, 2001b, p. 176). For the author in question, because games fulfill the first condition without fulfilling the second, they are kept from being classified as "narratives" while maintaining enough of a connection so that analytical tools developed in the context of narratology can still be adapted and instrumentalized to serve them. From this point on, the author dedicates the third section of his article, "Aspects of time in computer games," to the task of adapting concepts from classic narratology – with special focus on authors such as Genette (1980), Chatman (1978), and Bremond (1980).

It should be noted, however, that Eskelinen (2001b) opens his argument with a few theoretical imprecisions.[10] Having cited Genette (1980) in the paragraph immediately preceding the section in question, Eskelinen (2001b) argues that the dominant temporal relation in narratives is established between *story time* and *discourse time* – even though the terminology preferred by Genette is that of a distinction between *story time* and *narrative time*, as previously explained. In the same vein, Eskelinen (2001b) mentions that narratology provides six analytical categories of time that can be adapted to game studies – order, speed, duration, frequency, simultaneity, and time of action –, but the specific authors who may have inspired said categories are not cited. As such, the author incurs in the danger of uncritically blending different theoretical traditions and, as a consequence, fails to consider a possible redundance between *duration* and *speed*, or the fact that *simultaneity* may be better understood as a subcategory of *order*. However, we may still attempt to untangle the matter by referring back to his sources. Genette (1980) employs "speed" in reference to the theoretical category of duration, proposing it as a synonym capable of describing the comparative relation between the two dimension of story time and narrative pseudo-time:

[10] His own imprecisions, however, do not seem to discourage him from criticizing a perceived lack of scientific rigor among his peers: "It is relatively stress-free to write about computer games as nothing too much has been said yet, and almost anything goes. The situation is pretty much the same when it comes to writing about games and gaming in general. The sad fact with alarming cumulative consequences is that they are under-theorised […]" (ESKELINEN, 2001b, p. 175).

> By “speed” we mean the relationship between a temporal dimension and a spatial dimension (so many meters per second, so many seconds per meter): the speed of a narrative will be defined by the relationship between duration (that of the story, measured in seconds, minutes, hours, days, months, and years) and a length (that of the text, measured in lines and in pages). (GENETTE, 1980, p. 87-88)

Seeing as Genette’s “speed” is an element of “duration” (more precisely, a specification of how a temporal duration and a spatial length may relate to one another), it is not clear how Eskelinen (2001b) intends to differentiate the two concepts. Other authors do not seem to provide any further insight: Bremond (1980) does not mention matters of order or duration, and Chatman (1978) references the discussion in the exact terms of Genette. We are left, therefore, with Prince (1987), who is not cited in this specific section of the article, but is included in Eskelinen’s list of references. In his *Dictionary of narratology*, Prince (1978) defends that duration, as a phenomenon existing between story time and discourse time, is hindered by the impossibility of temporal measurement which befalls the latter, a fact that “[...] has led many narratologists to consider the study of SPEED or TEMPO preferable to (more fruitful than) that of duration” (PRINCE, 1987, p. 24). The definition of “speed” provided by the author, in turn, takes us back to Genette: “The relationship between the *duration* of the NARRATED – the (approximate) amount of time (presumably) covered by the situations and events recounted – and the *length* of the narrative (in words, lines, or pages, for example)” (PRINCE, 1987, p. 91). If, once again, the relationship between duration and speed is one of specification or substitution, it is not possible to precise in which ways Eskelinen (2001b) intends to take them as two distinct temporal categories. Similarly, the category of “simultaneity,” also taken by Eskelinen as a separate entity, is very clearly presented by Prince (1982, p. 49) as a subcategory related to the order of events. However, having pointed out the theoretical inconsistencies in Eskelinen’s (2001b) proposition, we may still attempt to evaluate it in its own terms. The statement which introduces the author’s line of thinking reads as follows:

> The dominant temporal relation in (computer) games is the one between user time (the actions of the player) and event time (the happenings of the game), whereas in narrative it is situated between story time (the time of the events told) and discourse time (the time of the telling). (ESKELINEN, 2001b, p. 178)

As noted by Ruch (2013), Eskelinen’s theory, despite the apparent similarity with the dual temporality of literary narratology, is in fact concerned with only one temporal

dimension.[11] That is because, if story and discourse time refer to different planes (which can be superimposed and compared in their convergences and divergences, synchronies and asynchronies), Eskelinen's *user time* and *event time* can be conceptualized as existing inside one and the same temporal dimension. Player action (user time) and the happenings in the game (event time) seem to interact with and succeed one another in the composition of a single timeline, their relationship being determined by the dialogical movement of input and output proper of computer interaction. Although this unidimensionality may hinder Eskelinen's proposition in its capacity to adequately explain the temporal complexities of his object of study, it at least serves to greatly simplify it. In this way, the laborious process of comparing and contrasting two temporal lines is no longer necessary, and Eskelinen can limit his efforts to the listing of a few poetic structures of order, speed, duration etc. which are commonly found in the art of videogames.

With regards to *order*, Eskelinen (2001b, p. 180) states that, in games like *Tetris*, there is only one possible sequence of events, and the player's role is to keep executing that sequence for as long as possible; alternatively, in games like *Doom*, players may test possible sequences until they find the correct one and are then allowed to proceed: "So you either follow the order or spend your time finding it" (ESKELINEN, 2001b, p. 180). On our part, we do not agree that a game like *Tetris* presents players with only one sequential possibility. As previously stated, if the order of falling blocks is invariably determined by the game, it is still randomly assigned for every different match, and the cumulative consequences related to the positioning of each piece is still capable of generating an infinitely diverse combination of "walls." We also believe there to be many other phenomena appropriate to the analytical category of order which have not been mentioned by the author – some of which have been unnecessarily diluted throughout other categories.

In relation to *frequency*, Eskelinen (2001b, p. 180) claims that (game) events and (player) actions can either happen only once, a limited number of times, or an unlimited number of times. Thusly, the author differentiates between actions which cause irreversible consequences in the unfolding of the game, and actions the repetition of which is of no consequence whatsoever. *Speed* (ESKELINEN, 2001b, p. 180-181), in turn, is defined as a

[11] In a different article published a few years later under the same title of *Towards computer game studies*, Eskelinen (2004) more explicitly claims that: "[…] in games there's only one necessary time scheme, the one already noted: the movement from the beginning to the winning or some other situation. In cases where another time scheme is invented, it is not as important as the first one."

category which concerns pace – although this term is also not properly defined. The concepts of "transient time" and "intransient time" (AARSETH, 1997) are cited so as to specify who is in control of the pace of a game – the computer or the player, respectively. It is also mentioned that speed can oftentimes serve as a goal in and of itself (e.g. to finish the game as fast as possible), and that it can be conceptualized in relation to its constancy (it can accelerate, decelerate, or remain the same).

Duration (ESKELINEN, 2001b, p. 181), in turn, is considered to be a category related to the presence or absence of temporal limitations, and to whether player action may or may not be able to influence the shortening (e.g. quickly defeating an enemy) or the stretching (e.g. leisurely strolling around a space before fulfilling a main objective) of an event. Eskelinen mentions the example of games which establish a time limit and define a winner based on which player holds the best score at the end of that limit. However, we consider this example to be quite similar to that of "speed" taken as a goal in and of itself. Moreover, it would be reasonable to ask what exactly makes Aarseth's (1997) concept of "transiency" an appropriate trait of speed, but not of duration. According to the former, "[...] if the mere passing of the user's time causes scriptons to appear, the text is transient; if not, it is intransient" (AARSETH, 1997, p. 63). In our view, this explanation could be reasonably paraphrased in the following terms: a transient text is one in which the temporal duration of a recipient's contact with the work is capable of influencing the appearance of textual segments.

Additionally, Eskelinen (2001b, p. 181) classifies *time of action* (i.e. the player's ability to act) as it occurs before, during or after the events presented by the game. It is also in this category that the difference between turn-taking and "real-time" action in multiplayer games is considered by the author. Lastly, the category of *simultaneity* (ESKELINEN, 2001b, p. 181) considers player ability to freely stop and initiate the number of simultaneous events occurring in the game. It seems to us that both categories (time of action and simultaneity) would be more appropriately described as pertaining to the broader category of videogame "order."

Eskelinen's (2001b) proposition makes itself deliberately blind to any temporal phenomena related to the narrative potential of videogames, since the author does not consider "story time" to be a meaningful part of these digital objects. This, in addition to a certain tendency to disregard the "interpretive" function (AARSETH, 1997, p. 64) present in computer games, configures, in our opinion, the most debilitating weakness in Eskelinen's (2001b) theorization. His option for a unidimensional view of game time could also be considered

inappropriate to the task of theorizing the multiplicity of temporal composition, effects and meanings that can be created in this art form. Finally, Eskelinen's analytical categories seems unnecessarily diluted – a choice we deem disadvantageous insofar as it contributes to the separation of phenomena which might have otherwise been perceived as intimately connected.

There are, however, some valuable theoretical contributions worthy of recognition. First of all, it is extremely significant that incipient theoretical endeavors, such as this one, were already able to identify *actions* as the basic unit of composition of the art of videogames, even in relation to temporal poetics. Moreover, the author notes an important difference between actions which are executed by the player and actions which are executed by the computer – designating the former as "actions" proper and the latter as "events." We too think this distinction is sometimes necessary, and shall be employing it in the course of this study whenever appropriate. "Actions," then, may be used in reference to both the real actions performed by players and their immediate translation into the representational plane of a videogame – usually contextualized as the movements and actions of a specific player-character. "Events," on the other hand, may be used in reference to all remaining machine actions which occur somewhat independently from player input.

In contrast to Eskelinen (2001b), the temporal proposition articulated by Juul (2005) admits the importance of a fictional temporal dimension to videogames, and is therefore capable of more closely adhering to the duality already familiar to narratology. Initially published in the form of an article in 2004, Juul's temporal theory is slightly modified[12] to be included in the book *Half-real: videogames between real rules and fictional worlds* a year later. In this case as in others, our literature review will prioritize the most recent and rectified versions of each theoretical proposition. Not only does the book, as a whole, represent a fundamental point of development in the field of game studies, but Juul's (2005, p. 141-156) temporal theory in specific also achieves considerable notoriety, becoming a mandatory reference in all subsequent works on the topic of videogame time (HITCHENS, 2006; TYCHSEN; HITCHENS, 2009; ZAGAL; MATEAS, 2010; WEI; BIZZOCCHI; CALVERT, 2011; RUCH, 2013; ANYÓ, 2015). Citing the literary theorist Thomas Pavel, Juul opens his investigation by establishing a temporal duality between the dimensions of "play time" and "fictional time" – respectively, the temporal interval spent in the playing of a game, and the time of events as they happen in that

[12] The most prominent modification is merely terminological: whereas Juul (2004) speaks of "play time" and "event time," Juul (2005) prefers to speak of "play time" and "fictional time."

game's fictional world. Juul, however, defends that not all games are based on this duality: "abstract games" (JUUL, 2005, p. 131), for instance, do not rely on any type of representation, do not suggest the existence of a fictional world (exemplified by Juul with the cases of checkers and *Tetris*), and consequently do not create a second temporal dimension.

Notwithstanding abstract games, other types of videogames tend to rely, to a greater or lesser degree, on a fictional dimension. Juul (2005, p. 143) analyzes the relationship between play time and fictional time as a form of *projection*, and emphasizes the most common videogame projection as being that of a 1:1 ratio – meaning that a second/minute of play time also represents a second/minute in the passage of fictional time. A bit later, Juul (2005, p. 147-148) will further insist that, given the instability posed by analepses and prolepses to the significance of player action, the order of presentation of events in videogames is almost always chronological – after all, returns to the past and visits to the future threaten to invalidate some choices made by the player in the "present."

Throughout the section dedicated to "Time in Games," Juul (2005, p. 141-156) elaborates on a series of temporal phenomena which are wide in scope, but not systematically connected. Cutscenes are explained as a type of fictional time which is not projected onto play time; and loading screens are explained as a type of real-world time which is not projected onto fictional time – resulting in a disconnected play time and a continuous fictional time. Juul (2005) also mentions that fictional time can be historically situated (in the fifteenth century or in the year of 3133, for example); that objects in the fictional present can point to a fictional past; and that repetitive and mind-numbing tasks may cause boredom and thus modify a player's perception of the passage of time (a phenomenon he calls "dead time"). A recurrent point of interest, however, can be identified in Juul's mentions to the concept of "incoherent world." If a coherent world game allows us to imagine its fictional world in detail, an incoherent world game is

> […] a game with a fictional world but where the game contradicts itself or some game events cannot be explained as part of the fictional world. While in an incomplete fictional world there are blanks that the player must fill in, an incoherent world prevents the player from filling in the blanks. (JUUL, 2005, p. 132)

When translated into temporal terms, this "incoherence" may present itself, for example, in the interminable and consecutive levels of *Pengo* or *Counter Strike* – which Juul (2005, p. 148-151) considers to be games that project ontologically distinct fictional worlds for each new

match, thus generating a multiplicity of disconnected worlds which constantly replace one another. Juul (2005, p. 151-152) also mentions other examples of "breaks" or "violations" in videogame time: cases in which the diegetically contextualized ambient soundtrack does not stop playing when the game is paused (such as in *The Sims* and *Black & White*); and cases in which the fictional hours pass more quickly than they would in real time, but the physical movement of characters still displays the same speed it would in the real world (such as in *FIFA 2002* and *Grand Theft Auto III*). In these comments made by Juul (2005), we find, for the first time in our literature review, a reasoning that will persist throughout many subsequent investigations: the tendency to evaluate videogame representation in terms of its faithfulness to the real world, which often results in temporal dissonances being perceived as faults, incoherences, and violations.

Juul's (2005) treatment of time in *FIFA* and *GTA* provides a good illustration of this pseudo-platonic understanding of representation. Juul (2005) considers the level of "incoherence" presented by these games – in which the hours of the day are made shorter, but the physical movement of characters still adheres to the expected real-world speed – to be remarkable, but fails to consider that, for example, the first scene of the first act of Hamlet begins at a fictional midnight and, following an uninterrupted conversation among characters – which could hardly be extended for more than a few minutes of real time –, ends with the sunrise. How, then, should we explain this interval? Should we imagine that the conversation has occurred at an exceptionally slow speed? Or, contrarily, should we assume that the rotation of *Hamlet*'s planet is considerably faster than ours? Or should we maybe consider *Hamlet* as an incoherent world play? As we see it, this is a very similar matter to that regulating the temporal configuration of *FIFA* and *GTA*. In our contact with the artwork, we know that temporal representation is conditioned by the conventions of artistic genres and, in our mental process of fictional reconstruction, we interpret these representational correspondences with flexibility and selectivity.

This very issue has already been tackled by other investigations. Hitchens (2006) points out that Juul's (2005) broken/incoherent time can be more appropriately conceptualized not as a fault, but as "an example of the type of abstraction commonly seen in games" (HITCHENS, 2006, p. 48). Similarly, Ruch (2013) notices that the "incoherences" identified by Juul (2005) in the multiple deaths and resurrections of player-characters can easily be conceptualized as events which are not intended to integrate the fictional world of the game. Lastly, Anyó (2015)

defends that the "incoherent" time of *FIFA* and *GTA* "is only incoherent compared to real time" (ANYÓ, 2015, p. 69), and that such a phenomenon is not so different from that which in Genettian narratology would be called a "summary." Another point worthy of criticism in Juul's proposition relates to the concept of "projection" – more specifically, its limited scope and inability to fully account for the complexities of the relationship between play time and fictional time (WEI; BIZZOCCHI; CALVERT, 2011), as well as for the temporal non-linearity of many games (HITCHENS, 2006). Moreover, the temporal paradox Juul identifies in the use of prolepses and analepses in videogames is also questioned in its validity by some researchers (RUCH, 2013). These are all criticisms with which we are inclined to agree.

We consider Juul's (2005) theoretical proposition to be one of extreme importance, especially as the first proposition to effectively popularize a twofold temporal structure in the study of videogames. It is to Juul (2005) that we owe the borrowing of "fictional time" as one of our temporal dimensions in place of the literary correlate of "story time." However, many points of divergence have also been identified: if the author in question considers *Tetris* to be an abstract videogame with no fictional layer, our theoretical proposition, on the contrary, considers fiction to be a constitutive dimension of any videogame, *Tetris* included. We also hope to provide a broader and more systematic model for temporal theorization then that proposed by Juul (2005), including not only the matters of temporal duration encompassed by "projection," but also matters related to temporal order and frequency. Last but not least, we also believe that time in the art of videogames can only be appropriately explained by a threefold temporal structure. A clear distinction between "time of fiction" and "time of representation," for instance, could have prevented Juul from considering as "incoherences" the three lives of Mario, or the diegetic music which, in *The Sims*, keeps playing even after the game is paused – after all, not all events portrayed in the representational plane of a videogame will necessarily cross the diegetic barrier so as to compose the time (and the world) of its fiction.

In *The semiotics of time structure in ludic space as a foundation for analysis and design*, Craig Lindley (2005) goes a step further by attempting to theorize the semiotics and meaning-making processes of ludic systems.[13] His proposition distinguishes itself from others mainly by its level of systematicity. Lindley (2005) takes inspiration from structuralist narratology and

"Ludic systems" is the umbrella term employed by the author to designate games of all kinds and any game-adjacent objects. They are defined as "systems of experience incorporating concepts of game or game play and related experiences" (LINDLEY, 2005).

verbal language semiotics to organize a temporal model subdivided into hierarchically arranged layers:

> As with other temporal experiences, the time structure of ludic systems can be regarded in terms of several layers of the encoding of meaning, each being focused upon a different time scale. These layers are hierarchical […], deriving from Saussure's *langue/parole* distinction (language versus speech), and from the Russian formalist distinction between *fabula* and *syuzhet* (roughly equivalent to story and plot, respectively) in the study of narrative […]. (LINDLEY, 2005)

In contrast to Juul's (2005) twofold temporal structure, Lindley's (2005) theory defends that the time of ludic systems should be divided into a total of five different levels: the level of discourse, the level of performance, the level of simulation, and the generative substrate, which can be further subdivided into the levels of the generative substrate proper, and of the structural substrate. This hierarchization is visually explained in a table provided by the author himself (Table 3), which also presents a direct comparison with the fields that have inspired it.

Table 3 – Approximate correspondences of layers of the communication systems of natural language, ludic systems and linear narratives

Semiotics of verbal language	Semiotics of computer games	Semiotics of narrative
La parole (speech)	Narration/discourse	Narration/discourse
	performance	plot
	Model/simulation	story
La langue (language)	Generative substrate	structural substrate
	structural substrate	

Source: LINDLEY, 2005

Curiously, however, Lindley (2005) also states that three of his levels should likewise be understood as distinct and independent semiotic systems in their own right – so that discourse, performance, and simulation should correspond to the layers/levels/subsystems (the three terms appear to be employed interchangeably) of narrative, game, and simulation: "While these layers represent semiotic sublevels of the surface text of a ludic system constituting the

played experience […], they also represent potentially independent semiotic domains having their own design principles and traditions" (LINDLEY, 2005). This statement seems to come directly into conflict with his initial proposition, inspired by narratology and verbal semiotics, of a system hierarchically organized into superimposed layers.

The layer/level of *discourse*, the most superficial one in Lindley's hierarchy, is specified as the temporal structure of player experience, or the level through which plot is revealed/represented in each game session. Under it and informing it, there is the layer/level of *performance*, which is explained as pertaining to events proper, revealed to the player as part of the play experience. It is also the layer in which the player is considered no longer a mere observer, but an active participant in the game world. Although it represents an equivalent to plot in purely narrative systems, Lindley (2005) notes that:

> Ludic systems may not have a sufficiently strongly pre-specified plot structure to represent progress within a strongly preconceived (i.e. pre-authored) conception of a narrative, so the performance level cannot generally be regarded as a plot as it is experienced by the player. (LINDLEY, 2005)

In other words, the concept of plot as a fixed structure related to authorial planning hinders its applicability to the specific cultural object of videogames – an argument also defended by the present thesis (see note one in this chapter). Still, Lindley's (2005) concern with differentiating and integrating "plot" and "discourse" into his theoretical model represents a remarkable distinction from most theories both previously and subsequently analyzed in this section – which, although inspired by classic narratology, often tend to conflate the two. The author then exemplifies the level of performance with the case of RPGs in which players may choose their preferred order for fulfilling each presented quest/task.

The third level is that of *simulation*, equivalent to the level of story in purely narrative systems, and consequently representing an abstract dimension which may include everything that is mentally inferred and reconstructed by recipients beyond what is explicitly represented. For Lindley (2005), "this is the level at which the authored logic and parameters of a game system together with the specific interactive choices of the player determine an (implied) diegetic (i.e. represented) world." *SimCity* is evoked as an example in which a player's city can be imagined as making part of a broader world to which the player does not have access. Finally, the last level is that of the *generative substrate*, which refers to the rules and limitations created by developers from which a space of possible worlds and experiences can be derived. Lindley (2005) equates the notion of "generative substrate," on one hand, to Saussure's notion of *langue*

and, on the other hand, to the socially and culturally implicit rules which inform the creation of any story/narrative. Given the distinct nature of the two comparisons – one being markedly structuralist, and the other much more culturally oriented –, Lindley suggests the aforementioned possibility of further subdividing this layer of temporal structuring. In this manner, the *generative substrate* proper should be taken as the underlying code which invariably conditions the simulation and player experience; and beyond which the *structural substrate*, as a culturally determined underlying set of rules, could be identified.

The semiotic theory of computer games proposed by Lindley (2005) is, in our opinion, built over a solid and systematic foundation: over a game's code, there is the simulative system; over the simulation, there are specific events which can be explored by the player; and, finally, these events are discursively consolidated into a representational layer. However, when it comes time to elaborate on the temporality initially put forth by his proposition, Lindley isolates three of his five temporal levels and, as mentioned, defends that they should be understood not only as hierarchically organized layers in a larger system, but also as independent semiotic systems in and of themselves – each guided by their own traditions and principles of composition. This is how the levels of simulation, performance, and discourse become, respectively, the semiotic subdomains of simulation, game, and narrative.

The subdomain of *simulation* is the most basic in terms of its temporal design, being responsible for the underlying movement and functionality of the game world as a whole, thus regulating the changes of state that happen in the system with each simulation cycle. Lindley (2005) understands a simulation as being "a representation of the function, operation or features of one process or system through the use of another." When considering the temporal patterns which emerge from the subdomain of simulation, Lindley (2005) does not seem to consider any possibility of player interference, focusing instead on that which the simulative system is capable of executing on its own.

Games, in turn, are defined by Lindley (2005) as "a goal-directed and competitive activity conducted within a framework of agreed rules," and their subdomain is mainly discussed in relation to the actions performed by the player. Lindley (2005) theorizes that, at this level, temporal structure is organized around the combination of unitary actions which are integrated into larger patterns: *game moves*, as the smallest possible unit of action, are linked to create *game-play gestalts*, which are then linked to create *tactics* that are finally integrated into an overall strategy of play. This identification of repetitive patters of unitary actions at the

base of gameplay experience is, as we see it, one of the most important innovations of Lindley's (2005) approach.

The final subsystem discussed by the author is that of *narrative*, defined as "a representation of the causally interconnected events of a story" (LINDLEY, 2005). In order to explain its temporal patterns, Lindley borrows from film theory the notion of a "three-act restorative structure" – which establishes a central conflict in the first act, its developments in the second, and its resolution in the third. This structure is then presented as being capable of composing the narrative of games at different scales: if, on one hand, it may serve as a guiding principle for the entirety of player experience with a game, on the other hand, it can also structure smaller portions of the game, such as particular levels or battles against specific enemies. As in the previous system, Lindley identifies "game moves" as the basic unit of narrative performance – claiming that the patterned repetition of moves is, for instance, what ultimately makes up the identity/characterization of player-built avatars in the narrative of an RPG.

The main problem we identify in Lindley's theory is the incompatibility between the initially postulated interdependence/hierarchy among levels in a semiotic system, and the subsequent defense of those same levels' independence from each other. The hierarchical organization proposed by Lindley (2005) in table 3 indicates, for instance, that there cannot be performance without simulation and discourse without performance. Indeed, we would be willing to admit some level of subordination between performance and discourse in the art of videogames, in the sense that discourse is only materialized through effective player contact with the work. However, the same subordinate relation is much less defensible between, for example, the supposedly correlated notions of "game" and "narrative."

This contradiction is particularly highlighted at the end of the article, when Lindley (2005) proposes a triangular typology into which different ludic systems can be sorted according to the prominence assumed by each semiotic subsystem (simulation, game, or narrative) in its overall composition. *Tetris*, for instance, is positioned in the extreme corner of the system "game," thus indicating a minimum (if not non-existence) presence of simulative and narrative subsystems in its composition. It is precisely to avoid this binary opposition between games and narrative – frequently posited by early game studies authors writing near the turn of the century – that we make the option for theorizing the signifying plane of the art

of videogames under the general emblem of "representation," related to but independent from both notions of narrative and game.

The independence postulated at the end of the article among the temporal subsystems of simulation, game, and narrative also seems to undermine one of the strong points of Lindley's (2005) initial model: the possibility of conceptualizing the multidimensionality of time in the art of videogames. It seems to us of great significance that Lindley (2005) cannot develop a temporal discussion encompassing the many different layers of the same semiotic system, but instead requires these layers to become subsystems of their own for their temporality to be analyzed in isolation. In contrast to Eskelinen (2001b), Lindley seems to admit the existence of multiple temporal dimensions, but his analytical and theoretical movements are ultimately limited to the same unidimensionality adopted by his predecessor.

As mentioned, however, Lindley's (2005) proposition presents a valuable contribution for the study of videogame time in its highlighting of repetition as a grounding principle of the temporal experience presented by games: in the course of both gameplay and narrative, repeatable unitary actions are integrated into also repeatable larger patterns.[14] The concept of *game move*, especially, is defined by the author as "an abstraction over player action, mapping action to a specific significance within the rule set independently of local, personal and idiosyncratic variations in performance" (LINDLEY, 2005), and seems particularly useful not only to the conceptualization of how frequency is constitutive of game time, but also of how videogames are capable of signifying players' real actions into their representational plane.

Moving on in our literature review, the article *Game classification and game design*, by Christian Elverdam and Espen Aarseth (2007), rectifies and expands on a paper previously published by one of the authors.[15] Their proposition is, admittedly, not exclusively related to videogame time, but aims instead at articulating a flexible typology capable of classifying videogames into different genres based on eight meta-categories. We shall limit our comments strictly to the temporally relevant sections of the typology. According to Elverdam and Aarseth (2007), videogames can be distinguished based on the different treatments they confer upon time. As such, the typological category of time can be divided into two meta-categories, those

[14] In the lingo of game development, these principles of repetition and stratification find resonance in the notion of "gameplay loop," a simple repetitive action which makes up the base of every gameplay experience. The concept will be further developed in our chapter dedicated to analyzing temporal frequency in videogames.
[15] *A multi-dimensional typology of games* (AARSETH; SMEDSTAD; SUNNANA, 2003).

of “external time,” which specifies how time in the game relates to time in the world outside it, and of “internal time,” which specifies how time is formally articulated within the game itself. External time is subdivided into the categories of “teleology” and “representation,” whereas internal time is subdivided into “haste,” “synchronicity,” and “interval control.”

The *teleology* of a game is finite in cases which establish a clear ending point related to victory/game completion, or infinite in cases which could be indefinitely extended, with no clear point of victory or completion. *Representation* is mimetic whenever the passage of time in the game reflects the passage of time in the real world, and arbitrary whenever the real world is not strictly followed as a temporal model. In our view, both categories already present a few conceptual problems. Teleology, for instance, does not clarify if we are to consider as finite or infinite videogames which, in the style of *Tetris* and *Space Invaders*, never grant their players the possibility of a real victory, only allowing for the postponement of an inevitable defeat. It could be argued that defeat in *Tetris* marks the clear “ending” of a match, but this has not prevented the game in question from being classified as an example of infinite teleology in the first published version of the typology (AARSETH; SMEDSTAD; SUNNANA, 2003, p. 51). Notably, the revised 2007 typology abstains from mentioning *Tetris* anywhere in the temporal meta-category, maybe because the authors were made aware of this ambiguity. Representation, in turn, once again brings to light the tendency, already identified in Juul (2005), of evaluating videogame time in direct comparison to the physical laws of the real world, a line of thinking we do not consider particularly productive.

The remaining categories refer to the “internal time” of a game. *Haste* can be present or absent, and specifies whether the mere passage of (real) time is capable of altering game states. *Synchronicity* specifies whether the agents in a game (including real players and computer-controlled entities) are capable of acting at the same time, or instead need to wait for their respective turns. Finally, *interval control* refers to whether players can or cannot decide when the next game cycle should begin. If we ignore the obvious problem presented by the lack of a clear definition specifying what should count as a “game state” or as a “game cycle,” a quite serious conceptual problem can still be identified in the category of “haste,” because many games tend to combine moments of absent and present haste in the totality of their poetic configuration, thus rendering it an improper category to a typological classification.

Outer wilds (MOBIUS DIGITAL, 2019)[16] for example, is a game that, on principle, seems to be completely organized around the concept of haste: players have twenty-two minutes to explore a solar system before a supernova explosion takes them back to the beginning of a temporal loop, at which point they must start their exploration again from their home planet. However, so that first-time players do not have their experience frustrated by this poetic feature, the initial contact with the game is purposefully not determined by this temporal limit. It is only after completing a few mandatory tasks and going to space for the first time that temporal haste will begin to dictate player experience. Additionally, players can also change game configurations to stop the twenty-two-minute countdown whenever reading documents and having conversations with fictional characters, thus temporarily alleviating the pressure of haste. Therefore, although it may be a useful category to think the general temporal poetics of videogames, haste might be considerably less useful in its capacity to classify videogames into distinct genres. Still, Elverdam and Aarseth (2007) provide a useful list of varied temporal phenomena, which will be considered in the course of our analytical chapters.

The next model is that proposed by Tychsen and Hitchens (2009) in *Game time: modeling and analysing time in multiplayer and massively multiplayer games*, also an expansion over a previously published article.[17] Notwithstanding the selection of genre made in the title of the article, the authors defend that their presented model should be "equally applicable outside this game form" (TYCHSEN; HITCHENS, 2009, p. 172). The theory in question proposes seven dimensions through which time in games can be conceptualized, and is mainly built over the temporal precedent set by Juul (2005) and Hitchens (2006). The latter is especially highlighted in what is considered by the authors to be its most important addition to Juul's (2005) proposition: the possibility of theorizing the non-linearity of time in videogames, as manifested in the structure of branching choices which can later be revisited by the player. This non-linear aspect assumes such a central position in Tychsen and Hitchens' (2009) model that the seven temporal dimensions theorized by the authors are ultimately

[16] Nominations: "Best Game Direction," "Best Independent Game," and "Fresh Indie Game" in *The Game Awards* 2019; "Best Game" (winner), "Game Design" (winner), "Original Property" (winner), "Music," and "Narrative" in the *BAFTA Games Awards* 2020; "Game of the Year," "Best Debut," "Best Design," "Innovation Award," and "Best Narrative" in the *Game Developers Choice Awards* 2020.

[17] *Time and computer games or "no, that's not what happened"* (HITCHENS, 2006) distinguishes itself from its successor mostly by its comparatively smaller number of proposed temporal dimensions. If Hitchens (2006) separates videogame time into playing time, engine time, game progress time, and game world time, Tychsen and Hitchens (2009) identify seven different dimensions, presented in the following paragraphs. Moreover, the first model organizes different times according to their affiliation to the real world ("playing time" and "engine time") or to the game itself ("game progress time" and "game world time"), whereas the second model distinguishes temporal dimensions based on a criterion of "linearity."

organized into two main groups – those pertaining to the "linear" and those pertaining to the "non-linear" representation of time. The linear representation of time includes the dimensions of "playing time," "engine time," and "server time"; whereas the non-linear representation includes "progress time," "story time," and "world time." A final category, unrelated to the criterion of linearity, is that of "perceived time," in reference to the subjective perception of time elaborated by players during their contact with the game.

Playing time (TYCHSEN; HITCHENS, 2009, p. 184-185) is the objective, chronological, real-world time lived by players during and between game sessions. Regarding multiplayer games, the authors specify that playing time includes the entire real-world period in which at least one player is passively or actively present in the game. *Engine time*, on the other hand, "represents the perspective of the game engine or application software running the gaming application" (TYCHSEN; HITCHENS, 2009, p. 185). It is also considered an objective, linear, and chronological time related to the real world, but it refers specifically to the time of execution of the game's software. A way of distinguishing between the admittedly quite similar dimensions of playing time and engine time, as per the authors' suggestion, is to think the specific case of a pause between two playing sessions. In playing time, this pause should be interpreted as a "break" from the perspective of a given player, whereas in engine time, the pause should not even be registered as such, because engine time progresses only insofar as the software is in execution (TYCHSEN; HITCHENS, 2009, p. 175). In non-digital games (e.g. board and card games), engine time can be interpreted as the time spent by the players inside the magic circle. In videogames, however, engine time is a dimension of individual reach, because it is specific to each machine capable of running the game.

Server time (TYCHSEN; HITCHENS, 2009, p. 186-187), then, is responsible for introducing a technologically bound, yet collectively shared temporal dimension. It is defined as the linear, chronological, real-world time in which the server of a game executes, thus acting as a convergence point to the engine time of many different computers. It is, according to the authors, a particularly useful concept to the theorization of persistent world games like MMORPGs. The difference between engine time and server time can be precised also by way of comparing a pause in playing time. Engine time, as a dimension particular to any given machine, does not register the pause; server time, on the other hand, is capable of registering the pause between the end of an individual play sessions and the beginning of the next. A pause in playing time, therefore, is mapped onto server time as an equivalent temporal segment.

Some conceptual encumbrances can be identified in the dimensions related to the "linear" representation of time. For instance, it seems significant that the main difference among the three dimensions – which are otherwise very similar to each other – is exemplified by way of a non-playable example, that is, a pause in the game. Seeing as the authors do not provide other examples of how these temporal dimensions could relate to each other or influence one another, it seems fair to raise the question of their possible redundance. Moreover, although the authors initially state that their model is applicable to a wide range of videogame genres, the selected dimensions seem to make evident that the model is greatly biased towards the specific genre of multiplayer RPGs – as the existence of server time in addition to that of engine time and playing time seems to suggest.

On the other hand, temporal non-linearity in videogames is stratified into progress time, story time, and world time. *Progress time* (TYCHSEN; HITCHENS, 2009, p. 188-191) is an abstract, logical concept,[18] specific to each individual player, which is related to player progress throughout the game. It tends to materialize as *mechanic progress* (related to the development/acquisition of new abilities capable of changing gameplay dynamics) and *task progress* (related to the completion of tasks, objectives, and quests). It is considered a non-linear temporality because players are commonly afforded the possibility of revisiting previous stages in their progress through save files, and because making the wrong choices in a play session may result in a "regression" of progress time. *Story time* (TYCHSEN; HITCHENS, 2009, p. 191) is defined as the time of the story enacted by players in collaboration with the game, and is strictly related to progress time, especially to progress achieved via tasks. According to the authors, its non-linearity lies in the fact that story time may be ordered by a non-chronological presentation of story segments – so that, in our view, it might have been more appropriately described as "plot time" rather than "story time."

World time (TYCHSEN; HITCHENS, 2009, p. 192-194) or, more specifically, game world time, could be considered the most inconsistent category in Tychsen and Hitchens's (2009) proposition. It refers to the passage of time as it occurs inside the world of a videogame, and can, on one hand, be considered as a linear/complete time inside its own frame of reference – meaning that it is a time dissociated from the analepses and ellipses which might be identified in story time, for example. On the other hand, however, it can also be considered as a non-linear time whenever players are capable of loading a save file and, from there, continue on a different

[18] The authors employ the descriptor "logical" in opposition to "chronological."

path from the one previously taken. It is also variable in the sense that it can be considered both a chronological time and an abstract, logical time. Additionally, the authors also comment that attempting to project game world time onto other dimensions may result in some complication of the temporal model. For example, relating playing time to game world time can result in incoherences such as the "compressed time" of *FIFA 2002* noted by Juul (2005). To explain such cases, the authors suggest that "world time may need to be mapped separately for the world itself and for the characters acting within it" (TYCHSEN; HITCHENS, 2009, p. 193), thus pointing to the need of fractioning their theoretical model even further. Finally, *perceived time* (TYCHSEN; HITCHENS, 2009, p. 195-198) refers to the subjective gameplay experience of an individual player, and is a temporal concept built on top of said player's interaction with other temporal dimensions. The two authors especially highlight that the non-linear representations of time (progress, story, and world time) may be subject to considerable perceptual divergences among different players. Moreover, it is stated that the psychological and individualized nature of perceived time makes it particularly hard to describe and to compare with other dimensions.

Despite some clear theoretical inconsistencies, Tychsen and Hitchens' (2009) model also makes some valuable contributions to the study of time in videogames. Firstly, in this theoretical model as in others, the authors also identify the importance of thinking videogame time as conditioned by the actions (here called "activities") performed by the player. Some types of activities are listed, such as initiating and ending a game, saving a session, reading a segment of text which appears on the screen, and effectively interacting with the game system by running, fighting, buying equipment etc. (TYCHSEN; HITCHENS, 2009, p. 183; 185). However, this aspect of Tychsen and Hitchens' theory is only briefly mentioned and not properly developed in the article. Additionally, they seem to pay no attention to the process by which real player action is transformed into part of a game's representation and/or fiction – something that Juul (2005), for example, had previously attempted to do. Consequently, Tychsen and Hitchens (2009) do not seem to differentiate between real (inter)action among player and computer, and the fictional actions of running, fighting etc.

Still, the authors are capable of including into their model actions commonly disregarded as "passive" – for example, the acts of reading a text, watching a cutscene, pondering among available options etc. (TYCHSEN; HITCHENS, 2009, p. 179). This is, in our opinion, a discernable improvement in relation to Juul's (2005) proposition, which, for instance,

explicitly disconnects play time and fictional time in the case of cutscenes – as if the act of watching a cutscene should not count as part of the player's interaction with a game. However, we think that the excessive atomization of Tychsen and Hitchens' (2009) proposition does not work in its favor. When analyzing a given temporal phenomena, the authors seem incapable of articulating more than two dimensions at a time, necessarily leaving many others unconsidered. It is also, as mentioned, worth questioning if some of the seven dimensions do not present some level of redundancy in relation to each other. In general, the elevated number of temporal dimensions seems to hinder the viability and stability of the proposed theoretical model.

The next theoretical proposition, Zagal and Mateas' (2010) *Time in video games: a survey and analysis*, does not present a proper attempt at theorizing time, but instead aims to articulate a conceptual tool – called a "temporal frame" – to aid in the analysis of specific games. In addition to that, the authors also present a method through which temporal frames can be freely created by other researchers and developers in accordance to their personal analytical needs. Although the temporal frame is a tool admittedly directed to the analysis of specific cases, its flexibility and general applicability has motivated its inclusion in our literature review, in addition to the fact that Zagal and Mateas (2010) ostensibly allude to and base their proposition on many of the works mentioned until now (ESKELINEN, 2001b; JUUL, 2005; ELVERDAM; AARSETH, 2007; TYCHSEN; HITCHENS, 2009).

The authors consider their main contribution to be the development of "a definition of temporal frame uncoupled from any specific event progression" (ZAGAL; MATEAS, 2010, p. 845), in contrast to the tendency, presented by previous authors, of grounding their theoretical models over the articulation of fixed temporal frames or dimensions. The first step taken by Zagal and Mateas (2010, p. 846) in the articulation of their conceptual tool is that of adopting what they call a relationist understanding of time, in opposition to a platonic understanding of time. They explain that, whereas the latter takes time to be an entity in and of itself, as existing and passing irrespective of the events which may or may not be occurring inside it, the relationist view, on the other hand, understands time on the basis of the movements, changes, and relationships established between different events – so that time can only be said to exist in relation to those events. The adoption of a relationist view allows Zagal and Mateas (2010, p. 846-847) to privilege a phenomenological conception of time focused on player perception and subjective experience of game time.

Zagal and Mateas (2010) then define a "temporal frame" as any set of events and the relationship between them – event selection being subject to the particular objectives of a given research. From this definition, it can be inferred that a temporal frame does not need to be restricted to the analysis of events exclusively situated in the "real" or "fictional" world, being instead capable of indiscriminately merging the two. Then, in order to illustrate the viability of their model, the authors propose the articulation of a few temporal frames "commonly relevant for analyzing video games" (ZAGAL; MATEAS, 2010, p. 848). These frames, quite similar to the dimensions previously identified in other theoretical propositions from which Zagal and Mateas (2010) sought to distance themselves, are: real-world time, gameworld time, coordination time, and fictive time.

Real-world time (ZAGAL; MATEAS, 2010, p. 848-849) encompasses the entire set of events which occur in the physical world around the player, including their performed bodily actions. In relation to Juul's (2005) play time, the two authors highlight that their real-world time assumes a broader scope, because it is not limited to the temporal duration necessary for the playing of a game and is, therefore, also capable of explaining events in the real world which are integrated into the game – such as the incorporation of holidays, seasons, and players' real time of day into a game's representation. This temporal frame is quite similar to the "time of reception" postulated in our own theoretical model, and it should also be noted that we agree with Zagal and Mateas' (2010) impulse to expand it beyond Juul's (2005) comparatively more restricted concept of "play time."

Gameworld time (ZAGAL; MATEAS, 2010, p. 849-850), in turn, refers to events which occur in the world represented by the game – be that world an entirely abstract one (as in *Tetris*) or fictionally contextualized as a world similar to our own. In this frame are included the abstract representation of actions performed by the player as well as events instantiated by a game's simulation. This frame is also capable of establishing its own temporal cycles independent from those of real-world time – so that, for example, the representation of a day-night cycle in the former does not need to obey the logics of the latter. The next frame, that of *coordination time* (ZAGAL; MATEAS, 2010, p. 850), of those articulated by the two authors as examples of their proposed methodology, is probably the one which better illustrates the conceptual fluidity of the "temporal frame" as a tool. If the three other frames follow the same logic of the rigid "dimensions" articulated by other theorists, coordination time points to a less obvious temporal relation which can still be useful for the analysis of games. It is defined as:

> […] the set of events that coordinate the actions of multiple players (human or artificial intelligence [AI]) and possibly in-game agents. Coordination events are the markers that regulate gameplay through moments of synchronization and coordination. (ZAGAL; MATEAS, 2010, p. 850)

Coordination events can, for example, determine time limits for gameplay, restrict access to certain areas of the gameworld, or delay certain actions performed by players or game systems to guarantee synchronicity. The temporal phenomena of rounds and levels are specifically discussed in relation to this frame. However, as useful a frame as it may be, it should be recognized that coordination time is markedly different from its counterparts. It strikes us as a negative sign that more frames like it, equally capable of escaping the ontological rigidity separating the dimensions of fiction, representation, and reality, could not be articulated by Zagal and Mateas (2010).

Lastly, *fictive time* (ZAGAL; MATEAS, 2010, p. 850-851), in contrast to the often preferred terminology of "fictional time," is "established through the application of sociocultural labels to a subset of events" (ZAGAL; MATEAS, 2010, p. 850). The authors defend that, in a game, the contextualizing of the passage of time as "days" and "years," or the explicit allusion to real-world historical events, are compositional devices capable of activating players' temporal cognitive schemata and historical knowledge, which in turn affect gameplay experience and player expectation. Therefore, the two authors make the option of explaining the frame of fictive time not as a reconstruction of a fictional world and its events (which, in their model, would possibly fall under the domain of "gameworld time"), but as allusions to temporal schemata and historical facts that can be recognized by the player.

It is, however, within the frame of fictive time that the authors also attempt to discuss games which present fictional narratives. Zagal and Mateas (2010, p. 851) point very briefly to the possibility that narrative in games could be analyzed by way of "narrative frames," which could be considered subtypes in the broader analytical category of the "fictive frame." Three distinct narrative frames inspired by narratology are then listed by the authors: "[...] narratology establishes a distinction between the chronological order of a series of events (story time), how these events may be narrated (discourse time), and the time of narration (narrative time). Collectively these are the narrative frames" (ZAGAL; MATEAS, 2010, p. 850). We may identify here a problem similar to that previously presented by Eskelinen (2001b) – that the imprecision of narratological sources and the possible merging of different authors and theories

might have resulted in some conceptual confusion.[19] Moreover, if we consider Zagal and Mateas' (2010) initial proposition of articulating the "temporal frame" as a flexible tool capable of serving many analytical purposes, then it might be difficult to justify their option for situating "narrative frames" as subtypes in the fixed frame of "fictive time" – almost as if the analytical objective of studying narratives in games were not relevant enough to merit its own temporal frame.

After presenting the four temporal frames, Zagal and Mateas (2010) briefly discuss how different frames could be conjointly analyzed to explain specific temporal phenomena in the art of videogames: by way of frame-to-frame interaction; of temporal anomalies engendered by these interactions; and of the agency exerted by the player over different frames. Interactions are divided into different types: temporal frames may succeed one another; overlap and coexist with one another; or be embedded into one another. Some examples are then elaborated around the guiding principles of immediacy, availability, and liveliness: when events in real-world time are immediately correlated to events in gameworld time, players have a sense of immediacy; when coordination time determines a turn-based temporal organization, the gameworld and its time may become unavailable to the player; and whenever events in gameworld time occur without any correlation to events in real-world time (e.g. player action), then the gameworld is perceived as presenting liveliness (ZAGAL; MATEAS, 2010, p. 852-854).

This discussion develops into a debate about the temporal anomalies which occur when the "relationships between different, often coexisting, temporal frames within one game can result in a sense of temporality that is inconsistent, contradictory, or dissonant with our experience of real-world time" (ZAGAL; MATEAS, 2010, p. 854). Some mentioned anomalies are: *temporal bubbles*, when the player is allowed to move between temporal frames dissociated from one another – for example, when entering a building in *GTA III* stops the passage of time in the world outside; *temporal warping*, when the overlap of two temporal frames results in some sort of inconsistency – noted by Juul (2005) in relation to the physical movement of characters in the worlds of *GTA* and *FIFA*; *non-uniform temporality*, when, for example,

[19] The description provided by the authors to "discourse time" seems more compatible with the already discussed notion of "plot" – which, as an abstract concept capable of being translated into different semiotic manifestations, cannot really be equated to "discourse." Moreover, the expression "time of narration" further complicates the conceptual relation between the three narrative frames listed by Zagal and Mateas (2010) – after all, the expression may refer to the real time of narration (the pseudo-time identified by Genette in the case of written narratives) as well as to the fictionally contextualized time taken by the narrator, as a character, to tell his story to a narratee. It is in this last sense that Prince (1982, p. 31), for example, employs the expression when discussing the category of temporal duration.

coordination time determines different time limits to different rounds; and *slowdown*, when the complexity of the gameworld is incompatible with the machine hardware running it, resulting in a lagging effect (ZAGAL; MATEAS, 2010, p. 854-856). Finally, Zagal and Mateas (2010, p. 856-859) mention that players can also be offered the possibility to manipulate temporal frames, thus transforming time into an element of gameplay. Coordination time can be manipulated when players have the option of skipping their turn in a card game; gameworld time can be manipulated when players pause or accelerate the speed of the passage of time; and fictive time can be manipulated when time travel is incorporated into the narrative through a rewind effect – to mention a few examples.

Zagal and Mateas' (2010) proposition is, in our view, successful in its endeavor to articulate an analytical tool which can be easily adapted to serve different research objectives. Their model allows for the creation of as many temporal frames as might be necessary to account for a given game, or even for specific segments of a game. This may result in a better understanding, for example, of games that alternate between different temporal configurations throughout their composition. However, the present thesis attempts to theorize the poetic configuration of time in videogames as an artistic and sociocultural phenomenon, and thus cannot do without the articulation of fixed dimensions – which is why we have made the option to understand fiction, representation, and reception as unnegotiable planes in the overall composition of the art form in question. It should also be noted that, despite their initial claims, Zagal and Mateas (2010) proposition ends up greatly resembling the rigid theoretical models of their predecessors. If we were to evaluate their proto-theoretical proposition – composed by the dimensions of real-world time, gameworld time, coordination time, and fictive time – on its own merits, then it would be necessary to point out its inadequacies to the investigation of narrative and fiction in videogames, as previously demonstrated. The identification of certain "temporal anomalies" also seems reminiscent of the same real-world oriented, pseudo-platonic line of thinking previously identified in Juul (2005), and Elverdam and Aarseth (2007).

Moving on in our literature review, the article *Time and space in digital game storytelling,*[20] by Huaxin Wei, Jim Bizzocchi and Tom Calvert (2011), returns to the foundations of classic narratology to investigate and theorize how new narrative forms are

[20] The objective of this article is not to exclusively theorize the temporal dimension of videogames, but to more broadly theorize the convergence of space and time in the formation of plot in digital and interactive narratives. Our review focuses only on those sections totally or partially related to the category of time, leaving aside all strictly spatial discussions.

configured in interactive digital environments. Videogames are selected as privileged objects of study because, according to the authors, they have "received most attention and popularity, and have become the most successful application of interactive narrative" (WEI; BIZZOCCHI; CALVERT, 2011, p. 1). The authors highlight a lack of consensus and theoretical rigor in previous theories of time – Tychsen and Hitchens (2009), Juul (2005), and Eskelinen (2004) are specifically mentioned, among others – in order to propose a return to classic Genettian narratology as a solution to this state of disarray.

The twofold temporal structure composed by story and narrative discourse is then adopted with a slight modification. For the authors, time in videogames should be subdivided into *operational time*, in reference to the "running process of a game driven by both the player's actions and the game's autonomous mechanisms," and *story time*, related to the "coherent story reconstructed during and/or after the gameplay by the player, which consists of a succession of events in chronological order" (WEI; BIZZOCCHI; CALVERT, 2011, p. 4). These are, respectively, quite similar to our own *time of representation* and *time of fiction* – because the former is dependent on the interaction between player and machine, and the latter also refers to a dimension which is mentally reconstructed by players. The authors also take Genette's (1980) three temporal categories of order, duration, and frequency as guiding principles for the analysis of time in the art of videogames, only with a terminological substitution of "duration" for the already discussed correlate of "speed." However, Wei, Bizzocchi and Calvert (2011, p. 3) also propose a fourth category of temporal analysis called *polychrony*, based on the concept of "fuzzy temporality" borrowed from David Herman (2002), which aims at explaining the temporal non-linearity the three authors consider to be a distinctive feature of videogames.

When discussing relations of *order* between operational time and story time, Wei, Bizzocchi, and Calvert (2011, p. 5-6) mention analepses and prolepses as rare occurrences in videogames – which seems to corroborate Juul's (2005) perceived incompatibility between videogames and temporal orderings other than strict chronology. The authors, however, identify a strategy of temporal ordering they perceive as specific to the art of videogames: that of order as employed in relation to puzzle-solving. To associate the resolution of a puzzle to a precise ordering of player action is, according to the authors, a compositional practice which "effectively conjoins the narrative concept of order with the dynamics of ludic play" (WEI; BIZZOCCHI; CALVERT, 2011).

Speed (WEI; BIZZOCCHI; CALVERT, 2011, p. 6-7), in turn, is subdivided into the categories of ellipsis, summary, scene, stretch, and pause – taken not from Genette (1980) proper, but from Bal (2009), as indicated by the added category of temporal "stretching." Scene is mentioned as the most common temporal speed found in videogames – even if, according to the authors, different games may present slightly varying speeds of scene, some faster than others. It is also in relation to this subcategory that game integration of players' clocks and calendars is situated, such as in the famous example provided by *Animal crossing*. Summary is discussed only through the example of cutscenes which condense the passage of multiple fictional years; and stretches are mainly illustrated through the example of "bullet time," a temporal effect considered particularly interesting by the authors because it is not only representational, but also plays a role in the mechanics of gameplay. Ellipsis occurs whenever events in story time are skipped in operational time, or whenever the player character can "teleport" between two different points in the game map. Lastly, two cases are isolated to exemplify the subcategory of pause: whenever operational time is used to show a panoramic view of a physical space through a cutscene; and whenever the player effectively pauses the game to, for example, change configurations. However, this last case is highlighted by the authors as not being of central importance to the experience or analysis of narrative in games.

Frequency (WEI; BIZZOCCHI; CALVERT, 2011, p. 7) is understood on the basis of relations of repetition (when a story event occurs once, but is presented multiple times), and iteration (when a story event occurs multiple times, but is presented only once) – the latter being more common in verbal narratives and the former being more common in videogames, according to the authors. The first discussed example of repetition is that of failed attempts which need to be replayed until success is achieved – this type is, however, disregarded as irrelevant to narrative experience, since it refers only to the mechanics of gameplay. The second type is spatially contextualized and occurs whenever a player revisits a familiar game area and comes across certain repeated events, maybe with some degree of variation – for example, by finding the same enemies in different positions. This case of repetition is, contrastingly, considered narratively relevant by the authors. The third type of repetition is fictionally contextualized and occurs whenever the player is granted the possibility of reversing the flow of time – as in the case of *Prince of Persia: the sands of time*. Lastly, the authors also identify a basic type of repetition commonly found throughout the structure of videogames, referring to the reiterated speeches and movements of NPCs, and to the repetitive grinding necessary to the leveling-up of player-characters. This type is very briefly mentioned and does not seem to be

considered by the authors as a particularly relevant case for the understanding of narrative in computer games.

In a final theoretical movement, Wei, Bizzocchi, and Calvert (2011, p. 7-8) add the category of polychrony to the already established categories of order, duration, and frequency, aiming at integrating David Herman's (2002) conceptual expansion of "fuzzy temporality" to Genette's (1980) model. "Polychrony" is used to describe indeterminate temporal phenomena generated by cases in which the events presented by a narrative cannot be mapped into an exact position in the timeline of a story – which, according to the three authors, makes the attempt of relating story to discourse superfluous (WEI; BIZZOCCHI; CALVERT, 2011, p. 7). Polychrony is here considered to be fundamental to narrative composition in the art of videogames, especially to the structuration of plot,[21] since interactive narratives often take advantage of the poetic possibility of "non-linearity" to allow many different orderings of events according to player choice. However, even in the case of games that do not present players with narrative choices and branching paths, the authors suggest that the mere possibility of exploring a virtual space at a player's own leisure makes it "perhaps safe to conclude that digital game storytelling is all polychronic due to its more or less fuzzy temporality" (WEI; BIZZOCCHI; CALVERT, 2011, p. 8). This reliance on the notions of polychrony and fuzzy temporality to explain the actualization of a plot over a videogame story is what leads the authors to consider as a matter of "polychrony," and not of "order," the fact that players can partially choose the ordering of their actions in an RPG such as *Assassin's creed* (WEI; BIZZOCCHI; CALVERT, 2011, p. 16-17).

Wei, Bizzocchi and Calvert's (2011) proposition presents many important theoretical developments, starting with the attempt to radically adapt literary theory and classic narratology for the study of videogames. As we see it, the rigorous theoretical structuration inherited from these fields has allowed the articulation of a proposition which, unlike some of its predecessors, manages to systematically approach a great variety of temporal phenomena in videogames under one and the same theoretical framework – including cutscenes, bullet time, pauses, replays etc. In this endeavor, the authors have succeeded in highlighting a series of poetic resources proper of the art of videogames in comparison with other art forms. Still, some divergences with our own proposed model should be highlighted. Firstly, their specific focus

[21] The concept of plot, as applied to videogames, is understood in this article as the convergence of time and space which structures the way story is experienced by the player.

on “interactive narratives” seems to have predisposed the authors to neglect certain compositional techniques of great importance to videogames, such as player-executed pauses and some types of repetition listed in their analytical discussion of “frequency.” Our approach, alternatively, does not presuppose a conceptual separation between the narrative configuration of a videogame and its global configuration as an artwork – so that no temporal phenomena should be dismissed in advance as unimportant. For this same reason, we are also not inclined to agree with the comparative view which leads the authors to evaluate that, although time can be used in videogames as an expressive gameplay device, “the use of time [in games] as a narrative device is not as rich as in traditional narratives” (WEI; BIZZOCCHI; CALVERT, 2011, p. 14).

Secondly, there is the absence of a temporal dimension dedicated to theorizing players’ real time of reception as separated from the time of a game’s processes of representation – the presence of which, we believe, could have avoided some conceptual confusions. For example, when discussing “scene” as a type of videogame speed, the authors mention that, unlike what happens in cinema – where the acting performed by real people guarantees that the representational speed of most movies be similar to the speed of the real world – in videogames, the speed of a “scene” may vary greatly from one game to the next, being sometimes faster or more dynamic in relation to the real world (WEI; BIZZOCCHI; CALVERT, 2011, p. 6). By only considering story time and operational time, the model leads to the interpretation that a difference in scene speed between two videogames should also imply a difference in the ontological speed of their respective fictional worlds, since a scene is defined as a temporal relation in which “events take place in operational time in the same speed as they do in story time” (WEI; BIZZOCCHI; CALVERT, 2011, p. 6). Consequently, time in the fictional world of *The legend of Zelda: phantom hourglass* should be understood as “passing” more quickly than time in the fictional world of *Fable II* – to relate back to the examples explored by the authors themselves. The addition of a dimension capable of theorizing the time of reception with exclusivity could explain this difference in the following manner: speed seems quicker in *The legend of Zelda* because players’ real actions (time of reception) are signified into the representational plane of the game (time of representation) as actions of quicker duration than in the representational plane of *Fable II*. This representation-reception relation is not necessarily translated into a representation-fiction relation, so that the speed of the fictional worlds of *Zelda* and *Fable* need not be considered ontologically different from each other.

Finally, we do not fully agree with the choice made by the authors of including "polychrony" in their model as a category of temporal analysis alongside order, duration, and frequency. If, as they argue, "[a]ll games' interactive narrative structures encompass polychrony – the key to making the story interactive – in one way or another" (WEI; BIZZOCCHI; CALVERT, 2011, p. 13), then we believe the concept should not be conceptualized as a mere category, but as a foundational theoretical assumption related to videogame temporal poetics. As such, order, duration, and frequency, when applied to videogames, should already be informed by and be able to account for this foundational assumption. Therefore, we would be more inclined to consider the "polychronic" cases of players being able to choose the ordering of their actions and players exploring a given game area at their own pace as ordinary manifestations of videogame order and videogame duration, respectively.

The following theoretical model is the one organized by Adam Ruch (2013) in *This isn't happening: time in videogames*, which more closely resembles our own threefold temporal structure. Ruch (2013) refers to, criticizes, and expands upon the two pioneer theorizations of Eskelinen (2001b) and Juul (2005). His critical commentary is concentrated around a specific phenomenon, that of the repeated deaths and resurrections of the protagonist which players have come to expect from any videogame. Ruch (2013) focuses specifically on Juul's (2005, p. 147-148, 208) comments regarding the incompatibility, exemplified by the game *Max Payne*, between videogames and the poetic resource of analepsis – which supposedly risks contradicting the "present" of the game by allowing players to act in the past. Juul considers a paradox that flashback segments are forcibly re-started in cases of player death/failure, whereas, for Ruch (2013, p. 2), this would essentially ignore "the constant 'paradox' of player-character failure throughout all videogames." Still subscribing to Juul's twofold temporal model, Ruch (2013) speculates if, instead, this conventionalized phenomenon should not be understood as a linear fictional time that is accompanied by a circular play time.

The author, however, immediately highlights the impossibility of his provisional solution, "because play time does not actually loop and repeat itself, since this is the time of the real world. We may repeat actions, that is, make several attempts at the same challenge, but real-world time obviously continues to flow forward" (RUCH, 2013, p. 3). He then comes to the conclusion that a solution to this problem would require the addition of a third temporal layer which mediates the relation of fictional time to play time, a complementary dimension

capable of representing this perceived circularity – or, to use a term employed a few times before, this "non-linearity" (HITCHENS, 2006; TYCHSEN; HITCHENS, 2009) – which is made impossible by the linear unfolding of real and fictional time. This third dimension is called by Ruch (2013, p. 3) the "action timeline." His threefold temporal model is also capable of theorizing that not all actions executed by the player (in our model, we would say: not all elements signified in the representational plane) need necessarily be incorporated into fictional time – being, on the contrary, submitted to player evaluation. In this way, the analeptic paradox identified by Juul in the death of Max Payne during a flashback can only be considered a paradox if "the player acknowledges that event as 'real' in the fictional world" (RUCH, 2013, p. 4), which is not the case.

Unfortunately, Ruch's (2013) proposition, developed in the course of mere five pages, is not capable of fully exploring the implications and possibilities of that which it puts forward. Despite citing Genette, the author does not consider, for example, how relations of order, duration, and frequency specific to the art of videogames could be developed and explained by a threefold model beyond the phenomenon of the player-character's resurrection. He also does not further inquire into the composition of the mediating layer between play time and fictional time, and therefore does not discuss the conjoined role of player and machine in videogame poetics, as well as the process by which real actions may be signified into a game's machine-bound representation. We expect to be able to satisfactorily approach these overlooked theoretical nuances, and also to test their applicability against a larger number of concrete cases.

The second to last article in our literature review presents another explicitly narratological approach in the same line of that proposed by Wei, Bizzocchi, and Calvert (2011). In *Narrative time in video games and films: from loop to travel in time*, Lluís Anyó (2015) seeks inspiration in Genettian narratology and its adaptations to the art of cinema to articulate an inter-artistic perspective capable of discussing temporal configurations specific to the art of videogames. His efforts begin with an observation highlighted many times before throughout our own literature review: "The player's actions in the game constitute perhaps the most important difference between video games and other media such as cinema or literature, where the viewer or reader does not intervene" (ANYÓ, 2015, p. 64). As a result, discourse in videogames (and, according to the author, also in interactive media in general) is not completely determined in advance, being at least partially generated in the course of reception. Anyó's (2015) model also relies upon a narratological distinction between "discourse" and "story"; this

time, however, in addition to the already familiar "story time," narrative time is also composed by the more medium-specific "participation time," which refers to

> [...] the time the game gives the player. This time is written in the rules of the game, but is manifested in playing and should include the ability or possibility that the game gives the player to change the narrative time. This is the equivalent to Genette's "pseudotime" (1991, p. 144) and measures not only the narrative speed but also, as is inevitable in an interactive medium, the modification of the narrative time by the player. (ANYÓ, 2015, p. 65)

One of Anyó's (2015) concerns seems to be the conceptualization of a "discourse" time capable of explaining the dynamicity of videogame semiotics without, however, directly establishing the real time of the player as a measure to which fictional time should aspire. Participation time, therefore, occupies this liminal space responsible for conceptualizing the affordances of player interference in relation to the fixed rules determined by the game's system. This "time" seems to synthesize our two previously suggested temporal dimensions of time of representation and time of reception – maybe sacrificing, in the process, some of the nuance that could have been achieved through their separation. Order, duration, and frequency are here too employed as guiding analytical categories, especially in reference to authors who have previously adapted them to the field of film studies.

Anyó (2015, p. 66-69) points out that the poetic resources of analepses and prolepses, although frequently utilized in cinema, are not so prevalent in the ordering of videogame narrative time – which he understands as being mostly linear and chronological. The author makes a clear distinction between temporal analepsis proper and stories in which time travel to the past is fictionally incorporated as a theme: for him, this last case should still be considered a typically linear narrative. Additionally, Anyó (2015, p. 68) also understands narrative order in videogames via the already highlighted concept of "fuzzy temporality" (HERMAN, 2002 apud WEI; BIZZOCCHI; CALVERT, 2011, p. 7). The author defends that this indeterminate temporal configuration becomes possible in the art of videogames mainly on account of the stable support provided by spatial orientation: "The journey through the space allows indefinite temporality in terms of the order without making the player feeling lost, since they know where they are, and time doesn't matter" (ANYÓ, 2015, p. 68).

On the other hand, videogame duration for Anyó (2015, p. 69-70) tends to be marked by the equivalence of story time to participation time, in line with the already discussed narratological notion of "scene." Some specificities are, however, highlighted by the author:

videogames can sometimes impose a specific duration over participation time, and player participation may also occasionally exert some level of control over the duration of story time through recourse to fictionally contextualized tools – such as in *Legend of Zelda: Majora's mask*, in which the magical ability of controlling fictional time is afforded to Link (and the player) through the ocarina. It is also in this section that the author refers to Juul's (2005) notion of "incoherent time" in order to refute it. For him, cases such as those presented by *FIFA*, *GTA*, and *Heavy rain* (the latter introduced by Anyó) should not be considered incoherences, but simply "summaries" also found in classic narratology, in which story time is shortened by discourse time. This statement, however, seems to be in conflict with the thesis previously defended by the author, which posited that the relation of temporal duration in videogames is mainly that of the scene: after all, examples of summarized time can be found in most videogames, such as the representation of day-night cycles, which hardly ever obeys a durational period of twenty-four hours. Other incoherences pointed by Juul (2005), like the music which continues to play while the game is paused, are discarded by Anyó (2015) as unrelated to any narrative function.

Finally, for Anyó (2015, p. 70-72), frequency is, among the three analytical categories, the one which represents the most important poetic novelty in the art of videogames. If frequency in movies is generally limited to the unitary presentation of a unitary event (configuring a singulative narrative), in videogames, the author argues that the structure of the time loop, which induces players to repeat the same event many times until a successful game performance is achieved, marks a particular identity trait of the art form. Anyó (2015, p. 71) even suggests that the popularization, in cinema, of narratives centered on time loops could be traced back to the cultural influence of videogames.

The author alludes to the difference between a "repetitive" discourse proper and a fictionally incorporated time loop to argue for the existence of a fundamental difference between interactive and non-interactive media: in movies, he states, the main character is conscious of repetitions in a time loop and can learn with their mistakes, meaning that events are often presented as many times as they have happened for the main character. It is only in videogames that a player, by acquiring through repetition pieces of information which necessarily escape their character's knowledge, can instantiate a truly repetitive form of narrative in which discourse time multiplies that which has happened only once in story time. It should be mentioned, however, that a tendency in the recent development of videogame

poetics threatens to add a new layer of complexity to this matter discussed by Anyó almost ten years ago. Over the last decade,[22] many popular games have also incorporated the mechanics of the time loop, which has always been a staple of the art form, into their fictional planes – so that the relevance of a possible interrelation between form and fiction in digital interactive artworks should not be so readily discarded.

In our opinion, one of Anyó's (2015) great merits is that of having emphasized, amidst the triad formed by order, duration, and frequency, the poetic configuration of the time loop as a fundamental temporal structure in the art of videogames. The author's inter-artistic approach is also valuable in its capacity to identify and explain broader cultural tendencies which affect the historical development of the arts. However, similar to what happens with Wei, Bizzocchi, and Calvert (2011), Anyó's (2015) narratological groundings tend to minimize the importance of certain temporal phenomena which, although not directly relevant to narrative and fiction, are still important to the overall artistic composition of videogames. Anyó (2015, p. 70), for example, disregards as unimportant Juul's "subjective time," marked by a temporary decrease in representational speed which serves to celebrate player victory. Finally, Anyó's (2015) proposed theory also seems thwarted by its lack of methodology, since many important gaps can be easily perceived in the author's account of videogame order, duration, and frequency: no mentions are ever made, for example, of the phenomena of turn-taking, rewind, bullet time effect, and acceleration/deceleration of represented time.

The final proposition contemplated in our review is the one articulated by Darshana Jayemanne (2020) in the article *Cronotypology: a comparative method for analyzing game time*, which begins by laying a conceptual foundation also shared by our own temporal model. The author refers to the "ludology vs. narratology" dispute – which, at the turn of the century, monopolized academic discussion in the field of game studies – to question its validity and propose an investigative approach to videogame poetics that should not be limited by a dichotomic division between games and narratives:

> Conceptual approaches that help to articulate the emergent structures and properties of video games but do not overly insist on hard-and-fast differences between games and narrative can thus be useful in bridging game and literary studies. Such methods would […] interrogate the ways in which points of

[22] Some examples include: *Undertale* (FOX, 2015), *Life is strange* (DONTNOD ENTERTAINMENT, 2015), *Oxenfree* (NIGHT SCHOOL, 2016), *Minit* (NIJMAN *et al.*, 2018), *Outer wilds* (MOBIUS DIGITAL, 2019), *Hades* (SUPERGIANT GAMES, 2020), *Twelve minutes* (ANTONIO, 2021), *Returnal* (HOUSEMARQUE, 2021), *Loop hero* (FOUR QUARTERS, 2021).

> articulation and differential structures in digital games give rise to various forms: placing the game's subsystems (which may or may not include something like narrative) in relation to one another. (JAYEMANNE, 2020, p. 812)

Since temporality seems to be an important factor in analyzing the structural differences of the art of videogames, Jayemanne sets out to organize a method capable of describing the specific temporal configuration of games while still being compatible with a comparative and interdisciplinary approach. The method, named "chronotypology," (JAYEMANNE, 2020, p. 814-817) is built around three main concepts: *synchrony*, as borrowed from Levi-Strauss, relates to the capacity of rituals and theater plays to recreate past events in the present, thus unifying two temporal moments; *diachrony*, borrowed from Agamben, refers to the capacity, typical of the magic circle instantiated by play, to separate the present into two distinct temporalities; and, finally, *unstable signifier*, which refers to objects capable of "switching valencies" among the two other poles, thus allowing for synchrony to transition into diachrony and vice-versa. This last case is exemplified, on one hand, by the sacred object at the center of a ritual and, on the other hand, by the toy at the center of play. The former is intended as the absolute signifier of synchronicity; the latter, as the absolute signifier of diachronicity – both, however, can attest the opposite temporality if taken out of context, thus breaking the illusion required by their respective ceremonies. Denying the simplistic relation immediately suggested by Agamben's proposed concept of diachrony, the author argues that videogames are also capable of creating powerful synchronic experiences – such as, for example, the rhythms, repetitions and interminable aporias which hinder player progression (JAYEMANNE, 2020, p. 815). In this sense, chronotypology, as a methodological proposition, "consists of accounting for the diachronic (separation of time frames) and synchronic (convergence of time frames) dynamics of a given game text, element, or action" (JAYEMANNE, 2020, p. 816).

In the final stages of our literature review, Jayemanne's (2020) proposition introduces a certain freshness to the theorization of videogame time by clearly distancing itself from structuralist models grounded on classic narratology. However, by renouncing a structuralist approach, the model naturally suffers from a lack of theoretical rigor. While exemplifying the practical uses of his method, Jayemanne (2020) sometimes takes the concepts of "synchrony" and "diachrony" in Agamben's and Lévi-Strauss' proposed meanings, and sometimes in their ordinary usage. Moreover, the concepts are equally employed in reference to broad sociocultural phenomena which permeate videogames as an art form, and to micro-compositional phenomena at their most basic poetic level. The theoretical stability of the

proposition also does not benefit from the notion of "unstable signifier," which allows the same phenomenon to be understood as diachronic and synchronic at the same time.

A good example to illustrate the problem with Jayemanne's (2020) model is the diachronic effect engendered by technological evolution in videogames: the AAA industry, for instance, depends on the diachronic expectation of constantly improved graphics and processing power while, at the same time, counting on the synchronic effect of being able to provide loyal players with reliable and similar gaming experiences, so as to guarantee public acceptance and sales figures (JAYEMANNE, 2020, p. 819). In this context, Jayemanne's (2020) article seems to sometimes make use of the term "synchrony" to mean an acritical validation of already consolidated practices and expectations in the videogame industry; and "diachrony" to mean a subversion of such practices and expectations capable of pushing players to critical engagement. Similarly, remakes of old games can accentuate the diachronic effect precisely by highlighting the technological differences between two games; however, the remake of an old game is equally capable of generating a synchronic effect by incorporating a game from the past into the experience of the present (JAYEMANNE, 2020, p. 816).

On a more restricted level of poetic configuration, the author argues that cutscenes could be considered synchronic compositional elements because they ensure a segment of temporal experience that is uniform among all players; on the other hand, narrative choices between binary options and moments of ludic engagement are considered diachronic, because they allow for temporal divergence amongst the experience of different players (JAYEMANNE, 2020, p. 816). Another point of contention can be thus identified in Jayemanne's (2020) proposition: individually speaking, the remake of a game can remind a given player of a past experience, thus causing a synchronic effect; socially speaking, however, a cutscene can be considered synchronic because it unifies the experience of many different players. The method is, therefore, equally applicable to the description of subjective aesthetic effects and of sociocultural phenomena of reception.

In this manner, we believe that the strongest point in Jayemanne's (2020) theoretical-methodological proposition is also its weakest. As a non-structuralist approach, it is capable of easily connecting poetics to social life by bridging individual and collective phenomena, as well as localized compositional elements and global commercial trends. We think, however, that the excessive flexibility of the chronotypological method does not fulfill, as the author had intended, the function of describing temporal structures in videogames so as to "add specificity

and precision to interdisciplinary analyses" (JAYEMANNE, 2020, p. 812). This is mainly because the method appears equally useful to support any possible readings of a given temporal phenomenon, even mutually exclusive ones. The triad composed by synchrony, diachrony, and unstable signifier might be a good starting point to the analysis of individual games, especially as a way of accounting for the multiple and oftentimes contradictory interpretive possibilities that artworks are capable of articulating. However, the method could hardly be said to provide a solid ground on top of which a vast range of analyses made by researchers on multiple fields of knowledge could converge into a comprehensive understanding of how time composes and is composed by the art of videogames. With the example provided by Jayemanne's (2020) proposition in mind, our concern with the rigor of scientific theorization is what compels us, even today, to adopt a structuralist-inspired method.

4.2 FINAL REMARKS ON TIME AS THEORIZED IN THE ART OF VIDEOGAMES

Based on a literature review of ten previous attempts to theorize videogame time, we have proposed our own theoretical model, which distinguishes between the *time of fiction*, the *time of representation*, and the *time of reception* in the temporal poetics of the art of videogames. In our model, fiction and reception are constantly mediated by and signified in the plane of representation, thus establishing the need for two distinct analytical movements: one dedicated to contrasting the relations of order, duration, and frequency in representation as it relates to fiction; and the other dedicated to contrasting the relations of order, duration, and frequency in representation as it relates to reception.

Having finished our literature review and presented our own theoretical model, we may now compound some final remarks on time as theorized in the art of videogames. To highlight some recurrent points, it seems significant that all propositions visited throughout this chapter have considered necessary to incorporate player action – and its capacity to influence the materialized "discourse" of the artwork – as a peculiarity of the art of videogames, thus motivating the articulation of specific temporal dimensions related to it: play time, event time, operational time, participation time etc. On our part, we have identified the necessity to theorize the influence exerted by the player through two distinct planes: that of the *time of reception*,

more closely related to the actions executed by the player in the "real world," and that of the *time of representation*, which translates these real actions into the dynamic signifiers that ultimately compose the artwork proper.

Many past theories have also shared a concern for the inevitable degree of instability generated by player action, especially when compared to the more stable art forms of literature and cinema. Mentions to incoherences, paradoxes, non-linearity, polychrony, fuzzy temporality, and unstable signifiers have all attempted to explain this poetical peculiarity of videogames. Our proposition also takes this temporal multiplicity to be a foundational principal of the art of videogames, and hopes to explain this instability factor by way of intersecting reception and representation. If, in the analytical axis formed between representation and fiction, temporal relations are mainly interesting because of resulting dissonances (asynchronies, anysochronies, repetitions, iterations etc.), in the representation-reception axis, an additional point of interest can be found in how different possibilities of action are capable of engendering distinct poetic representations. Our model analysis of *Tetris* provides a useful example on this matter: even though the order, duration, and frequency of player action is signified in the representational plane as events of equivalent order, duration, and frequency, different actions are still capable of resulting in markedly heterogeneous gameplay experiences for more (or less) experienced players.

Our theoretical proposition, however, may only be proved useful if it is capable of explaining the great variety of specific cases that can be found in the art of videogames; and if, in addition to that, it is also capable of contributing to our overall objective of understanding how the poetic configuration of time in videogames relates to the collective and subjective perception of time engendered by contemporary social and technological regimes. The following chapters are dedicated to an extensive, in-depth analysis of such specific cases, as oriented by the categories of order, duration, and frequency. Thusly, with the support provided by the solid base of our theoretical model and the wide selection of our corpus, we hope to be able to account for the poetic structures, aesthetic effects, and sociocultural implications of a great variety of temporal phenomena related to the art of videogames.

5 TEMPORAL ORDER: ACTIONS AND CONSEQUENCES

Having established our theoretical foundations, we can now turn to a detailed analysis of time as it is refigured in the art of videogames – an investigation mainly concerned with poetic composition, but which is nonetheless grounded in the social, technological and phenomenological context of $mimesis_1$ and $mimesis_3$ (RICOEUR, 1984, 1985, 1988). The following chapters are thus dedicated to analyzing the main techniques of temporal composition in the art of videogames, as well as their elicited aesthetic responses, hoping to provide a nuanced poetical account on the basis of which the questions previously addressed by our second chapter can then be revisited.

Seeing as we are primarily concerned with analyzing prominent examples of the art of videogames in its current state of development, our corpus has been selected from the lists of nominees of four award ceremonies related to videogames: *The Game Awards*, the *BAFTA Games Awards*, the *Game Developers Choice Awards* and the *Independent Games Festival*. These ceremonies were specifically chosen because of the varied and complementary perspectives they provide over the industry, thus guaranteeing that our corpus will be able to include both commercial successes and independent projects, as well as videogames both popular with the general public and acclaimed by other creators. Moreover, to prioritize recent examples, we have also limited our selection to include lists of nominees going back no further than the year of 2014. However, we have indulged in expanding our corpus from these initial criteria on two specific occasions: either to include games that have achieved a historical importance in the development of the art form, being nowadays considered foundational and widely influential works – such is the case of "classics" like *Asteroids* (ATARI, 1979), and *Deus ex* (ION STORM, 2000), and the entire *The Sims* (MAXIS, 2000) series; or to include games that, despite not having acquired any particular prestige through awards and nominations, are still overtly committed to artistically exploring and elaborating the category of "time" through their composition – such is the case, for instance, of Jason Rohrer's (2018) *One hour one life* and Rusty Lake's (2022) *The past within*.

We hope this somewhat flexible selection has enabled us to dedicate special attention to the subject of time and how it is refigured by the art of videogames in its current state of development, while not completely excluding less institutionalized and historically relevant

artworks from the following considerations. Finally, our techno-aesthetical approach to videogames has motivated us to consider specific games only in the context of ideal conditions of aesthetic experience – meaning that we assume the reception process to be carried out via optimized technological devices and, more importantly, that players are expected to comply with the rules authored by a game's developers. Unintentional disruptive phenomena like lags and bugs, as well as player-instantiated disruptions which take the form of hacks and mods, will not be considered.

As previously mentioned, our analysis is guided by the three temporal categories of order, duration, and frequency already stabilized in narrative theory. Furthermore, the threefold theorization of videogame time developed in chapter four – based on interrelations established among the times of fiction, representation, and reception – will also provide a steady foundation for our analytical efforts. Finally, authors who have themselves delt with specific matters of order, duration, and frequency in the art of videogames will also be cited in the course of this and the following chapters whenever appropriate, in order to widen the scope of our analytical findings.

Genette's (1980, p. 33-85) narrative theory addresses temporal order in terms of possible dissonances between story time and narrative time: events can be narrated in the same chronological order in which they were assumed to happen in the story world, or they can be narrated in a different order, resulting in cases of anachrony. This matter should not be confused with that of the *time of the narrating* (GENETTE, 1980, p. 215-227), which pertains not to narrative time, but to narrative voice. In short, the temporal distance between narrator and narrated events can result in subsequent, prior, simultaneous or interpolated types of narration;[1] most of these, however, are still capable of presenting narrative events in an order that is equal to or different from the order in which they have chronologically occurred in a narrative's fictional plane. Therefore, strictly regarding narrative time, Genette's (1980, p. 40) *analepsis* refers to an anachronous phenomenon of order in which the narrator returns to a previous point in the chronology of the story he was telling, whereas *prolepsis* refers to the anticipation by the narrator of events that will happen in that story's future.

[1] Respectively: when the narrator talks about events which have happened in their past; when the narrator talks about events that will happen in their future; when the narrator talks about events that are happening in their present, as they unfold; when the narrator blends different narrating times, as in epistolary novels, in which letters and diaries report on a character's past while, at the same time, presenting their current thoughts and impressions.

Being mainly concerned with the productive dissonances literature generates between story time and narrative time, Genette does not dedicate too much attention to cases of synchronous narrative order. He does admit, however, that perfect correspondence between the two – although useful in theory as a conceptual counterpoint to temporal anachrony – "is more hypothetical than real" (GENETTE, 1980, p. 36). Accordingly, Todorov (1966) cautions against the possibility of defining a "natural" chronology of story events because, since discourse time is necessarily linear and story time can be pluridimensional, with several characters acting simultaneously, verbal representation will almost certainly encounter "the need to break the 'natural' succession of events, even if the author intended to follow it as closely as possible"[2] (TODOROV, 1966, p. 139).

This is of special interest to our current revision of literary-centered narratology, because the robustness of simulated spaces in the art of videogames allows for a properly simultaneous representation of temporal events that is not so easily accomplished in the art of literature. In a game like *The Sims* (MAXIS, 2000), for example, different members of the household can carry on with their daily lives irrespective of player awareness – sometimes with undesirable consequences, like missing the school bus or going to work while hungry. The player is never guaranteed to have all aspects of the represented simulation visually displayed to them, especially when the size of the house and number of Sims living in it are taken into consideration – in fact, allocating enough time and attention to each member of the family is one of the challenges that grants the game part of its fun. Moreover, the robustness of a simulated space that exists beyond the boundaries of an individual player's virtual camera is the basic compositional device that allows for the existence of multiplayer and MMO gaming experiences. In a game such as *Phasmophobia* (KINETIC GAMES, 2020),[3] multiple players share the task of ghost hunting in various haunted locations. One or more players can explore the site, while another player may choose to stay in the crew's van skimming through security footage and supporting the on-site action of their teammates. Speech recognition is integrated into the game in such a way that players trying to communicate with others may be heard and attacked by nearby ghosts, meaning that simultaneously occurring actions (such as participating

[2] "[...] la nécessité de rompre la succession « naturelle » des événements même si l'auteur voulait la suivre au plus près."
[3] Nominations: "Best Debut Indie Game" in *The Game Awards* 2020 (winner); "Best Debut" in *Game Developers Choice Awards* 2021 (winner).

in a conversation) may have different consequences for different players, because the game world extends beyond the perception and influence of a single interactor.

Therefore, when it comes to temporal order, videogame poetics is capable of incorporating the full range of anachronic relations previously known to literary narrative theory between time of fiction and time of representation, while also lending itself to the representation of events occurring in what could be strictly considered a simultaneous ordering. Another striking temporal novelty provided by videogame poetics relates to the temporal interplay of order established between time of reception and time of representation, in which a similar range of synchronicity and anachronicity can be identified. On one side, it seems only logical that player input must necessarily precede its own translation into the semiotic plane of a videogame, configuring a standard analeptic relation between the order of reception and that of representation. However, action games (alongside a myriad other genres) often prioritize instantaneous feedback of player control – meaning that the milliseconds of delay that separate a swipe of the mouse or the push of a button from the actions these are supposed to represent in a game's semiotic layer (turning your head, shooting a gun etc.) are often imperceptible to the player. These cases can be reasonably understood as instances of simultaneity between the ordering of reception and of representation.

On the other side of this spectrum, it can be hard to imagine player action being represented before having the chance of being enacted. Videogames, however, oftentimes establish an instructional and authoritarian relationship with their recipients, especially at early stages when novice players would still be learning the base mechanics. In this sense, a verbal command such as "press A to continue" can be understood as a proleptic relation in which a game's representation forcibly "predicts" player action by holding its own progression hostage until the predicted action is enacted. A game like *The Stanley parable* (GALACTIC CAFE, 2013)[4] consciously plays with this instructional tone – so antithetical, on principle, to the maxim of player freedom – by making its narrator give direct verbal orders to the player, such as: "Stanley walked through the red door," while still presenting two open doors to choose from, one red and one blue. In this example, the authoritarianism of rule-based structures is

[4] Nominations: "Best Performer," "Best Story," "Best Debut Game," and "Best Innovation" in the *BAFTA Games Awards* 2014; "Seumas McNally Grand Prize," "Excellence in Audio," "Excellence in Narrative," and "Audience Award" (winner) in the *Independent Games Festival* 2014.

purposefully referenced so the themes of choice, agency, and freedom can be artistically elaborated in the context of videogames.

This same logic can be extended to include broader ludic configurations, such as quick-time events, and even puzzles: after all, if finding the solution to a puzzle requires players to interpret environmental cues in order to perform a precise combination of actions in a specific order, could not a puzzle be considered a set of veiled instructions given to the player by the game's developer(s)? The first time the player encounters a wall too high to be jumped over in the puzzle game *Inside* (PLAYDEAD, 2016),[5] an old refrigerator is placed not far from it, in a manner that visually indicates – by way of lighting and angulation – a connection between the two elements (Figure 2). Since there is no other way of going forward and the way back is short and uneventful, pushing the refrigerator to turn it on its side and climbing it to reach the wall is the invariable action players need to deduce from the objects around them in order to progress. This early section of the game is there to inform the player about the base mechanic of pushing objects and climbing on top of them, and didactically communicating this information without the aid of verbal language requires that possibilities of action be narrowed down to the point of being fully predictable.

It should be recognized that this line of questioning may lead us to a broader philosophical debate surrounding computer authoritarianism and the meaningfulness of user freedom not only in relation to one-solution puzzles, but in any software-mediated situation. If, as Ada Lovelace would put it, a computer can only do "whatever we know how to order it to perform" (LOVELACE, 1842 apud TURING, 1950, p. 450),[6] then player action is invariably predicted by and predictable from the software that conditions its possibilities of existence; on the other hand, if play is the "free movement within a more rigid structure" (SALEN, ZIMMERMAN, 2004, p. 300), then even a simple puzzle could be thought of as open to the freedom of play, based not on the moment of its solution, but on the comings and goings, the trials and errors that precede the solution's finding. The matter is, of course, not easily resolved.

[5] Nominations: "Best Art Direction" (winner), "Best Independent Game" (winner), "Game of the Year," "Best Narrative," and "Best Music/Sound Design" in *The Game Awards* 2016; "Artistic Achievement" (winner), "Game Design" (winner), "Best Narrative" (winner), "Best Original Property" (winner), "Best Music," "Best Game," and "Audio Achievement" in the *BAFTA Games Awards* 2017; "Best Audio" (winner), "Best Visual Art" (winner), "Game of the Year," "Innovation Award," "Best Design," and "Best Narrative" in the *Game Developers Choice Awards* 2017; "Seumas McNally Grand Prize," "Excellence in Visual Art," and "Excellence in Audio," in the *Independent Games Festival* 2017.

[6] It should be granted that Ada Lovelace's comment was intended in specific reference to Charles Babbage's Analytical Engine, not to modern computers and software. Our aims with this citation are admittedly more rhetorical than informational.

Although we will abstain here from trying to establish a precise line beyond which simple orders and instructions blur into more flexible game design, it suffices to say that proleptic (anticipatory) relations between representation and reception are an integral part of the temporal structure of videogames.

Figure 2 – A refrigerator suggestively placed near a wall in the game *Inside*

Source: PLAYDEAD, 2016

Moreover, even though it is important to look at the multidimensional relation of temporality existing between the two distinct planes of reception and representation, it should be noted that unidimensional causal relations between (player instantiated) actions and (machine instantiated) events, as depicted in the representational plane of a game, are also a matter worthy of scrutiny. As already discussed, we take actions (machine or player instantiated) to be the basic poetic building blocks of the art of videogames, which are managed by an underlying system and converted into some sort of semiotic representation by a computing machine. Given the pervasiveness of the concept of "action" to the art form, and the lack of clarity regarding which software procedures generate which representational elements, it can be hard to define what counts as a unit of action, and consequently which units come before, or after, one another. Even player action itself, as represented in the artwork, is never

solely player action, but also a specific kind of machine action made to translate player input into the systems of a game.

This means that player action and machine action are so intertwined that it may be hard to pinpoint, at any given moment, which of the two agents is more properly *reacting* to the other – i.e. which of them could be said to act first. We have previously made the decision to subscribe to Eskelinen's (2001b) adopted terminology of "action" and "event" to differentiate between in-game represented actions which are trigger by player input, and in-game represented actions which are triggered by the computing machine, respectively. Generally speaking, in the following analysis, we may also resort to a terminological differentiation between *obstacles* and *consequences* as to respectively indicate relevant machine events represented before a corresponding (set of) player action(s); and relevant player action represented before a corresponding (set of) machine event(s).

These prior considerations should make evident that any attempt to discuss temporal order, not only but especially in the art of videogames, necessarily entails a discussion about choice and agency, which includes the neighboring issues of freedom, causality and even morality. This is what we consider to be the most interesting aspect of temporal order in the art of videogames – a feature it shares with the art of theater and, more specifically, with the composition of tragic plot (BUSHNELL, 2016). However, in addition to elaborating the oppressiveness of the present – by way of representing both how a character's past may inform their actions and how their choices lead them invariably to their demise –, videogames are exceptionally good at communicating the multiple possibilities contained in a moment of choice, a design property Janet Murray has previously identified as "multisequentiality."[7]

Therefore, a few configurations of temporal order in videogames draw attention on first inspection: the possibility of true simultaneity; the ordering of reception in relation to representation (as a complement to the already familiar ordering of fiction in relation to representation); and the causal relations prompted by player choice – which can branch out into multiple representational paths or storylines. The following sections will expand further on these issues. We begin by providing a general overview of simultaneity in the art of videogames, followed by an investigation of the poetic techniques and aesthetic responses

[7] Murray prefers the terms "unisequentiality" and "multisequentiality" over "linearity" and "non-linearity," since a purely negative value, such as the latter, cannot be conceptually employed as a design tool (MURRAY, 2012, p. 431-432).

pertaining to the reception-representation axis of this art form, as well as those pertaining to the fiction-representation axis – which, although more familiar to literary theory, may still present its own peculiarities when applied to videogames. Then, we compare and contrast the general poetic principles of unisequentiality and multisequentiality, and end our section on temporal order with an overview of how the more philosophically inclined matters of agency, causality, and morality are elaborated in the art of videogames.

5.1 SIMULTANEITY IN THE ART OF VIDEOGAMES

As previously introduced, simultaneity in videogames can occur both in how fiction relates to representation and in how reception relates to representation. In many games, actions carried out in the temporal plane of reception may feel concurrent to the semiotic articulation of these same actions in the plane of representation, resulting in a strong sense, for the player, of expressive control over the fictional world and embodied identity in a player-character. In an article which compares the playing rhythms of the games *Minecraft* (MOJANG STUDIOS, 2011)[8] and *Don't starve* (KLEI ENTERTAINMENT, 2013),[9] Brigid Mary Costello (2018) notices the distinctive effect that can be achieved by having a player's body tightly coupled with game response through the use of "real-time control." The activity of chopping trees in *Minecraft*, for example, requires repetitive mouse pointing and pressing which the game responds to with consistent and instantaneous represented action. Player-characters in *Don't starve*, on the other hand, are not so immediately responsive: the pressing of a mouse might take several seconds to be semiotically translated into its intended chopping analogue as characters move around, position themselves and get impulse with the axe. Based on this discrepancy, Costello (2018) reports that, whereas *Minecraft* provides players with a satisfying sense of expressive control over the game and its rhythms, *Don't starve*'s delay in representational feedback configures an anxious feeling of being "held up or dragged back by the game" (COSTELLO, 2018, p. 817).

[8] Nominations: the console edition of the game won the category "Best Family Game" and was nominated in the category "Best Multiplayer" in the *BAFTA Games Awards* 2015.
[9] Nominations: "Seumas McNally Grand Prize," and "Excellence in Design" in the *Independent Games Festival* 2014.

As the author herself emphasizes in her concluding remarks, this should not be necessarily taken as an inappropriate or lacking feature on the part of *Don't starve*: it is rather a fitting aesthetic choice for a challenging survival game in which the player is supposed to feel endangered by a harsh environment. However, it does provide a useful example of the importance of taking temporal order into account when discussing the poetic configuration of a videogame's reception-representation axis, even at a micro-compositional level. If, on one hand, *Minecraft*'s simultaneous relation between reception and representation leads to effective embodiment of player action and an effortless game experience, on the other hand, *Don't starve*'s analeptic relation between reception and representation leads to heavy and laborious gameplay.

With regards to the fiction-representation poetical axis, videogames can easily represent concurrent fictional actions and events, which opens new individual and shared possibilities of reception for the representational arts. As discussed, interactors are not guaranteed access to the entirety of the representation, and that becomes a fundamental aesthetic feature of this art form. Christopher Hanson (2018) calls attention to this poetic aspect of videogames by referring to the notion of "copresence," which is the feeling of simultaneously sharing a space and, more importantly, a temporal framework with other beings, events, and players in a game system. This feeling can be articulated "through a player's sense of other players and a player's place within the game system itself," (HANSON, 2018, p. 22) which is often associated to the distinctive entity of a player-character and/or a virtual camera. In games which simulate three-dimensional spaces, this means that, in order for the player to be copresent with a particular set of other events and beings in a specific section of the fictional world, other sections may not be concurrently available. When trying to sneak around in a first-person game like *Deus ex* (ION STORM, 2000), players focused on escaping the sightline of a guard in front of them may be unaware of the guard approaching at their backs. Therefore, in the fiction-representation axis, player action may be understood as temporally coexisting with other machine-instantiated events in the same fictional world, but access to different parts of that world is still limited by the order of reception of individual players in the reception-representation axis.

Multiplayer experiences also take advantage of the simultaneous ordering afforded by videogames. Multiplayer games will frequently employ the same configuration mentioned above, with other players taking the place of machine entities, such as monsters or allies, from an individual player's perspective. Therefore, different players may share the same time of

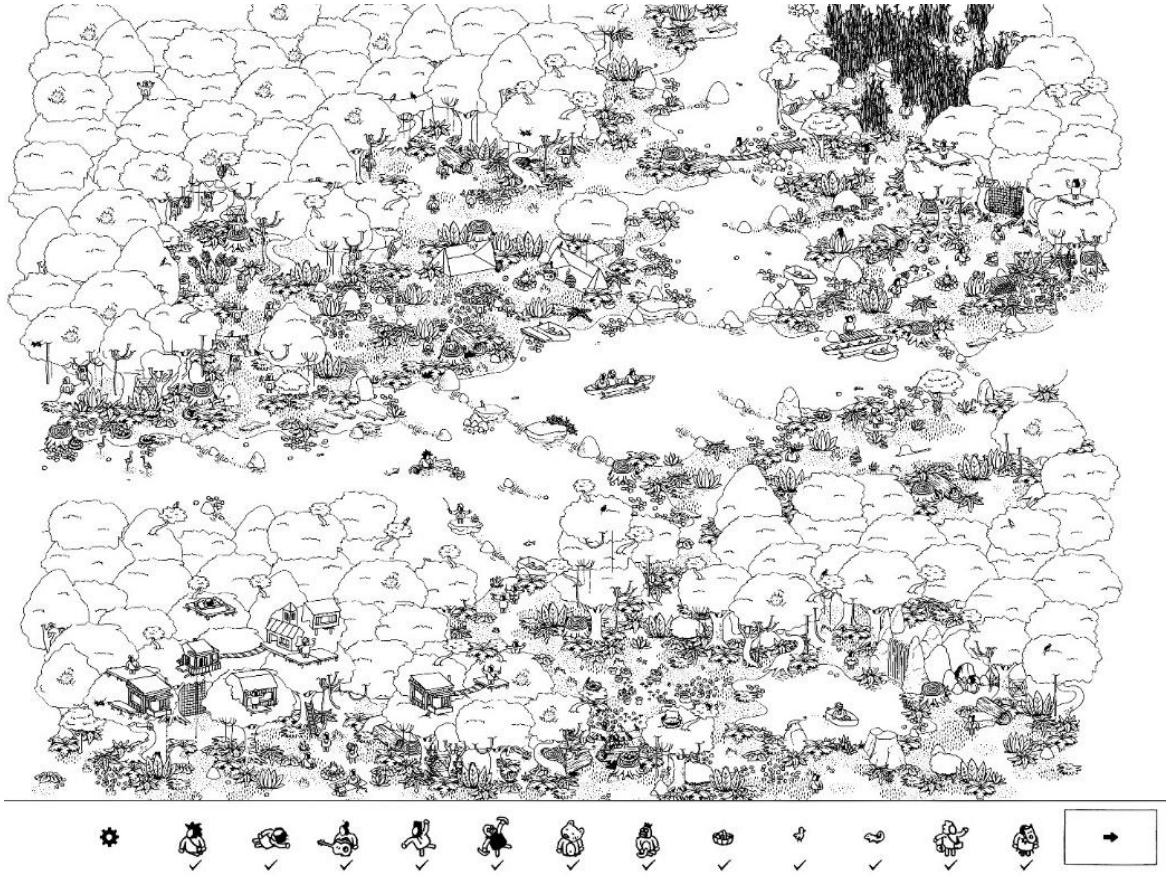
reception and the same represented fictional world, while being allowed different representational points of view into that world at any given moment. Still, less common configurations of multiplayer simultaneity are also possible, such as the one presented by the game *The past within* (RUSTY LAKE, 2022), in which two players who have no access to each other's screens are granted different semiotic representations and need to exchange information to solve puzzles that can only be completed with information accessed by their partner.

In this example, players are fictionally contextualized as embodying a past version and a future version of the same character in the same room. The character in question, Rose Vanderboom, needs to unite past and future in order to perform a dark ritual that will allow her deceased father, Albert Vanderboom, to be resuscitated. Therefore, a curious configuration is set forth in which both players share a simultaneous reception time while inhabiting distant fictional times, as indicated by the distinct semiotic representations to which they have access. Players are, therefore, receptionally copresent with their partners – after all, constant communication is needed to achieve game progression – while being fictionally copresent only with the virtual space they inhabit, either the room from the past or the room from the future, whose objects can be explored and manipulated. Since players from the past never visit the future and vice-versa, no temporal frame is established as the primary one, both being instead subordinated to the main objective of the game – that of cheating death, and time, itself. This playful configuration with time can only be achieve in a threefold temporal art form in which, even though fiction and reception exist independently from one another, they are equally decisive to the composition of their mediating plane – that of representation.

But the poetic consequences of temporal simultaneity are also noticeable in cases in which player access to the game world is not associated to a limited virtual camera on a three-dimensional space, and can therefore assume a broader – if not totalizing – perspective over the representation. Simultaneity here operates in line with the limited nature of human attention, detail codification, and capacity to respond to stimuli. The basic gameplay of *Asteroids* (ATARI, 1979), for instance, is not articulated over a limited player perspective over the virtual space, since all game elements are always transparently accessible to the player's eyes. Difficulty here comes, instead, from the sheer volume of independently moving parts that eventually take over the screen, and the need to manage the attention-heavy activities of aiming and steering the ship away from them. The careful unraveling over time of a game space saturated with detail can be a source of pleasurable play in and of itself, as exemplified by

Hidden folks (JONGH, TEGROEG, 2017),[10] a puzzle game about finding people and objects hidden in plain sight. Although some levels can be visualized in their entirety by the player (Figure 3), the encyclopedic feature of the computer (MURRAY, 2012, p. 66-68) allows for so many co-existing elements that, quite often, objects the player is tasked with finding can only be discerned by drastically zooming into the scenery (Figure 4). Receptionally speaking, the order in which objects are identified by the player may vary greatly, even though their presence in the game space is fictionally and representationally concurrent.

Figure 3 – Screenshot of the entirety of the level 1-2 in the game *Hidden folks*



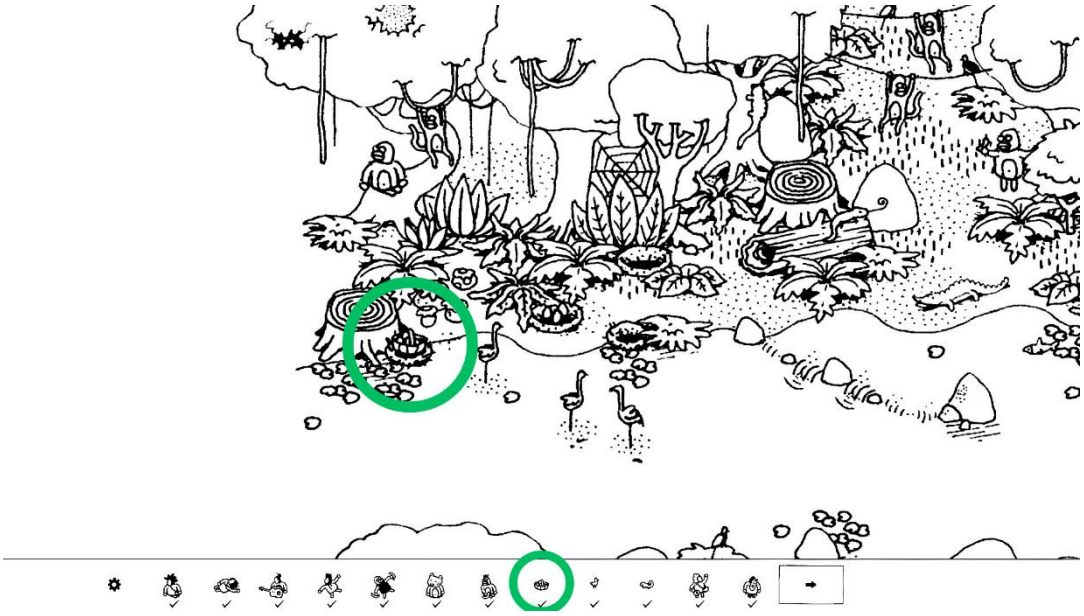
Source: JONGH, TEGROEG, 2017

This simultaneous configuration can be further complicated by the imposition of time limits and ticking clocks – an example of how temporal order can poetically interact with temporal duration to influence player experience. In the multiplayer game *Overcooked*

[10] Nominations: "Best Mobile Game" in *The Game Awards* 2017; "Best Mobile Game" in the *Game Developers Choice Awards* 2018.

(GHOST TOWN GAMES, 2016),[11] players need to work together in a kitchen to deliver as many meals as possible in a pre-fixed timeframe. Ingredients need to be chopped and combined in precise quantities to compose a specific meal; meals in turn need to be plated and delivered; and dirty plates need to be washed before they can be used again. As would be expected, these many tasks must be divided and streamlined among players if there is any hope of achieving the minimal amount of points required for each level. When actions are not synchronized, negative consequences accumulate quickly: if ingredients are not chopped, food cannot be prepared; if food is ready and there are no plates in which to serve it, it can burn on the stove; if clients wait too long for their meals, they will leave. Although the many steps involved in cooking a meal cannot be simultaneously performed by the same player, many of them can be simultaneously performed by a group – therefore, players need to employ their simultaneous existence in the same virtual space to their advantage, finding the most efficient ways of ordering their actions in relation to one another, so as to better fill in the allotted duration of time.

Figure 4 – Screenshot of a zoomed-in portion of the level 1-2 of the game *Hidden folks*, with a hidden object highlighted in green



Source: JONGH, TEGROEG, 2017

[11] Nominations: "Best Multiplayer" in *The Game Awards* 2016; "Best British Game" (winner), "Best Family Game" (winner), "Best Debut Game," and "Best Multiplayer" in the *BAFTA Games Awards* 2017; "Seumas McNally Grand Prize," and "Excellence in Design" in the *Independent Games Festival* 2017.

In summary, simultaneous ordering in videogames may be articulated in many different forms over the interrelated planes of reception, representation, and fiction, some of which have been exemplified above. On a micro-compositional level, simultaneity in the reception-representation axis may grant a heightened sense of control and embodiment to the player. Additionally, both single-player and multiplayer games set in robustly simulated virtual spaces tend to concurrently situate a player-character within other agents in a shared fictional world, even though represented access into that world may still be invariably sequenced in time by the visual perspective afforded by the virtual camera. However, less common configurations are also made possible by the threefold temporal structure of videogames, such as multiplayer simultaneity in time of reception which is not accompanied by simultaneity in time of fiction or copresence in the same represented fictional space – as is the case with *The past within*. Moreover, even if the virtual camera of a game grants simultaneous access to the entirety of the game's representation, the sheer quantity of on-screen information may still require reception to be ordered, given the natural limitations of player attention. Finally, simultaneous ordering may be combined with other temporal phenomena such as that of limited duration, thus configuring a gameplay experience dominated by the efficient ordering of simultaneous and sequential multiplayer action in time.

This incursion into videogame simultaneity already hints at an interesting socio-aesthetic effect (pertaining to Ricoeur's mimesis_3): that videogames, as the paradigmatic art form of the digital, tend to thicken our perception of the present in lived time. This thickening effect can be achieved, for example, by saturating an apparently unchanging temporal moment with simultaneously occurring elements which need to be parsed by the player (as in *Hidden folks*), or by requiring many simultaneous actions to be performed in a short amount of time, resulting in a stressfully concentrated gameplay experience (as in *Overcooked*). Both configurations could be said to promote an intensified perception of the present, which would corroborate our initial technological assumptions about the phenomenological temporal configuration of the digital – that it emphasizes a present directed towards its immediate future. We shall keep this in mind as we move into the main portion of our discussion on videogame ordering, concerned not with simultaneity but with how this art form sequences actions and consequences in time.

5.2 SEQUENCING FICTION IN RELATION TO REPRESENTATION

As discussed, sequencing in videogame order may encompass simultaneous, retrospective, and prospective relations between the planes of representation and fiction or the planes of representation and reception. In the fiction-representation axis, sequencing of represented events may return to a previous point in the fictional world (analepsis) or anticipate a subsequent point (prolepsis). Narrative-centered games have for years now successfully incorporated these common literary and cinematic compositional techniques, despite some previous evaluations to the contrary.[12] The paradox associated with representational analepsis, identified in early game studies writings (JUUL, 2005), has also been incorporated into the conventions of the art form. For one, drastically incoherent outcomes, such as the death of the player-character, have been conventionalized to trigger non-diegetic returns to a previous point in time, confining the player into a structure of gameplay repetition which will be later analyzed in our chapter dedicated to temporal frequency. More crucially, however, is that videogames have grown accustomed to the incorporation of fictional analepses which, despite not being capable of decisively altering major future events, still present players with localized choices and actions which contribute to the overall understanding and effect of the artwork.

The game *As dusk falls* (INTERIOR/NIGHT, 2022)[13] presents the story of a hostage situation and the events leading up to it from both perspectives of the hostages and their aggressors. In the second chapter, while accompanying a flashback (analepsis) pertaining to the past of the family being held hostage, the player will be able to influence the uncovering of an affair. Michelle, the wife, receives a suspicious text message which is accidentally read by her husband, Vince. The player can then lead Vince to interrogate his wife about it and, following her initial denial, can choose to believe her or pressure her further. The unfolding of their conversation may imply different consequences for the state of their marriage – from being rekindled to being on shaky ground to being already over. This is not, however, the last word

[12] Wei, Bizzocchi and Calvert (2011) mention a 2003 study in which only 6% of games in a sample of 130 presented some form of flashback, and only 2% some form of flashforward. To this data, the authors add: "We believe that the use of these two devices is higher in games that are more recent." (WEI; BIZZOCCHI; CALVERT, 2011, p. 5). A few years later, however, Anyó (2015, p. 69) still states that, while manipulation of temporal order is a commonly used device in cinema, "in video games the narrative time is linear, in an almost always level chronological order." We are not particularly inclined to agree with this statement.

[13] Nominations: "Games for Impact" (winner), and "Innovation in Accessibility" in *The Game Awards* 2022; "Debut Game" in the *BAFTA Games Awards* 2023; "Social Impact Award" in the *Game Developers Choice Awards* 2023.

on the matter: it is only on the third chapter, while back to the "present" hostage situation, that the player will be able to actively decide if Michelle and Vince's marriage deserves a second chance, irrespective of how the second chapter argument has ended. The thing to note is that, even though the actual decision is confined to the third chapter, the analepsis on the second chapter still informs the general understanding the player might make of the state of the marriage, and context provided by these past fictional events might heavily influence the player's ultimate decision.

However, it should be noted that some games have also managed to integrate analepsis as a means of centrally influencing major narrative events. In *Oxenfree* (NIGHT SCHOOL STUDIO, 2016),[14] a group of friends decides to have a beach party on a nearly deserted island and eventually find themselves mixed in a ghost-driven time-bending curse. The main interpersonal conflicts which drive the story are established before the occurrence of any paranormal events: Alex is our protagonist, whose brother Michael has passed away in a swimming accident a few years prior; Jonas is Alex's new stepbrother, who is being first introduced to her friend group; and Clarissa is an old friend turned enemy who used to date Michael and now blames Alex for his death. At some points in the story, an analepsis will take Alex and the player back in her memories to moments she and Michael have shared together in the past; however, due to the narratively contextualized temporal anomaly taking place in the island, Alex will be granted a bit of agency during these "memories" (as represented by dialogue options the player can choose from), and will be able to give her brother advice which may influence his "future" actions. At the end of the game, the right combination of choices might result in the fictional "present" being rewritten, causing Michael to still be alive. Therefore, player action during analeptic episodes can determine one of the most important narrative outcomes of the game.

On the other end of the spectrum of order, proleptic relationships in videogames are, similar to their counterparts in literature, comparatively rarer and often employed in specific circumstances. Prolepsis is often framed through the narrative guise of premonition, in which an outcome is paranormally anticipated before the steps leading to that outcome are retraced or

[14] Nominations: "Best Narrative" in *The Game Awards* 2016; "Best Debut Game," and "Best Narrative" in the *BAFTA Games Awards* 2017; "Best Debut," and "Best Narrative" in the *Game Developers Choice Awards* 2017; "Excellence in Visual Art" (winner) in the *Independent Games Festival* 2016.

revealed. *Life is strange* (DONTNOD ENTERTAINMENT, 2015)[15] famously begins with its protagonist having a premonition about a future storm destroying her entire city, before waking up back in class with newly discovered powers of temporal backtracking. Similarly, *The quarry* (SUPERMASSIVE GAMES, 2022)[16] – as well as many other works from the same developer – presents a consequence-driven narrative structure in which small glimpses of either desirable or undesirable outcomes are made available to the player through the guise of fictionally contextualized objects, such as tarot cards or magical totems. Both examples highlight a peculiarity of videogame fictional prolepsis, which is that it is usually employed as a means of forewarning the player about a future tragedy they should actively try to avoid – an attempt which, if successful, would paradoxically render the event non-proleptic. However, successful interventions are usually made possible only at the expense of something treasured (as is the case in *Life is strange*) or through a combination of actions so precise it can often be implemented only on a second playthrough (as is the case in Supermassive's games).

The quarry and *Until dawn* (SUPERMASSIVE GAMES, 2015)[17] notably provide proleptic glimpses into the future so short and decontextualized that they can hardly be considered useful to inform player decision. Although many players are not particularly fond of this poetic configuration, such cases of "unreliable" prolepsis sometimes incur in a curious tragic effect of self-fulfilling prophecy. In *The quarry*, for instance, glimpses of the future shown in Tarot cards may relate either to 1) negative outcomes the player should be interested in avoiding, 2) unalterable events that will happen at some point in the future, or 3) actions the player should perform in order to succeed. However, the first-time player might not be aware of these different options and, more crucially, will have no way of differentiating among them. "The Tower" card shows a pretty unambiguous negative outcome of character Emma jumping to grab a too distant zipline and falling to her death – which may effectively inform players that, when the time comes for a zipline escape, they should reel the handlebar in before attempting the jump. Contrastingly, the card "Temperance" only suggests the image of an exploding box of fireworks, an object which the player will later be given the option of either taking or leaving. In this case, players can hardly escape the ominous uncertainty of whether the fireworks will

[15] Nominations: "Games for Impact" (winner), "Best Narrative," and "Best Performance" in *The Game Awards* 2015; "Best Story" (winner), "Best Game," "Game Innovation," "Best Original Property," and "Best Performer" in the *BAFTA Games Awards* 2016; "Audience Awards" (winner), and "Best Narrative" in the *Game Developers Choice Awards* 2016.
[16] Nominations: "Innovation in Accessibility" in *The Game Awards* 2022; "Performer in a Leading Role" in the *BAFTA Games Awards* 2023.
[17] Nominations: "Best Narrative" in *The Game Awards* 2015; "Best Original Property" (winner), "Best British Game," "Game Innovation," and "Best Story" in the *BAFTA Games Awards* 2016.

end up hurting their characters or being crucial to their survival: either way, they might feel that whichever option they choose will be setting up their own demise.

Although the awkward implementation of prolepsis may sometimes result in undesired – perhaps even unintended – player annoyance, agency here is frustrated in accordance with the themes of a horror narrative motivated by tragic flaws and disproportionate cosmic punishment. After all, the basic driving event of *The quarry*'s plot is that the two Hackett children, Kaylee and Caleb, are infected with lycanthropy while trying to free another child, Silas, from captivity. The two siblings go on to further infect and slaughter members of their own family, as well as other people in the region, and are likely to be killed by player-controlled protagonists in the course of game events. Some possible aesthetic effect of fictional prolepsis in videogames are made evident by this example: prolepsis can direct player attention to a careful (and anxious) consideration of the possible consequences of even seemingly inconsequential actions (such as grabbing a box of fireworks), and it can also contribute to the creation of the tragic effect aroused by an inevitable demise.

5.3 SEQUENCING RECEPTION IN RELATION TO REPRESENTATION

In the reception-representation axis, player action may be executed almost concurrently to its respective representation, before its representation, or after its representation. In light of the impossibility of keeping Genette's (1980) terminology of "analepsis" and "prolepsis" in reference to an operation so far removed from his initial story-narrative pairing, this section will adopt the alternative adjectives "reactive" and "proactive" as they apply to the plane of representation.

A reactive representation (in relation to reception) is one in which player action is translated into its correlate game action after the fact. As previously discussed, games like *Don't starve* work with a reactive representational structure which, among other things, prevents players from developing a strong sense of expressive control over the game world and its rhythms. Similar is the case of *The Sims 4* (MAXIS, 2014), in which players may choose to be responsible for a single player-character, or for an entire household. In both cases, however, Sims often assume a life of their own and may be slow, reluctant, or incompetent in executing

player orders. If in the middle of an engaging activity, such as watching television or playing on the computer, Sims may take a while to respond to the command of cleaning the toilet; furthermore, if a Sim is in dire need of fun, they may refuse to do any chores altogether until that need is met, thus frustrating players' plans and expectations. This delayed representation of a player's intended action may serve to focus their attention on the execution of a task and create anticipation for its completion, thus providing players with a heightened sense of the present and that which it promises for the future.

On the other side of this spectrum, proactive representation (in relation to reception) is, as discussed, one in which a game signals in advance the action to be executed by the player, maybe in the form of a direct order, maybe in the form of a more veiled puzzle-like structure. *Valiant hearts: the Great War* (UBISOFT MONTPELLIER, 2014)[18] is a game in which players will often find themselves – through the mediation of their player-character – taking orders from higher-ranking officials in the context of WWI. Although verbal language is scarcely employed, orders on how to progress the game are given in the form of visual signs connected to character's speech bubbles (Figure 5), thus proactively pointing the player to where they need to go and what they need to do.

Previously, the game *Inside* has provided a more nuanced, puzzle-like approach to this same proactive configuration. In addition to straightforward puzzle games, there are also many action games and RPGs[19] that, although marked by an otherwise simultaneous representational ordering, are interspersed with puzzle minigames the resolution of which may grant players access to a sealed room, a locked object, or an important piece of information. *Inscryption* (DANIEL MULLINS GAMES, 2021),[20] for instance, recycles the rules of its main card/deck building game mechanics to pose these types of mini puzzles to the player (Figure 6). The idea is that players need to find the correct combination of buttons – which here represent different cards – in order to inflict a precise amount of hit points on their opponent, indicated by the number under the scales sign. Once the player has done what the game commands, they are

[18] Nominations: "Best Narrative" (winner), and "Games for Change" (winner) in *The Game Awards* 2014; "Original Property" (winner), and "Artistic Achievement" in the *BAFTA Games Awards* 2015.
[19] *Bioshock* (IRRATIONAL GAMES, 2007), the *Mass effect* (BIOWARE, 2007) series, *Fallout 3* (BETHESDA GAME STUDIOS, 2008), *Prey* (ARKANE STUDIOS, 2017), and *Cyberpunk 2077* (CD PROJEKT RED, 2020) are all famous examples of games interspersed with (oftentimes criticized) puzzle minigames.
[20] Nominations: "Best Independent Game," and "Best Sim/Strategy Game" in *The Game Awards* 2021; "Game Design" (winner), "Best Game," and "Original Property" in the *BAFTA Games Awards* 2022; "Game of the Year" (winner), "Best Design," and "Innovation Award" in the *Game Developers Choice Awards* 2022; "Seumas McNally Grand Prize" (winner), "Excellence in Audio," "Excellence in Design," "Excellence in Narrative," "Excellence in Visual Art" in the *Independent Games Festival* 2022.

rewarded with additional items (usually special cards) hidden inside the puzzle-locked boxes. As with Aarseth's (1999) structure of aporia and epiphany, these specific interrupting cases of proactive representation may act as pauses in the game flow, capable of heightening a player's sense of their own hindered progression and directing player attention (and desire) towards the imminent resolution of the presented problem.

Figure 5 – The player-character is proactively ordered to fill a dog bowl with water before he can progress in the game *Valiant hearts: the Great War*

Source: UBISOFT MONTPELLIER, 2014

Up until now, we have focused our attention mainly on the relation between a player's real action and the translation of that action into a game's representational plane. However, the sequencing of reception in relation to representation should also account for how unprompted machine actions are capable of either conditioning or responding to players' real actions, as they are all synthetized in the unidimensionality of representation. Although this type of sequencing may be significantly harder to precise, it can be identified in our intuitive understanding of the difference between a *consequence* and an *obstacle* in the context provided by a videogame – a consequence being reactive to a player's action, whereas an obstacle is proactive and demands a responsive attitude on the part of the player. These two opposite temporal configurations are intimately intertwined in the fabric of any videogame, but they are still capable of configuring wildly different gameplay experiences depending on which of them

prevails over the other. Entire genres may be described with reference to their preference for consequence-oriented or obstacle-oriented gameplay: world building games, survival games, management games, and branching narrative games are all perceived as strongly reactive to player choice; whereas puzzles, roguelikes, bullet hell games, and action games are more inclined to a proactive steering of player action.

Figure 6 – A minipuzzle in the game *Inscryption*, in which "buttons" can be rearranged until the number of five hit points is achieved

Source: DANIEL MULLINS GAMES, 2021

Broadly speaking, a reactive configuration of machine events to player actions is commonly employed in games with flexible, often player-defined objectives. Of course, general guidelines are almost always provided or assumed in terms of "survive," "build a thriving city," or "get to the end of the narrative" – but, inside this more rigid structure, there is a lot of free movement for players to decide whether they want to build a base or play as nomads; whether their city should prioritize growing big or growing rich; and whether they want to incentivize or placate interpersonal conflict between characters. In short, players may feel that their action is guiding the reactive dance between user and machine whenever they hold this preemptive power of decision – that of deciding beforehand what it is that they want to do in the first place.

In *Don't starve*, for example, even the simple act of walking around a swamp may result in the reactive punishment of being attacked by a tentacle monster hidden in the ground. On an individual level, a player who is narrowly focused on acquiring a given resource which has coincidentally spawned alongside a tentacle monster may consider the latter to be a temporary obstacle. Broadly speaking, however, the event of being attacked by a monster in the world of *Don't starve* is more likely to be interpreted as a monster reaction to the specific player choice of venturing into said monster's territory, since exploration into a given territory is never a mandate and is always primarily determined by player choice. This contributes to the overall sense of hostility that the fictional world of *Don't starve* inflicts upon its players, the player-character being contextualized as an invasive colonizer whose alien presence is not welcome by the local fauna/population.

In a similar fashion, players are unlikely to conceptualize their gameplay as the overcoming of obstacles in the context of a narrative branching game like *As dusk falls*, being instead more inclined to understand game events as direct reactions to their choices. In this way, if a character is injured or killed, players are inclined to feel responsible, and even guilty, for that outcome. This sense of responsibility, commonly generated by reactive configurations of videogame poetics, may explain the emotional challenge posed by some of the most demanding choices in the game. For example, when it comes time for the kidnappers to surrender a hostage, players may be given the choice to release Zoe (Vince and Michelle's six-year-old daughter) or Jim (Zoe's grandfather, who at this point has been seriously injured in the head and needs medical attention). When making that choice (provided they are oblivious to future narrative developments), players need to accept the possibility that whichever character they do not pick now might suffer the consequences later, and take responsibility for that narrative development.

Proactive configurations, on the other hand, are often coupled with a clearly determined objective. *Inside*, for instance, requires players to progress in an almost linear fashion (from left to right in a seemingly three-dimensional space which only allows for two-dimensional movement), systematically solving the spatial riddles put in their way, right until the game's inevitable (albeit quite enigmatic) ending. Roguelikes such as *Hades* (SUPERGIANT GAMES, 2020)[21] often organize gameplay around the progressive clearing of individual game areas in a

[21] Nominations: "Best Indie" (winner), "Best Voice" (winner), "Game of the Year," "Best Game Direction," "Best Narrative," "Best Art Direction," "Best Score and Music," "Best Performance," and "Player's Voice" in *The Game Awards* 2020; "Best Game" (winner), "Artistic Achievement" (winner), "Game Design" (winner), "Narrative"

rhythm reminiscent of the aporia-epiphany aesthetic structure found in puzzle games: when the player enters a new room, the doors are locked behind them and enemies need to be completely wiped out before the player can move on. Simply put, there is no way around killing enemies, and there is no alternative way to progress except to keep moving forward. In this way, players are unburdened from the guilt and sense of responsibility which, in a reactive configuration, might have been generated by their choices. Maybe not coincidentally, both of these games also present the player with a fictionally contextualized narrative objective closely tied to the main character's journey – be it to infiltrate a government agency where mysterious experiments take place, or to escape from the underworld –, which also cannot be escaped or negotiated.

5.4 UNISEQUENTIALITY AND MULTISEQUENTIALITY

One of the most prominent configurations of order afforded by digital plasticity and interactivity is the unfolding, in the same system, of multiple outcomes tied to different user choices/actions, which could be described with recourse to Janet Murray's (2012) distinction between unisequentiality and multisequentiality: "A multisequential story or a multisequential information space is one in which there is more than one valid, coherent path through a set of segments" (MURRAY, 2012, p. 430). Unisequentiality, on the other hand, is a "more specific term than 'linear' to describe media artifacts that are read, listened to, or viewed in a single authorized sequence, like the order of pages in a book or the temporal order of a film or podcast" (MURRAY, 2012, p. 443). Digital artworks, in light of their need to incorporate player intervention, are often built around multisequential structures – so much so that, although unisequentiality is the "neutral" poetic option for art forms such as cinema and literature, when it is employed in the art of videogames, it always invariably exists in comparison to the paradigm of multisequentiality.

Because some level of unpredictability is always inscribed in the act of traversing any virtual space, videogames can hardly be said to equate the unisequentiality typical of non-digital

(winner), "Performer in a Supporting Role" (winner), "Audio Achievement," "Music," and "Original Property in the *BAFTA Games Awards* 2021; "Game of the Year" (winner), "Best Audio" (winner), "Best Design" (winner), "Innovation Award," "Best Narrative," and "Best Visual Art" in the *Game Developers Choice Awards* 2021.

media. Still, it is undeniable that many games – old and contemporary[22] – have partly or globally relied on a "single authorized structure" to organize player experience. This authorial regulation often comes in the form of few available interactive objects (and few ways of interacting with them), small explorable spaces, and game/narrative progression tied to linear spatial progression. These are often narrative-heavy games which, moreover, also attempt to frame their fictional world with reference to the subjectivity of specific characters, prioritizing the representation of *qualia*, or "what it's like" (HERMAN, 2009, p. 14) for those characters to have lived through those particular experiences. To this end, many of these games employ a similar poetic technique related to the exploration of the semiotic potential of player agency or, in other words, to the incorporation of interactivity as an extra layer of meaning-making in addition to visual and verbal signs. In the game *Florence* (MOUNTAINS, 2018),[23] for example, the titular character's social awkwardness and conversational clumsiness is represented by way of puzzle pieces the player has to organize into speech bubbles. This interactive semiotics allows players to construct specific meanings around, for example, Florence's relationship with her partner: in the couple's first date (Figure 7), puzzle pieces are numerous and articulating speech is a slow, laborious task – to the player as well as to Florence; by their third date, however, the number of puzzle pieces has been reduced from eight to only two.

Another example can be found in the game *What remains of Edith Finch* (GIANT SPARROW, 2017).[24] In the episode in which we are told the story of Lewis Finch, the titular character's older brother, we take on his first-person view of the world and act in his place as his struggle with mental illness is visually and interactively represented in front of us. While working a job cutting off fish heads in a cannery, Lewis progressively dissociates from his reality by entering a magical world of adventure. Controls are then divided between the right and left sides of the screen as the player needs to independently manage both planes of

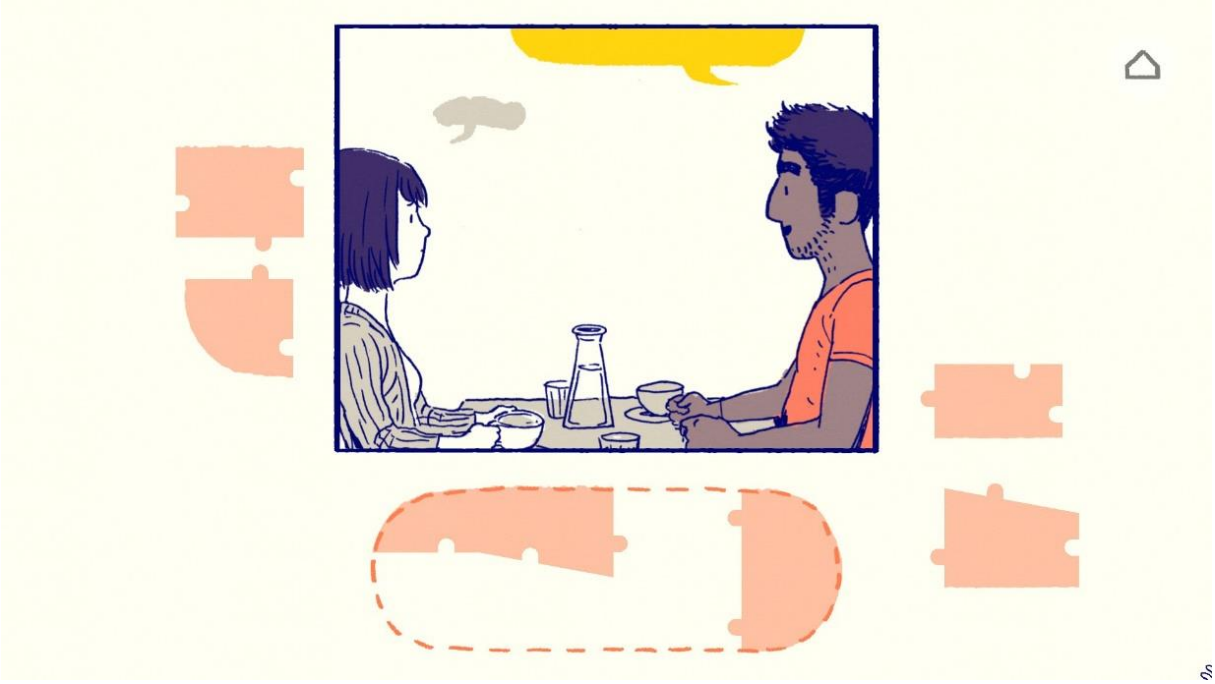
[22] Some examples from our corpus include: *Brothers: a tale of two sons* (STARBREEZE STUDIOS, 2013), *Valiant hearts: the great war* (UBISOFT MONTPELLIER, 2014), *The beginner's guide* (EVERYTHING UNLIMITED, 2015), *Inside* (PLAYDEAD, 2016), *Virginia* (VARIABLE STATE, 2016), *What remains of Edith Finch* (GIANT SPARROW, 2017), *Florence* (MOUNTAINS, 2018), *The artful escape* (BEETHOVEN & DINOSAUR, 2021), *A memoir blue* (CLOISTERS INTERACTIVE, 2022).

[23] Nominations: "Best Mobile Game" (winner), "Games for Impact," and "Best Debut Indie Game" in *The Game Awards* 2018; "Mobile Game" (winner), "Games Beyond Entertainment," "Music," "Narrative," "Original Property," and "Debut Game" in the *BAFTA Games Awards* 2019; "Best Debut" (winner), "Best Mobile Game" (winner), "Innovation Award," and "Best Narrative" in the *Game Developers Choice Awards* 2019.

[24] Nominations: "Best Narrative" (winner), "Games for Impact," and "Best Independent Game" in *The Game Awards* 2017; "Best Game" (winner), "Game Design," "Game Innovation," "Music," "Narrative," Original Property," and "Performer" in the *BAFTA Games Awards* 2018; "Best Narrative" (winner), and "innovation Award" in the *Game Developers Choice Awards* 2018.

existence: the beheading of fish in the "real world" on the right, and the steering of Lewis' avatar during the exploration of his imagined fantasy world on the left (Figure 8).

Figure 7 – The couple's first date in the game *Florence*, with a total of eight puzzle pieces composing Florence's speech bubble



Source: MOUNTAINS, 2018

In this example, splitting player attention between two different controlling devices[25] is a way of mirroring and signifying Lewis' mental processes, so much so that the contrasting of bleak reality with colorful imagination makes it easy for players to understand his preference for the latter. Furthermore, the portion of the screen occupied by Lewis' fantasy world becomes progressively bigger, until he and the player take on a first-person control of the imagined avatar, thus indicating his complete detachment from reality and culminating in his tragic demise. In summary, the option for unisequentiality in videogames, because of its affinity to the representation of a character's subjectivity and lived experiences, seems to invite players to empathetically relate to a different identity.

Moreover, by virtue of the contrast with multisequentiality, unisequential poetic structures in videogames also present themselves as a particularly well-suited structure to the

[25] Mouse and WASD keys on the computer, left and right sticks on the console edition.

development of specific narrative themes – namely, those related to (the lack of) agency and the tragic inescapability of either the past (in the form of present consequences and haunting memories) or the future (in the form of fate and predestination). In this manner, *Valiant hearts* explores the stories of men being dragged against their will to fight in a war they didn't choose; *A memoir blue* (CLOISTERS INTERACTIVE, 2022)[26] explores the childhood memories of an athlete swimmer and how her relationship with her mother has shaped her mental health problems in adult life; and *What remains of Edith Finch* paints an ambiguously magical world around a family cursed both by an overly active and artistically inclined imagination, and by a supernatural propensity to untimely deaths. As these examples indicate, the removal of player choice in a videogame as a deliberate compositional technique seems to heighten, by way of absence, a player's sense of the meaning of agency.

Figure 8 – In the game *What remains of Edith Finch*, Lewis' story requires players to simultaneously control the character's hands in the "real world" (right) and his avatar in the imagined word (left)

Source: GIANT SPARROW, 2017

Multisequentiality proper, of course, is also capable of poetically elaborating meaning around our understanding of choice and agency; and, as discussed, represents the standard compositional structure in the art of videogames. Broadly speaking, it tends to manifest in two

[26] Nominations: "Games for Impact" in *The Games Awards* 2022.

different forms:[27] as multisequentiality of representation, configuring several different paths through which recipients can access the same immutable series of fictional events; or as multisequentiality of fiction, which also necessarily entails the former. The basic structure of purely representational multisequentiality can be traced back to literary works of hypertext fiction such as *afternoon, a story* (JOYCE, 1990), in which recipients are presented with a veiled narrative which they are expected to untangle through exploration and hypothesizing. Games that follow this poetic structure usually require some sort of detective work and active searching from recipients, and usually present a fictional framing in which players are contextualized as outsiders to the situation they are investigating – the main events of which are somewhat temporally distant from the "present" of the player made character.

Sam Barlow's gameography is a good example of this poetic structure, as well as Lucas Pope's (2018) *Return of the Obra Dinn*.[28] In *Immortality* (BARLOW, 2022),[29] players are introduced to a fictionally contextualized "interactive restoration" of all remaining footage from the three unreleased movies starring actress Marissa Marcel. Even before pressing "start," players can encounter fictional cues in the game's menu. For one, the "content warning" tab provides an overview of controversial themes which figure in Marissa's movies, such as "blasphemy regarding the Catholic church" and "murder (asphyxia, knife and firearm)" (BARLOW, 2022). Furthermore, the "about" tab provides an overview of the mysterious figure of Marissa Marcel – once a promising industry prodigy and now completely wiped from public memory, except for a handful of dedicated fans responsible for compiling Marcel's movies in this interactive restoration. In the course of gameplay, users will be able to skip around little snippets of footage pertaining to Marissa's movies – from location scouting and rehearsals, to failed takes and completely edited movie scenes. Players are required to discover snippets by way of clicking on actor's faces and scenery objects: when a relevant person/object is clicked, the game will automatically take players to another, randomly assigned, scene in which that same person/object, or something similar, is also figured. Players can freely return to footage

[27] Of course, hybrid forms also exist, and any given videogame may employ both forms consecutively.
[28] Other examples, beyond the games analyzed in the following paragraphs, include: *Gone home* (FULLBRIGHT, 2013), *Her story* (BARLOW, 2015), *A normal lost phone* (PLUG IN DIGITAL, 2017), *Telling lies* (BARLOW, 2019).
[29] Nominations: "Best Game Direction," "Best Narrative," and "Best Performance" in The Game Awards 2022; "Artistic Achievement," "EE Game of the Year," "Narrative," "Performer in a Leading Role," "Performer in a Supporting Role," and "Technical Achievement" in the *BAFTA Games Awards* 2023; "Game of the Year," "Innovation Award," and "Best Narrative" in the *Game Developers Choice Awards* 2023; "Seumas McNally Grand Prize," and "Excellence in Narrative" in the *Independent Games Festival* 2023.

they have already encountered, but new footage can only be discovered via this somewhat randomized, but still player-triggered, method.

Faced with this fictional framing, players can assume an identity as close to their own as possible – that of a curious person digitally browsing through a series of strange audiovisual documents –, and are given a few leading points regarding what mysteries they should be trying to solve: who was Marissa Marcel, why did she disappear from the public eye, and why have the movies never been released. Moreover, as player exploration begins, every scene has the potential of arising new, smaller scale mysteries which may momentarily steer player attention. For example, clicking on Marcel face in the default beginning footage of the game – one which shows an interview with Marcel in a talk show in the year of 1969 – may take players into a random footage from the movie "Two of Everything," filmed thirty years later. At this point, players may wonder why is it that Marcel appears not to have aged at all in the period of thirty years between the two films, and include that into their list of mysteries in need of solving. In this manner, players carve their own way into the game's mysteries by following certain threads before getting distracted by something else; and by moving back and forth between snippets, trying to find new connections in already discovered footage.

In *Return of the Obra Dinn* (POPE, 2018),[30] the player assumes the identity of an inspector in the year of 1807 investigating the disappearance and mysterious reappearance of the ship Obra Dinn for the East India Company – mainly for insurance purposes. In order to complete this task, the player-character is provided with two main tools: a book containing previously known information about ship and crew (such as the ship's intended route and a catalogue of the names, functions and nationalities of all crew members), and a magic compass which points to and visually recreates the place of someone's death. In this case, the player is given a clear mystery to solve – that of identifying the name, face and cause of death of all people aboard the ship –, but the static images shown by the magic compass will also introduce them to new mysteries. For instance, some of the first reconstructions of the past explored by the player-character depict what appears to be a mutiny of the few remaining crew members against the captain, mainly motivated by the fate of a few valuable shells which the captain

[30] Nominations: "Best Art Direction" (winner), and "Best Independent Game," in The Game Awards 2018; "Artistic Achievement" (winner), "Game Design" (winner), "Best Game," "Game Innovation," "Narrative," and "Original Property" in the *BAFTA Games Awards* 2019; "Best Narrative" (winner), "Game of the Year," "Innovation Award," and "Best Visual Art" in the *Game Developers Choice Awards* 2019; "Seumas McNally Grand Prize" (winner), "Excellence in Narrative" (winner), "Excellence in Visual Art," "Excellence in Audio," and "Excellence in Design," in the *Independent Games Festival* 2019.

claims to have thrown into the sea. The following hours of gameplay will develop around a supernatural mystery regarding these cursed shells, the schemes which have been enacted in order to steal it, and the sea monsters who want to repossess it.

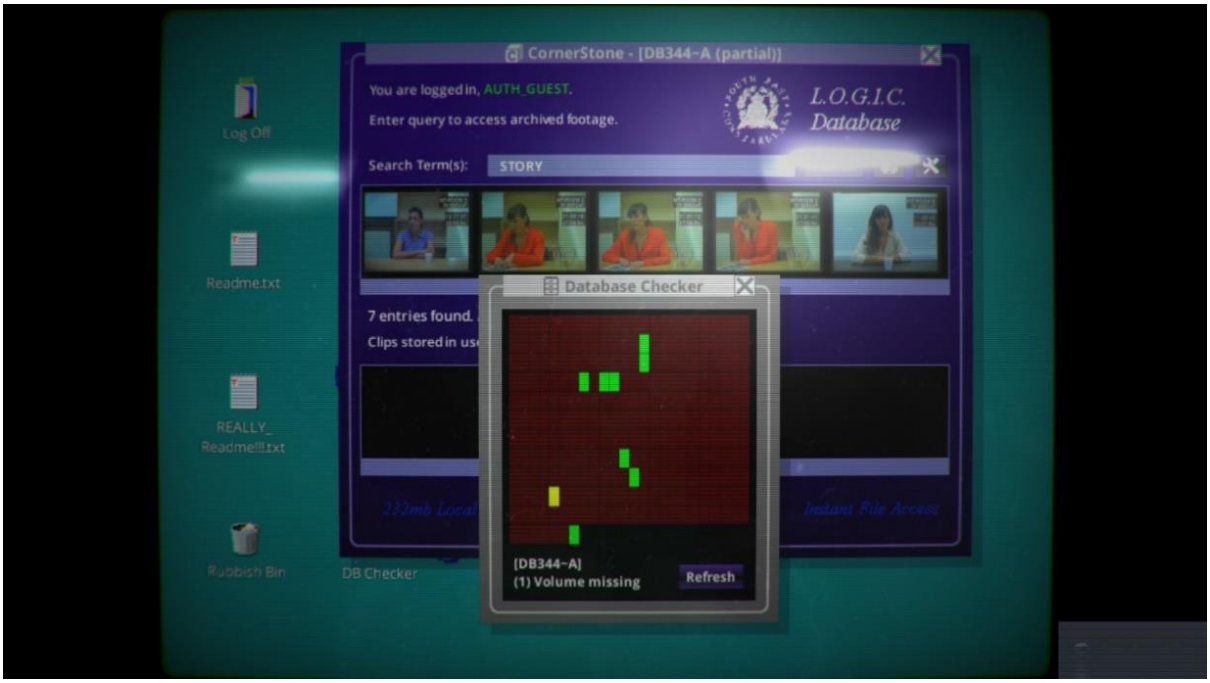
Both of these games clearly put the past in evidence by way of their multisequential representational poetics. However, the active engagement of players in the unraveling of a mystery buried in the past is capable of recontextualizing a fictional past into a receptional future. Following the aesthetic structure of aporia and epiphany, each newfound mystery pushes players forward, by way of curiosity and expectation, into the next piece of information which they hope will confirm or deny their predictions. This configuration also favors a type of aesthetic experience very common in videogames – that of mastery (HANSON, 2018, p. 121-128). In both games, players are taunted by a difficult (but not impossible) task of completion: watching all movie clips, finding all identities, compiling all pieces of information. Although *Immortality* does not include an "intratextual" device which would allow players to keep track of their progression, relying instead on the "extratextual" resource of achievements, its predecessor *Her story* (BARLOW, 2015)[31] made the percentage of player completion available as part of the game itself (Figure 9). *Return of the Obra Dinn*, in turn, not only gives players a device of progression tracking in the form of the book in which identities and deaths are recorded, but it also gives players recurring reminders of their level of mastery: whenever the cause of death and identity of three people are guessed correctly, the player is interrupted in his investigation by an unskippable cutscene which informs him of that feat and keeps a visual record of how much is still left to discover (Figure 10). Players, therefore, are encouraged to develop mastery over a fictional past by way of subordinating events to the receptional experience of a future-oriented present guided by the aesthetics of epiphany.

But multisequentiality may also occur at a fictional level, engendering different events and outcomes depending on player choice. Differently from previous configurations, in which players either assumed the subjective point of view of a specific character, or the blank identity of a detached observer, whenever choice comes into question, players are invited to bring their subjective perspective, opinions, and preferences into the actualization of the artwork. Since

[31] Nominations: "Best Narrative" (winner), "Best Performance" (winner), "Best Independent Game," and "Games for Impact" in *The Game Awards* 2015; "Best Debut Game" (winner), "Game Innovation" (winner), "Mobile & Handheld" (winner), "British Game," "Game Design," "Original Property," and "Story" in the *BAFTA Games Awards* 2016; "Innovation Award" (winner), "Best Handheld/Mobile Game" (winner), and "Best Narrative" (winner) in the *Game Developers Choice Awards* 2016; "Seumas McNally Grand Prize" (winner), "Excellence in Narrative" (winner), "Excellence in Design," and "Nuovo Award" in the *Independent Games Festival* 2016.

choices entail consequences, and consequences in the context of a videogame are dictated by the underlying rules of the system, players enter a dialogue with a game through the exercise of their agency. Depending on which choices are available, and on how a game may respond to a given choice – either by rewarding it or punishing it, for example – specific meanings, rhetorical stances, and moral questions may be derived from the representation of a videogame. This cycle of prediction, action, and actualization also contributes to a temporal configuration in which player concern is mainly focused on present actions and their possible future consequences.

Figure 9 – In *Her story*, players can use the "database checker" to keep track of how many clips they have already discovered



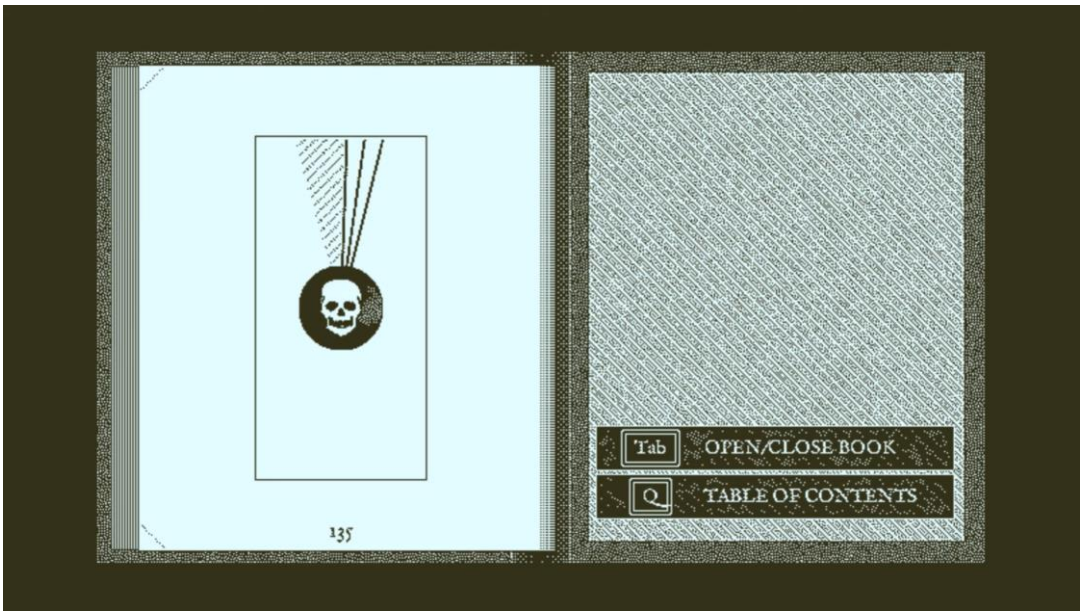
Source: BARLOW, 2015

Temporally speaking, this multisequentiality of both fiction and representation makes evident the many possible developments of the future contained in a single present moment; furthermore, it serves to articulate the power a player may have over shaping the future of a world according to their own volition. In addition to the many applicable cases already employed throughout this chapter,[32] the game *The novelist* (ORTHOGONAL GAMES, 2013)

[32] *Don't starve* (KLEI ENTERTAINMENT, 2013), *The Sims 4* (MAXIS, 2014), *Life is strange* (DONTNOD ENTERTAINMENT, 2015), *Oxenfree* (NIGHT SCHOOL STUDIO, 2016), *As dusk falls* (INTERIOR/NIGHT, 2022), *The quarry* (SUPERMASSIVE GAMES, 2022).

provides a straightforward example of a poetical structure mainly focused on the fictional multiplicity created by player choice. In *The novelist*, the player accompanies a family which has temporarily moved into a new house for the summer and hopes the change of scenery will help them deal with (inter)personal problems. The husband, Dan, is struggling to write his new book; the wife, Linda, is not particularly happy with the state of their marriage and with her current lack of a professional career; and the kid, Tommy, is having trouble socializing and getting good grades at school. Playing the role of a ghost which haunts the house, the player has to navigate and find compromises among the conflicting interests of all three family members. Players must walk around the house without being seen, search for clues in the form of letters, diary entries, notes, and drawings, and read characters' minds in order to fully understand the problems they face, as well as their personal desires on how to handle the situation.

Figure 10 – In *Return of the Obra Dinn*, whenever three fates are correctly uncovered by the player, three straight lines are added around the image of a skull



Source: POPE, 2018

The dilemma presented in the first chapter provides an introductory overview of each character's struggles and aspirations. After fulfilling all the aforementioned tasks, the player will be able to select among three objects that represent the wishes of each character: Dan's notebook reflects his desires for dedicating more time to his writing, which would necessarily keep him away from his family; Linda's bottle of wine reflects her desire to spend quality

romantic time with her husband and attempt to rekindle their feelings for each other; and Tommy's board game reflects his desire for the attention and approval of his father. The first object chosen by the player will guarantee that the respective character be granted exactly what they want. In addition to that, players who have completely explored all clues in a level will be able to select a second object to establish a compromise with another member of the family: this second person will not get exactly what they want, but something fairly close.

Player decision may be guided by a number of factors: the information they have previously discovered about each character, the comparative gravity of each fictional situation, how long it has been since a given character was prioritized, and so on. Consequently, players' general notions of gameplay efficiency, narrative fulfillment, and their real-life moral compass can be integrated into a densely packed experience of choice-making. In this case as well, the fictional past of characters is presented in a largely utilitarian manner, as a way of more thoroughly contextualizing the decisions made available to the player – thus ultimately serving the purpose of directing player temporal experience into the future. However, unlike in many other games of multisequential fiction – such as, for example, *As dusk falls* –, *The novelist* does not offer players any narrative suspense with regards to the consequences of their choices, because they are all made explicit in advance: Dan will spend the day writing, Linda will get a romantic night with her husband, or Tommy will get to play with his father. This knowledge, however, does not necessarily make the act of choosing any easier. That is because the temporal experience elaborated by the game, although still partially indebted to the future-oriented aesthetic effects of prediction and expectation, is mainly focused on the thickening of the present by way of ostensibly articulating the many different "futures" which are potentially contained in a punctual moment of choice.

In summary, turning an analytical eye towards unisequentiality and multisequentiality in videogames may help explain how this art form is capable of articulating its poetics of temporal order. Unisequential fiction and representation in videogames exists in contrast to a multisequential paradigm, and can express a fictional character's past experiences into a metaphorical present which needs to be enacted and empathetically shared by the player. Multisequentiality, on the other hand, when limited to the plane of representation, may subdue the fictional occurrences of an immutable past into the future-directed and expectation-filled experience of detective work. In other words, players are invited to a complete mastering of the past by way of systematically and epiphanically untangling its knots. Finally, when extended

to both representation and fiction, multisequentiality also allows players to exercise their present agency in the shaping of the future. Although this configuration is also moved by anticipation and suspense, it is equally capable of providing players with a thickened sense of the possibilities of choice contained in the present moment.

5.5 AGENCY, CAUSALITY, MORALITY

Janet Murray understands agency as a fundamental part of digital aesthetics. Her definition of agency as the "satisfying power to take meaningful action and see the results of our decisions and choices" (MURRAY, 1997, p. 126) is different from mere interactivity in that it entails a specific causal relationship between user input and machine output, meaning that players can choose to modify a videogame's representation through their own deliberate actions. Agency, therefore, is intimately connected to the way actions are ordered in the representation of a videogame – or, in other words, to how a game may respond to player action and how a player may respond to the events being presented by the game. Pure chronological order, however, does not properly explain this relationship between user and machine actions described by Murray through the concept of agency. In addition to chronology, actions need to be understood in terms of motivations and consequences or, simply put, in terms of how videogame order is capable of engendering meaning. Referencing Murray's comments on digital procedurality, Ian Bogost (2007, 2008) has famously introduced the concepts of procedural rhetoric and procedural literacy to the area of game studies. Bogost explains procedurality as follows:

> Procedurality in this sense refers to the core practice of software authorship. Software is composed of algorithms that model the way things behave. To write procedurally, one authors code that enforces rules to generate some kind of representation, rather than authoring the representation itself. Procedural systems generate behaviors based on rule-based models; they are machines capable of producing many outcomes, each conforming to the same overall guidelines. […] This ability to execute computationally a series of rules fundamentally separates computers from other media. (BOGOST, 2008, p. 122)

Based on this underlying authorial principle, Bogost attempts to explain and theorize the ways through which videogames can communicate ideas and persuade their interactors, thus proposing the concept of procedural rhetoric:

> Procedural rhetoric is a general name for the practice of authoring arguments through processes. Following the classical model, procedural rhetoric entails persuasion—to change opinion or action. Following the contemporary model, procedural rhetoric entails expression—to convey ideas effectively. Procedural rhetoric is a subdomain of procedural authorship; its arguments are made not through the construction of words or images, but through the authorship of rules of behavior, the construction of dynamic models. In computation, those rules are authored in code, through the practice of programming. (BOGOST, 2008, p. 125)

Processes, therefore, should be thought of as capable of creating meaning in their own special way – which, nevertheless, still work symbiotically with traditional forms of representation, such as verbal and audiovisual language. The manner through which procedurality, as a semiotic system, constructs meaning is mainly by way of causality, or motivated ordering: players gain a better understanding of the underlying processes of a game/simulation when they can predict what consequences their actions will entail. On a very basic level, procedural meaning in videogames is created around the fundamental decision of which possibilities of action and response should be implemented into the system, and which are left completely out of the picture. As previously mentioned, it is an intrinsic feature of simulations that they present a deliberate selection of the properties of their represented systems (ZEIGLER; MUZY; KOFMAN, 2019, p. 29) – and that selection, as well as the motivating biases behind it, should be taken into account in our procedural interpretation of such systems. Furthermore, since games are often structured around a behaviorist design of punishment (in the form of losing) and reward (in the form of winning), meaning can also be created around the reinforcement or suppression of permitted player actions.

Effective procedural literacy leads to a user who is capable of interrogating these processes and how they relate to their own subjectivity, political stance, and prior world knowledge. As an incipient way of developing their procedural literacy, Bogost suggests users to ask themselves (or, for teachers in the context of a classroom, to ask their students) the following questions: “What are the rules of the system? What is the significance of these rules (over other rules)? What claims about the world do these rules make? How do I respond to those claims?” (BOGOST, 2007, p. 258). Under a more specifically poetical approach, Mawhorter et al. (2014, 2018) propose a systematic way to assess the poetics of choice in videogames. In their poetical model, a choice should be analyzed, first and foremost, by the specific goals which motivate player action. Since players may adopt different modes of engagement with a game (at times prioritizing exploration and role-play, at times prioritizing scores and efficiency), personal goals may influence two players’ experiences of the same in-

game presented choice. Having defined a goal, choices posed to the player should then be analyzed in terms of which options are made available, which outcomes these options suggest, and which outcomes they actually produce. This entails a twofold temporal process of analysis: in the prospective stage, outcomes suggested by an option should be evaluated regarding their capacity to advance or threaten the player's goals; in the retrospective stage, actual outcomes are evaluated under the same principle. This allows for a better understanding of how procedural communication between players and game system may shape (and occasionally frustrate) players' expectations.

In *Reigns* (NERIAL, 2016),[33] the player assumes the role of a monarch who must balance the influence of four Powers (the Church, the People, the Army, and the Treasure) in order to guarantee as much longevity for their reign as possible. If any of the Powers gets too low or too high on influence, the reign will be over and the player will respawn with a new identity in the same fictional timeline, as the previous king's successor. Although most simulation states are not kept between respawns (the four Powers, for instance, are always perfectly balance in the beginning of each run, independently from how the last run ended), some special events may influence the lives of multiple kings. In spite of its highly stylized and gameplay-oriented design, *Reigns* also presents an overarching narrative which fictionally contextualizes the gameplay loop: the player is a cursed king destined to live and die many lives at the mercy of the kingdom's four Powers until a confrontation with the Devil may end his eternal suffering.

The gameplay mechanics in *Reigns* are extremely simplified and focused on binary choices. This, added to the overtly politicized setting of a fictional monarchy, makes the game an appropriate ground for easily identifiable procedural rhetoric. The many characters which integrate the kingdom come to the player, one at a time, making demands, reporting on problems, proposing solutions etc. The player usually swipes right to agree with or left to deny whatever is being proposed (although some of the binary choices may diverge from this model). By default, the player is also given a partial preview on how their actions may immediately affect each of the four Powers, as represented by little dots above their respective symbols (Figure 11). A small dot represents a low quantitative change, and a big dot a high quantitative change. Players, therefore, know which powers will be affected by their decision, but need to

[33] Nominations: "Mobile" in the BAFTA Games Awards 2017; "Best Mobile/Handheld Game" in the Game Developers Choice Awards 2017.

infer, based on the game's overall rhetoric and systems of meaning, if that effect will be positive or negative. As a general rule, new players will soon understand that the four Powers operate independently from each other in *Reigns*' procedural rhetoric – meaning that when the archbishop, for instance, comes to the king to defend the interests of the church, the army or the people may benefit as a side effect, but not as a rule.

Figure 11 – A decision being presented to the player in the game *Reigns*, with the option "Yes" (right swipe) in evidence

Source: NERIAL, 2016

Mawhorter et al.'s (2014, 2018) model for the poetics of choice may be useful to precise how meaning is created in the specific procedural, dynamic, and interactive context of gameplay. In figure 11, for example, the player is given two choices on how to handle a plague. Let us assume, for the sake of argument, a player whose primary goal matches the one proposed by the rules of gameplay: to survive for as long as possible by balancing out the four Powers. On one hand, to opt for the implementation of a quarantine will greatly affect treasure, and mildly affect both the people and the army; on the other hand, not implementing the quarantine will, according to the preview provided by the game itself, only affect the people and the treasure, both mildly. Based on the fiction evoked by the game, on their knowledge of the world, and on their assumptions regarding the game's underlying system, players can reasonably deduce the precise nature of these effects: the quarantine is likely to negatively affect treasure,

since closed ports will impede commerce, and positively affect the people and the army, since lives will be preserved. On the other hand, not doing the quarantine might save a bit of money and kill some of the people.

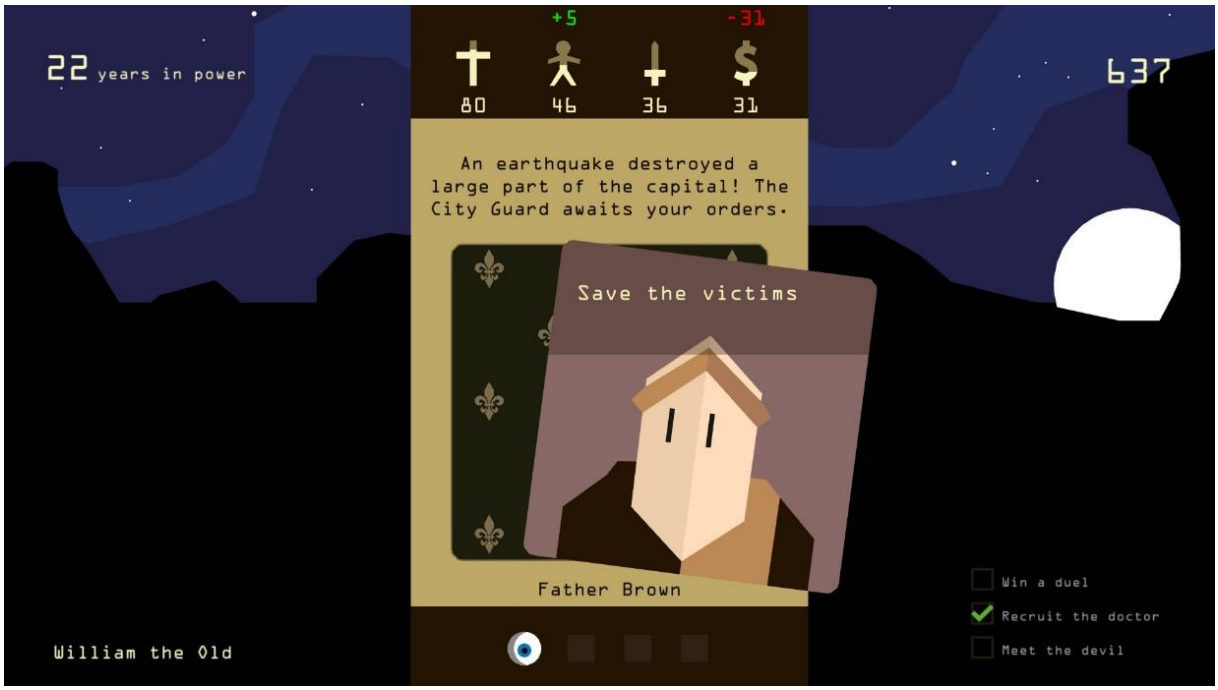
Based on this prospective analysis of available choices and possible outcomes, our hypothetical player, who is concerned with maximizing gameplay time, would be able to more appropriately advance his goals by choosing not to implement a quarantine, because outcomes related to this option are more conducive to a general balance, regardless of any fictional implication – a bit is lost, a bit is gained, and nothing is greatly affected. However, a retrospective analysis will prove the frustration of our hypothetical player's expectations. Ignoring the quarantine may have a mild immediate effect, but doing so will trigger the outbreak of the "Black Death," a special status effect which significantly lowers the kingdom's population with every passing second of gameplay. This event is particularly subversive in relation to new players' expectations because, as a game mostly organized by discreet turns, *Reigns* tends to provide players with as much time as they need to make decisions, without any sort of penalization. However, when Black Death is triggered, population will diminish with the passing of real-time seconds, and players will soon lose the game on account of having no more people left to rule over. In this manner, the procedural language of the game creates and disrupts player expectation as a means to make a statement: that effective governance is not limited to short term decisions, and that it may require a fictional engagement of players' real knowledge and intuition. Moreover, the game seems to make a rhetorical statement regarding the specific topic of how real-world governments tend to deal with (or, more precisely, often fail to effectively respond to) disease outbreaks, criticizing the slow action of world leaders who may choose to ignore epidemics/pandemics in the name of a short-sighted preservation of the economy.

In another example (Figure 12),[34] the king is tasked with managing the natural disaster of an earthquake. Let us now assume a different hypothetical player, who is guided by two concurrent goals: the first one, in conformity with the general objective presented by the game system, is to survive for as long as possible by balancing out the four Powers; the second one, in conformity with the proposed fictional context, is to be a good monarch which does not rule selfishly and instead serves the interests of the people. Since this example, exceptionally, does

[34] In this example, precise values are indicated instead of the usual dots because of a special in-game status effect called "Clarity," which grants the player this extra ability for the duration of their current run.

not offer any mystery to player expectation, outcomes may be directly analyzed in relation to those goals. Saving the victims in this specific case would hinder the first goal (because money would be brought to zero and the game would be automatically lost), but advance the second. The alternative ("prevent pillaging," resulting in -40 people, +5 army, and +10 treasure), on the other hand, would advance the first goal, but hinder the second. This example reinforces the general independence the procedural rhetoric of *Reigns* grants to each of its Powers and, moreover, makes a claim about the intentions of any recipient who attempts to role-play as a "good," socially oriented monarch. If, as any videogame, *Reigns* can be read as a simulation – i.e. a system which represents another source system, real or imagined – then the elements it selects from its source system argue for a picture of monarchy in which self-preservation of a ruler's political power – by way of leveraging other institutional Powers – is always presented as the ultimate, more important goal.

Figure 12 – A decision being presented to the player in the game *Reigns* under the curse of "Clarity," with the option "Save the victims" (right swipe) in evidence



Source: NERIAL, 2016

One thing to note is that procedural literacy, in relation to a simulation like *Reigns*, incentivizes players to develop a nuanced account of the logic which informs choices and outcomes. Static rules (which also make claims about-real world systems) are eventually internalized by frequent players, such as that the church will often oppose scientific and medical

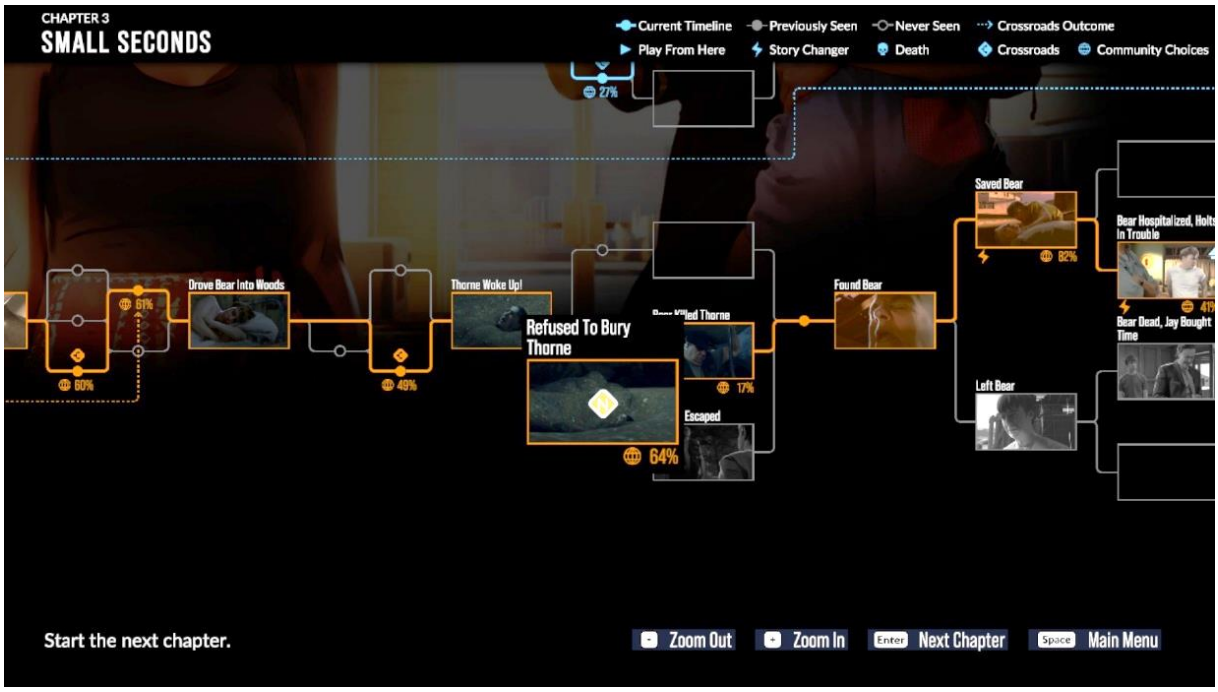
development, that the people's interests are often in direct conflict with the accumulation of treasure, and that wars are usually more costly than they are worth. This specific mode of interaction with an ever-repeating simulated game system may point us to a certain timelessness of videogame composition and reception, one in which dominance over an abstract system of immutable rules hints at the promise of eventual dominance over each possible instantiation of that system – and, indeed, we shall return to this repetitive feature of videogame aesthetics when talking about temporal frequency. With regards to order, however, we would like to propose that the meaning-making process inscribed in causality is capable of overturning this inclination towards timelessness, as epitomized by morality taken as a principle of composition.

If endless repetition and rule-based abstraction are promising structures to support the denial of temporality in digital art, morality as attached to the possibility of choice and agency could be said to represent its temporal double. That is because appealing to the real moral systems of players is a powerful way of fictionally grounding player experience beyond the unraveling of a set of rules and the learning of simulated behaviors. Moral choices often demand involvement with a robust narrative context – and narrative, as already discussed, is an ideal cognitive model for the localization of events in a specific space as well as in a specific time (HERMAN, 2009, p. 14). Additionally, moral choices in videogames necessarily actualize, in the plane of representation, a synthesis of the real (shared or not) moral belief systems of creators and recipients, which are decomposed and recombined into the materiality of the artwork. For instance, Weaver and Lewis (2012) have noted, in a quantitative study, that whenever moral choices are presented by videogames, players display a strong tendency to make decisions in accordance with their real-world moral judgement. In this way, moral choices could be said to engage player agency with all aspects of mimesis, from pre-representation to post-representation; and, as a consequence, could also be understood as calling to action the non-abstract, temporally bound, real-world elements of identity, culture, and the broader social systems in which players are enclosed, as well as their critical ability to scrutinize and evaluate those systems through a fictional lens.

The great majority of modern games strive for some level of replayability. Even in choice-oriented narrative games, specific resources are often implemented so that users can play the game again, in whole or in part, such as providing a tree of selected/unselected options, or dividing the narrative in shorter chapters available for replay. For example, at the end of a chapter in *As dusk falls*, players can access a diagram which informs them of the choices they

made, the possible paths they have left behind, and the percentage of players who have made similar/diverging choices (Figure 13). This is obviously a resource capable of incentivizing replay, because it incites player curiosity about what might be waiting for them in the paths left behind and, moreover, makes evident the steps that need to be taken in order to access a certain path. The game even features a "replay mode" in which it is possible to choose between keeping or overwriting previously achieved story outcomes.

Figure 13 – A segment of the decision tree presented at the end of the third chapter of *As dusk falls*



Source: INTERIOR/NIGHT, 2022

However, the offered possibility of totalizing a game's system through repetition is, in this case, undermined by the inevitable localization in the present narrative moment required by the many difficult, heavily loaded moral dilemmas the player will often find during their game experience. When playing a flashback as Jay, the youngest and most sensitive of the three brothers and kidnappers, the player will have to choose between killing or not killing a loan shark named Thorne, who has been threatening his father, Bear. One night, Jay is awakened by Bear, who asks to be driven to the hospital. Midway through, however, Jay is ordered to make a sharp turn into the woods and Bear reveals that what he actually wants is Jay's help to bury a body he has hidden in the car's trunk. The "body" turns out not to be dead at all, and Jay is then asked to finish the job by burying him alive. On one hand, players understand the context of

Jay's fictional situation as a boy in need of his father's approval, lacking future prospects of living a different life, and already implicated in much of his family's criminal history. On the other hand, Jay's and the player's own moral imperative is likely to intervene in the decision – so much so that, at the time of writing, the majority of players (64%), myself included, have made the choice of not killing Thorne.

The next scene presents an even more complicated situation: faced with the impossibility of escaping his debts, Bear decides to kill himself. Jay will find his father still conscious in the middle of his attempt, and Bear will plead to his son to just let him do it. Jay and the player can then choose to intervene to rescue Bear (choice made by 82% of players at the time of writing) or turn their backs and leave. It should be noted once again that completionist players are allowed to explore all different possibilities of a narrative branch if they so wish; however, the possibility of total mastery becomes obfuscated – and trivial, even – in face of the personal involvement with strong social and moral tabus, such as infidelity, murder, and suicide. In other words, the agony inflicted by the need to make a choice that goes against a given player's moral code, or, alternatively, the peace of mind which may come with the possibility of making a choice that fits that moral code are likely to make a stronger impression on player experience than the objective knowledge of all story branches' developments, thus ultimately configuring an actualized, temporally bound, and ordered narrative experience players may associate as *their own*. The implementation of morally loaded choices in the causality-based system of meaning in a videogame, therefore, could be said to impose a certain timeness to gameplay experience, because it is capable of overriding the abstract logic of a temporally detached rule-based system in favor of a more narratively grounded development of events in time.

5.6 FINAL REMARKS ON TEMPORAL ORDER

In our attempt to analyze videogame order, we have discussed how true simultaneity is made possible by the technological affordances of the digital, as well as how fiction and reception are sequenced in relation to representation. Moreover, we have turned our attention to the temporal experiences articulated by the paradigm of multisequentiality and its

unisequential correlate in videogame poetics; and to how videogame order inscribes meaning, rhetoric and moral questions into its base structure of causality as generated by player agency. These different aspects of temporal order have given us a few insights into how time is refigured in videogame poetics – namely, through the thickening of the present via its saturation with simultaneously occurring events and branching narrative choices; and through the orientation towards the future via the premonitory anticipation of events, the suspense created around the consequences of player choice, and the aesthetic structure of aporia and epiphany. On a final note, videogame order also manages to ground player experience in time – despite the core timelessness associated with the abstract, rule-based systems at the core of videogame composition – by way of appealing to players' personal moral codes and inscribing player choice into a temporally ordered structure of causality.

6 TEMPORAL DURATION: TIME AS RESOURCE

In the context of literature, Genette's (1980) category of duration compares the passage of story time with the length of text in narrative discourse. Of Genette's three temporal categories, duration seems to be the one most affected by the pseudo-time of discourse – being, unlike order and frequency, a quintessential facet of time to which no easy spatial equivalence can be found. A perfect match between story and narrative duration is considered by Genette (1980, p. 86-87) to be even less feasible than in relation to order, although the author, once again, concedes some sort of correspondence to exist between the two planes in the concept of "scene." Here as well, less attention is dedicated to cases of scenic isochrony than to the anisochronies (dissonances) of pause, summary, and ellipsis.

Pauses (GENETTE, 1980, p. 99-106) are generally equated to descriptive passages and refer to textual segments which suspend narrative time – not to be confused with "contemplative pauses," so to speak, made by the wandering mind of a homodiegetic narrator, which are still inscribed in the passage of story time. Scenes (GENETTE, 1980, p. 109-112) are, in literature, exemplified by segments of uninterrupted dialogue between characters, because an equivalence between (real) reading time and (fictional) speaking time can be assumed, even though written language cannot "restore the speed with which those words were pronounced or the possible dead spaces in the conversation" (1980, p. 87). Summaries (GENETTE, 1980, p. 95-99) encompass any relation of duration in which a length of text (i.e. narrative time) represents a comparatively longer segment of story time – for instance, when lines, paragraphs, and pages are expected to provide an overview of fictional days, months, and years. Lastly, ellipses (GENETTE, 1980, p. 106-109) occur when a segment of story time is not verbally represented in narrative, being either contextually inferred by the reader or briefly indicated by a passage such as "some years passed."

A lack of symmetry can be immediately noticed in Genette's continuum of duration regarding its omission of a temporal relation in which narrative time extends beyond its equivalent story time – or what we could call, in cinematic language, as a scene in slow motion (GENETTE, 1980, p. 95). Genette explicitly denies literature the possibility of halting time in this manner, arguing that what is often perceived as a decrease in narrative speed is usually the combined effect of "extranarrative" factors and descriptive pauses: "The thing is undoubtedly

feasible as a deliberate experiment, but we are not dealing there with a canonical form, or even a form really actualized in literary tradition" (GENETTE, 1980, p. 95).

By focusing solely on the materiality of narrative discourse, Genette's theory makes no room for the (admittedly quite unpredictable) real time of reading and, as a consequence, cannot account for any literary phenomena related to the enhancement of reader attention, distortion of temporal perception, and consequent slowing down/speeding up of reading time. Umberto Eco (1995, p. 49-73), on the contrary, dedicates an entire chapter of *Six walks in the fictional woods* to discussing the lingering of the act of reading and its variable duration. One key difference that can be identified in the two author's approach lies in Eco's theoretical incorporation of the Model Writer and the Model Reader as abstract concepts endemic to the communicative process surrounding literary poetics (ECO, 1995, p. 1-25). In this manner, even though the conduct of real readers is impossible to precise, reading time can still be hypothesized together with authorial strategies for its deceleration. Eco (1995, p. 58) speaks, for instance, of a *circumnavigational time* common to the arts of sculpture and architecture, in which the complexity of an artwork can be said to determine a minimal duration of reception if we are to assume a "model recipient" which is not dismissive of its details. Similarly, in literature,

> […] there is no doubt that at times an abundance of description, a mass of minute particulars in the narration, may serve less as a representational device than as a strategy for slowing down the reading time, until the reader drops into the rhythm that the author believes necessary to the enjoyment of the text. (ECO, 1995, p. 59)

In the same vein, the rhetorical figure of *hypotyposis*, which employs space in the deceleration of time, is considered by Eco (1995, p. 70) to be an expansion of both discourse and reading time in relation to story time, ultimately capable of rendering the impression of space "before our eyes as if we could see it." Another poetic strategy is that of *trepidation time* (ECO, 1995, p. 64), in which a dramatic *denouement* is potentialized by its own delay, and reading time is slowed down through built-up tension and anticipation. *Delectatio morosa* is an expression employed by Eco (1995, p. 50) to describe the leisurely focus on superfluous details that brings an erotic quality to reading, "a lingering conceded even to those who urgently feel the need to procreate." On the other hand, seemingly superfluous details may also merit extended narrative attention in the context of *hint time* (ECO, 1995, p. 68) – a poetic strategy which serves to indicate that certain textual passages should be taken allegorically or symbolically by its readers.

Therefore, unlike Genette (1980), Eco (1995) does not dismiss the "extranarrative" factors and descriptive elements which, in a literary narrative, may result in the slowing down of reading/discourse time in relation to story time – choosing instead to embrace and explore their poetic and aesthetic potential. As previously discussed, Eco's threefold temporal structure bears some similarities with our understanding of time in videogame poetics, especially in the context of two art forms in which recipients are free to determine their own time of reception – a point in which, exceptionally, videogames can be considered closer to literature than to cinema. Thusly, we believe that, in the same way a Model Author is capable of devising strategies to somewhat bound and influence the reception time of an otherwise free hypothetical reader, the craft of videogame development is also grounded on providing a rigid structure capable of both steering and accommodating the free movement of its players (SALEN, ZIMMERMAN, 2004, p. 300).

Fiction-wise, as pointed out by previous works (WEI; BIZZOCCHI; CALVERT, 2011; ANYÓ, 2015), videogame poetics can easily incorporate the four "literary" movements of pause, summary, scene, and ellipsis. Even if we do not consider any poetic particularity related to simulation and player agency, narratively inclined videogames seem to have seamlessly inherited, from literature and cinema, these already stabilized tools for the composition of temporal duration. To provide a few examples: pauses are often employed whenever players are required to make a significant choice in the narrative of a game, as is the case with "crossroads" choices in *As dusk falls* (INTERIOR/NIGHT, 2022); ellipses are commonly used in transitions between narrative episodes, as previously exemplified by the four-year temporal skip in the beginning of *The last of us part II* (NAUGHTY DOG, 2020); summaries of fictional actions are often utilized to streamline gameplay experience – for instance, the actions of washing dishes and chopping vegetables in *Overcooked* (GHOST TOWN GAMES, 2016), which occupy only a few representational seconds; and, of course, scenes have been previously defended as being the paradigmatic form of videogame temporality (WEI; BIZZOCCHI; CALVERT, 2011; ANYÓ, 2015). Moreover, in addition to Genette's four movements of duration, videogames have also inherited a form of the "slow motion" effect (often called "bullet time") popularized by the art of cinema.

More obvious poetic differences begin to emerge when we move to the plane of reception and its relation to representation. On one hand, videogame representation is capable of strictly regulating player reception, either by the imposition of timers and ticking clocks, or

by conditioning specific game events to certain periods of real-world time. On the other hand, the duration of reception is also capable of determining the duration of the representation of a given play session – and, as a consequence, occasionally also of its fiction. In *What remains of Edith Finch* (GIANT SPARROW, 2017), for instance, it is quite safe to assume that the amount of time spent by players in the exploration of the game space is, fictionally speaking, equivalent to the amount of time spent by the main player-character in the exploration of the Finch house. In this regard, it is not uncommon for duration to assume a complementary relationship to order, so that gameplay segments of limited duration offer myriad possibilities of ordering action, whereas segments strongly marked by unisequentiality grant players unrestricted duration to explore a virtual space. In addition to that, players may often choose to pause, accelerate, or decelerate representational time at will – such as in *The Sims* (MAXIS, 2000) and *SimCity* (MAXIS, 1989) franchises –, thus configuring a customized (longer or shorter) overall duration of reception.

These are, however, cases in which changes in representational duration are usually not carried over to fiction – time in *The Sims 4* (MAXIS, 2014) is only accelerated for the player's eyes, not for Sims themselves. Reception time is also capable of influencing representation in more fictionally ambiguous ways – when, for instance, disinterested players pass too quickly through an area which should have demanded more of the fictional character's attention; or, on the contrary, when players linger around a certain game space for too long during a fictional situation in which time is of the essence. On chapter four, we have previously mentioned a scene in *The last of us part II* in which Ellie, while listening to Joel's tortured screams, can be controlled by the player to leisurely walk around the house before following his cries down to the basement. This case may require some sort of filtering on the part of players, so that this display of callousness is not incorporated into Ellie's character traits. Regardless of how it is integrated into a game's fictional world, this lingering of reception time right before or during urgent situations could be said to find an immediate parallel with Eco's trepidation time, as a strategy to increase player tension before a big narrative event.

On a final note, another notable affordance of videogame poetics is that of the framing of reception time as a valuable resource to be managed and exchanged. From the temporal regime of extreme efficiency imposed on professional e-sports players (KNUTSON, 2018), to the time-consuming and repetitive grinding which can be avoided by in-game purchases (WOODS, 2022), the poetic transformation of "world time" into commodity is one of the most

peculiar feats of the art of videogames, which can only be achieved by way of the careful monitoring and measuring of receptional duration afforded by digital technology. In direct opposition to this logic of temporal efficiency and commodification, some games choose to present players with a radical poetics of temporal inefficiency, as we shall see in the analysis that follows. Therefore, we begin by turning our attention to the micro- and macro-compositional aspects of both poetic axes of fiction-representation and reception-representation. We then shed light on more specific temporal phenomena related to videogame duration, such as the commodification of player time and the possibilities of poetic rebellion against it.

6.1 DURATION OF FICTION IN RELATION TO REPRESENTATION

We may do well to start with the concept of "scene," which marks in theory a perfect isochrony between different durations. Far from being a straightforward temporal relation, the concept may in fact be as unattainable to the art of videogames as it is to literature – or, at the very least, it does not seem to be as widespread as some authors may have suggested in the past (WEI; BIZZOCCHI; CALVERT, 2011; ANYÓ, 2015). Genette's scene refers to the equivalence of the passage of narrative time with the passage of fictional time and, as such, is highly indebted to our perception of duration and the passage of time in the "real" world – maybe because, as Ryan's (1980) principle of minimal departure explains, in our contact with fiction we are inclined to immediately borrow from our real world everything that is not explicitly presented as divergent.

Time of representation in movies can be considered naturally inclined to the concept of "scene" because the bodies of actors are already subject to the gravity, physics, and movement limitations imposed by the real world (ANYÓ, 2015). The representation of videogames' simulated systems, on the other hand, are usually not so temporally "realistic." For one, the speeds and movements of real life may not be well suited for dynamic, action-heavy gameplay – consequently, many games make the option for ever so slightly speeding up the represented actions of, for instance, reloading ammunition or using a first-aid kit, even if other represented elements in the game remain faithful to the temporal standards of the real world. A more

obvious example is provided, as first noted by Juul (2005), by the many cases of videogames which incorporate summarized day-night cycles or real-world temporal measures (like clocks and calendars) into their simulated worlds, while keeping character movement fairly close to what could be expected from their "real world" equivalents.

Figure 14 – The fictionally contextualized clock in *Her story* displays my current year, minute, and second of real reception time, while also showing the fictionally pre-determined day, month, and hour

Source: BARLOW, 2015

This is not to say that games are not capable of providing isochronic representations of fictional duration. The previously mentioned cases of *The last of us part II* and *What remains of Edith Finch* could at times be said to favor a scenic representation: since the representation of clocks or day-night cycles is avoided, players can walk around abandoned sites in the company of Dina, or explore a house in the first-person view of Edith, and expect to be experiencing the fictional passage of time in the same way as their characters. A less common scenic configuration is utilized by the game *Her story* (BARLOW, 2015), in which a clock informing the fictional time progresses concurrently with real-world time (Figure 14). As part of its overall poetic composition and narrative twist, *Her story* attempts to ambiguously integrate (much like its successor *Immortality*) the real actions of players into its fictional plane: the entire game is played through the interface of a computer screen with which players interact in an attempt to find more information about a mystery that is as unknown to them as to their

player-character. The in-game clock emphasizes this poetic theme by partially integrating the passage of real minutes and seconds, as well as players' current year, into its representational plane while keeping day, month, and hour fixed to the same fictional standard of June 16th, seven o'clock.

All of these cases provide players with an unlimited duration of time to explore and linger in their represented "spaces" (be they a house, a field, or a computer screen). It should thus be noted that this compositional trait, in and of itself, is already capable of compromising the integrity of scenic time, because – although impractical – it is always possible for players to spend days of real-world time standing still in the same spot and notice, for instance, that the sky above their heads never changes color, or that the fictionally contextualized clock in *Her story* never progresses from hour seven to hour eight. Similar to Eco's "model reader," we may assume a "model player" willing to adhere to social and artistic norms which condition "correct" or, at least, "optimal" behaviors of interaction with the artwork. In this specific case, a model player knows they are invited to linger only to a certain extent, beyond which the seemingly realistic scenic representation of time will transition to a stretched representation and require some "medium-specific charity" (THON, 2016, p. 106) to be correctly interpreted. Therefore, these examples seem to indicate that, in the art of videogames, players are invited to maintain a constant interpretive engagement to determine which aspects of a videogame's representational plane should be read under the auspices of a scene – e.g. walking around in *The last of us part II* –, and which should be read as summaries – e.g. strangling an enemy in *TLoU part II* – or stretches – e.g. staying around for hours in the same spot in *TLoU part II* – of representation in relation to fiction.

Moving to relations of durational dissonance, pauses in videogames are quite different from those found in literature. Since explorable audiovisual environments are preferred over static descriptions of physical spaces in this art form, pauses tend to be more contemplative and future-oriented than properly descriptive. Game-instantiated pauses are often employed when players need to evaluate their options and decide what to do next. As mentioned, even though *As dusk falls* is a game abundant in quick-time events and ticking clocks, choices considered to be of major narrative importance ("crossroad" choices) indefinitely stop fictional time for as long as it takes players to make a decision (Figure 15). Player-instantiated pauses, on the other hand, are often represented as completely suspending the temporality of a game and allowing

players to step outside of its magic circle (HANSON, 2018, p. 56-58). In this way, they could hardly be considered a part of the fiction-representation axis presently under scrutiny.

Figure 15 – A "crossroad" decision in the game *As dusk falls* pauses the passage of fictional time

Source: INTERIOR/NIGHT, 2022

However, there are many games which allow for pauses that do not completely separate players from their fictional context. In *The Sims 4*, players can momentarily pause the representation of fictional time so as to plan the next set of activities in their Sim's day, buy new furniture or make architectural changes to the house. A more widespread example is found in inventory screens and quest logs such as those presented by *The witcher 3: wild hunt* (CD PROJEKT RED, 2015)[1] and many other RPGs, which could also be considered contemplative pauses in the representation of fictional time. They too allow players to revisit previously acquired information and make strategic improvements to their character, while keeping players partially connected to the fictional world via the manipulation of fictionally contextualized objects – for example, to equip or unequip any specific weapon, like "Aerondight" – and

[1] Nominations: "Game of the Year" (winner), "Best Role Playing Game" (winner), "Best Narrative," "Best Art Direction," "Best Score/Soundtrack," and "Best Performance" in *The Game Awards* 2015; "Artistic Achievement," "Audio Achievement," "Best Game," "Game Design," "Performer," "Persistent Game," and "Story" in the *BAFTA Games Awards* 2016.

objectives – for example, to review any major narrative objectives which have yet to be accomplished, like to "repel the Hunt's attack."

While discussing the phenomenon of player-instantiated pauses in videogames, Christopher Hanson (2018, p. 71-76) calls attention to comments made by two previous authors on videogame temporality: Juul (2004) associates the temporal experience of playing a videogame to the present, because game events are linked to player's real-world (and real-time) actions; and Atkins (2006) associates videogame play to the future, because of the constant orientation of player attention to planning and predicting the consequences of their present actions. Hanson (2018) ultimately argues that videogame players operate under a thickened present inspired by Brentano and Husserl's phenomenology – one which unifies immediate past, present, and immediate future –, and states that the practices of pausing and saving games:

> […] render these relationships explicit by excising the immediate now of the precise moment of suspension of play. When the player pauses (or saves), she preserves the precise game state at the instant she ceases to play; this pause or save is itself a particular instant of play – a now that is preserved, albeit one without the player's protention and retention. (HANSON, 2018, p. 75)

Hanson's (2018) reflections inspire us to consider that the pause feature in videogames provides players with a detached visualization, by way of excision/extension, if not of their "real" present, at least of a "fictional" present they can still consider their own. Under this almost McLuhian understanding of technological extension, videogame pause could be explained as a techno-poetic tool capable of giving material form to the present moment while keeping the fictional future in a suspension vibrant with potential. A similar argument could be made with regards to the temporal relation of slow motion or bullet time – left unnamed by Genette (1980) and later baptized by Mieke Bal (2009) as "stretch" –, which is also capable of enhancing a player's perception of the fictional present and allowing a more thorough consideration of the immediate future consequences of their actions.

A game completely built around the concept of a stretched representation is *SUPERHOT* (SUPERHOT TEAM, 2016),[2] in which the passage of time is conditioned by player movement around the fictional space. The game is comprised of short levels in which multiple enemies with an array of different weapons lunge towards the player-character to try and kill them.

[2] Nominations: "Best VR/AR Game" in *The Game Awards* 2017; "Best VR/AR Game" in the *Game Developers Choice Awards* 2017; "Seumas McNally Grand Prize," and "Excellence in Design" in the *Independent Games Festival* 2016.

Fictionally speaking, levels usually last only for a few seconds; however, if the player-character is not moving nor picking up/using weapons, the passage of time in the representational plane is almost brought to a halt. This drastic deceleration, which affects even the speed of bullets (Figure 16), allows players to carefully assess the situation in front of them before acting with utmost precision, thus configuring the temporal stretching of a fictional present thickened by an excess of audiovisual information.

Figure 16 – Bullets frozen mid-air in the game *SUPERHOT*

Source: SUPERHOT TEAM, 2016

The stretched duration of bullet time could be said to narratively represent, in this game as in others, the subjective experience of an altered sense of the duration of time often associated with the experience of "flow" – the optimal psychological state of enjoyment achieved when a person's skill is carefully matched by the challenges they face (CSIKSZENTMIHALYI, 1990 apud SWEETSER; WYETH, 2005, p. 3). In this sense, fiction and representation work to create, in the plane of reception, an aesthetic effect proper of the art of videogames – that of a sense of mastery over time (HANSON, 2018). In the specific case of *SUPERHOT*, this mastery is achieved not only by directly tying the progression of represented time to player movement/action, but also by condensing and efficiently distributing player action over fictional duration. This effect is further accentuated when, by the end of every successfully completed level, a "scenic" recap – in which representational duration is finally matched to

fictional duration – is displayed on repeat so players can admire their own dancing around bullets and swift extermination of enemies. The extension of a single present moment is thus employed to grant players a thorough understanding and sense of complete control over a few punctual seconds of mayhem.

Next, the concept of summary refers to any case in which representation is faster than its fictional counterpart, and is therefore a quite widespread temporal relation in the art of videogames – from the slightly faster strangling of enemies in *The last of us part II* to the 20-minute day-night cycle of *Minecraft* (MOJANG STUDIOS, 2011). Well deployed representational summaries are usually what grant a videogame its dynamicity of action and are often combined with scenic configurations to compose the paradigmatic aesthetic experience of time in videogames – often requiring, as previously mentioned, an active engagement of players' interpretational skills so that one can be properly differentiated from the other. Moreover, whenever a considerable summation of temporal duration is adopted as the guiding ludic principle of a game, especially in the form of fictionally contextualized daily cycles, time is usually presented as a finite resource that players need to manage as efficiently as possible. Games which deliberately aim to provide a "stressful" gameplay experience, such as *Papers, please* (POPE, 2013),[3] obviously profit from this poetic configuration. By the end of a fictional workday handling border control in the country of Arstotska, players are presented with a straightforward monetary conversion rewarding efficient temporal management with additional fictional currency. Since that money is then directly employed to provide the basic needs of food, heat, and medicine to the player-character's family, players can feel (and, indeed, are expected to feel) directly responsible for their (in)efficient handling of temporal duration.

More surprising, however, is to find the same poetic techniques of temporal regulation being employed by games which, contrarily, aim to provide a relaxed gameplay experience. In *Stardew Valley* (CONCERNEDAPE, 2016),[4] even though the passage of days is meticulously registered in its development into weeks, seasons, and years, the predictable nature of the game's infinitely repeating cycles guarantees a more easygoing mode of aesthetic engagement.

[3] Nominations: "Strategy and Simulation" (winner), "Best Game," "Game Design," and "Game Innovation" in the *BAFTA Games Awards* 2014; "Innovation Award" (winner), and "Best Downloadable Game" in the *Game Developers Choice Awards* 2014; "Seumas McNally Grand Prize" (winner), "Excellence in Design" (winner), "Excellence in Narrative" (winner), and "Nuovo Award" in the *Independent Games Festival* 2014.
[4] Nominations: "Best Independent Game" in *The Game Awards* 2016; "Best Game" in the *BAFTA Games Awards* 2017; "Best Debut" in the *Game Developers Choice Awards* 2017; "Seumas McNally Grand Prize" in the *Independent Games Festival* 2017.

Nevertheless, at the end of every day, players are offered an itemized report of their sales and daily profits, so that they are made painfully aware of the conversion of time of reception into fictional surplus value. As a consequence of this daily reporting, "unprofitable" days can be easily compared with – and evaluated against – other days in which reception time has been more efficiently converted into money.

Finally, ellipses of fictional time are also frequently employed in videogames, be it in a more traditional, mandatory form (as in the four-year temporal skip in *The last of us part II*), or in a more flexible, player-instantiated form. The previously mentioned examples of games organized around day-night cycles frequently offer players the possibility of sleeping or meditating through a part of the fictional day they might not be interested in playing, thus explaining their fictional ellipses by attaching it to a character's subjective perception of the passage of time. Fictional ellipsis can also be assumed in the many cases of instant teleportation of characters between pre-defined points in the game map, a videogame feature often called "fast travel." Some games, like *The witcher 3*, even make this relation explicit by skipping a few hours of fictional time with each fast travel, so that players can understand their character's teleportation around the map as an omitted representation of the traversal from one spatial landmark to the other. Most games, however, do not feel the need to bound the ellipsis of movement in space to the ellipsis of time, to the point that explicit contradictions between the two are not at all uncommon. The clock marking the passage of a fictional day in *Disco elysium* (ZA/UM, 2019),[5] for instance, is not affected neither by walking around nor by fast travelling, so that many trips around Martinaise can be made without progressing a single minute of fictional time.

As noted by Alison Gazzard (2009, p. 1), warp devices that reframe notions of space and time have for long been a staple of fantasy and science fiction, from Alice's rabbit hole to Doctor Who's TARDIS. It might be interesting to note, however, that such warping/teleportation devices in videogames, when strictly related to the bending of space, are hardly ever integrated into fiction through magical, technological, and/or supernatural explanations. Temporal bending/warping, on the other hand, seems much more dependent on fictional explanations: the rewinding of time in *Prince of Persia: the sands of time* (UBISOFT

[5] Nominations: "Best Narrative" (winner), "Best Independent Game" (winner), "Best Role Playing Game" (winner), "Fresh Indie Game" (winner) in *The Game Awards* 2019; "Debut Game" (winner), "Music" (winner), "Narrative" (winner), "Artistic Achievement," "Best Game," "Game Design," and "Original Property" in the BAFTA Games Awards 2020; "Best Debut" (winner), "Best Narrative" (winner), "Innovation Award," and "Best Visual Art" in the *Game Developers Choice Awards* 2020.

MONTREAL, 2003) and *Life is strange* (DONTNOD ENTERTAINMENT, 2015) and the temporal loops of *Twelve minutes* (ANTONIO, 2021) and *Outer wilds* (MOBIUS DIGITAL, 2020), for instance, are all fictionally addressed in some form or another.[6] As previously mentioned, even temporal ellipses and stretches are often framed through the subjective temporal perception of fictional characters – as altered states of consciousness related to sleep, meditation, distraction, flow etc.

Generally speaking, it seems that spatial warping in videogames has been conventionalized as a representational element so ubiquitous as to be inconsequential to the overall construction of a videogame's fictional plane. Temporal warping, on the other hand, still appears to be considered a fictional possibility too fantastic to go unnoticed or unexplained in poetic composition. If this configuration of videogame poetics could be said to point to a broader social phenomenon beyond the strict representational domain of mimesis$_2$ – as is certainly the expectation of the present thesis – then it could be argued that, although digital technology has allowed us to somewhat escape the bounds of spatial distance in our practical lives and collective consciousness, it has not necessarily allowed us to escape the physical and psychological bounds of the passage of time.

6.2 DURATION OF RECEPTION IN RELATION TO REPRESENTATION

Unlike temporal order, categories of duration are not so easily mirrored among the axes of fiction-representation and reception-representation: pause, summary, and ellipsis, for instance, seem to find no adequate parallels in the plane of reception. Still, some comments should be made regarding how, in kinesthetically focused videogames, the tethering of receptional duration to representational duration can be meaningful at a micro-compositional level. As a general rule, the pressing of buttons in a controller tends to be translated into represented actions of fairly equivalent duration, although it is also not uncommon for represented actions to take slightly or considerably longer than their real counterparts – a

[6] These matters, related to temporal frequency more than temporal duration, will be addressed in our next chapter.

variation that can be considered quite significant to the overall composition of videogame syntax.

"Soulslike" games, such as the recent *Elden ring* (FROMSOFTWARE, 2022),[7] often refuse this instantaneous correspondence among button pushes and player-character actions familiar to most action-adventure videogames, a compositional choice which not only provides a particularly challenging experience of gameplay, but also serves to distinguish the genre as a whole. Getting accustomed to the representational delays of sword swings, tumbles, dodges, and cool-downs ultimately rewards proficient players with a choreographed sense of temporal control. Moreover, many fighting games tend to intersperse immediately reactive gameplay with segments of stretched representation in which the pressing of the right buttons at the right time rewards players with a powerful/violent satisfying cutscene – as exemplified by the emblematic cases of "fatalities" and "brutalities" in the *Mortal Kombat* (MIDWAY GAMES, 1992) franchise. This stretching of the default duration of a game's represented action signals a greater level of importance and creates rhythmic moments of grandeur into what could be considered an otherwise repetitive fighting sequence.

On a final note, representational stretches can also be used to signal the meaningfulness of a given action in a more traditionally narrative way. In *What remains of Edith Finch*, moving around while controlling the character of Edith is an activity in which duration of real player action is often equivalent to the duration of its representation; however, while manipulating objects related to the members of the Finch family – letters and diaries, for instance –, a command on the player's part will often result in a comparatively longer action on Edith's part. The careful unfolding of papers and turning of pages indicates the narrative gravity surrounding said objects and often prepares players for a transition into an embedded narrative told by a different narrator. Similarly, in the game *Endling: extinction is forever* (HEROBEAT STUDIOS, 2022),[8] in which players assume the role of a mama fox trying to raise her cubs in a hostile environment, pressing the letter Q triggers a few seconds of animation in which the mom tenderly pets her young. Since petting is mainly employed to comfort and reassure the

[7] Nominations: "Game of the Year" (winner), "Best Game Direction" (winner), "Best Art Direction" (winner), "Best Role Playing Game" (winner), "Best Narrative," "Best Score and Music," "Best Audio Design," and "Players' Voice" in *The Game Awards* 2022; "Multiplayer" (winner), "Original Property" (winner), "Artistic Achievement," "Best Game," "EE Game of the Year," "Game Design," "Music," and "Technical Achievement" in the *BAFTA Games Awards* 2023; "Game of the Year," "Best Audio," "Best Design," "Innovation Award," "Best Technology," and "Best Visual Art" in the *Game Developers Choice Awards* 2023.

[8] Nominations: "Games for Impact" in *The Game Awards* 2022; "Games Beyond Entertainment" (winner) in the *BAFTA Games Awards* 2023; "Social Impact Award" in the *Game Developers Choice Awards* 2023.

little cubs after a potentially traumatic experience, the slightly extended representation time (in relation to the comparatively punctual pressing of a key) signals the special narrative weight of this loving gesture.

However, when it comes to the reception-representation axis of videogame poetics, more expressive relations of duration can be found when player agency is considered. In other words, it may be more worthwhile to investigate how the duration of reception time is capable of influencing that of representation and, contrarily, how the duration of representation is also capable of guiding and limiting the duration of reception. We shall begin by commenting on the most videogame-specific of these cases – the one in which duration of reception can effectively determine the duration of representation for different players. A specific configuration of videogame poetics which calls attention for its uniqueness is the possibility of changing representation in accordance with players' real time of the day, day of the week, month of the year, or year itself. The franchises of *Animal crossing* (NINTENDO, 2001) and *Pokémon* (GAME FREAK, 1996) are two famous examples of the incorporation of player clock into game mechanics. In both cases, day-night cycles present players with changes in scenery and different activities to do, such as the catching of specific nocturnal fish, bugs, and pokémon. In *Animal crossing: new horizons* (NINTENDO, 2020),[9] winter and summer solstices are special events which follow the calendar of individual players, depending on whether they are located in the northern or southern hemisphere. In the same vein, many multiplayer games like *League of legends* (RIOT GAMES, 2009) and *Don't starve together* (KLEI ENTERTAINMENT, 2016) offer seasonal items/events in commemoration of specific holidays – more often than not, bound to the culture of countries in the global north.

When not presented as rare occurrences the missing of which would hinder player progression, these receptionally bound items, sceneries, and events may highlight player agency by providing a more personalized experience. The slow-paced cycles of *Pokémon* and *Animal crossing* are particularly well-suited to the long-term, casual, and interspersed gaming style often conditioned by handheld consoles, so that players can set their own gaming schedules and know they will not be punished for intermittency and lack of haste. Moreover, this incorporation of a player's experience of the passage of time in the real world may contribute to what others

[9] Nominations: "Best Family Game" (winner), "Game of the Year," and "Best Multiplayer Game" in *The Game Awards* 2020; "Games Beyond Entertainment" (winner), "Multiplayer" (winner), "Best Game," "Family," "Game Design," and "EE Game of the Year" in the *BAFTA Games Awards* 2021; "Game of the Year," and "Best Design" in the *Game Developers Choice Awards* 2021.

have called the liveliness (ZAGAL, MATEAS, 2010, p. 853-854) or the immediacy (HANSON, 2018, p. 18-35) of a videogame's representation, partly because it gives players a strong sense that things may be "happening" in the game even if they are not being witnessed, and that temporal processes and cycles exist independently of player presence.

Additionally, the duration of reception could be said to control the duration of representation in games which aim at providing their players with a more leisurely temporal experience of exploration. Games such as *A short hike* (ADAMGRYU, 2019),[10] and *Unpacking* (WITCH BEAM, 2021),[11] focused on the traversal and/or unraveling of unthreatening, visually interesting spaces, allow players to experience largely unchanging virtual environments with no temporal punishment or limitation. In this way, the representational duration becomes invariably tied to a given player's disposition to explore nooks and crannies, fulfill (mostly optional) tasks, or organize a fictional space.

Figure 17 – The player-character glides down the mountain in *A short hike*

Source: ADAMGRYU, 2019

[10] Nominations: "Seumas McNally Grand Prize" (winner), "Audience Award" (winner), and "Excellence in Design" in the *Independent Games Festival* 2020.
[11] Nominations: "Narrative" (winner), and "EE Game of the Year" (winner) in the *BAFTA Games Awards* 2022; "Best Audio" (winner), "Innovation Award" (winner), and "Best Narrative" in the *Game Developers Choice Awards* 2022; "Seumas McNally Grand Prize," "Excellence in Audio," "Excellence in Design," and "Excellence in Narrative" in the *Independent Games Festival* 2022.

In *A short hike*, for example, the kinesthetically satisfying flight mechanics and visually stunning scenery (Figure 17) allow for a curious configuration in which players, which are tasked with reaching the peak of a mountain, are ultimately rewarded by undoing all their progress while gliding back from summit to base. This bold disregard for a clear measure of game "progress" and "fulfilment" works in favor of a rhetoric of temporal leisure. Games such as these invite players to dive into the pleasurable experience of a present uninformed by the future-oriented efficiency of time management, or concepts of change, decay, and death. Their comfort lies precisely in the constancy of the objects and inhabitants which populate their fictional world, which are unmoved and unbothered by the passage of time in a way that would make any meaningful sense of "progression" impossible. Therefore, their poetics is one in which productivity is traded by sensuous idleness.

Figure 18 – Through *Unpacking*'s fictionally contextualized menu (a photo album), we see a picture of our main character's childhood bedroom (first level)

Source: WITCH BEAM, 2021

Unpacking develops this specific poetic structure of temporal leisure in an interesting combination with its narrative themes. In the game, players need to unpack moving boxes and organize the personal objects of the main character into the many living spaces she inhabits throughout her life, from childhood bedroom to dorm room to two story house (Figure 18). From the different objects which are kept, lost, or introduced among levels, players are capable

of making inferences regarding how much time has passed and what changes may have happened in the character's life; each level, however, exists within a bubble of timelessness which offers a peaceful experience of relaxed spatial organization. The contrast between *Unpacking*'s poetical form and its narrative themes are thus quite noticeable – although time pressure is not employed as a gameplay factor, each fictional moving is accompanied by critical transitions and implied life changes which are, by themselves, signifiers of the relentless passage of time. The anxiety-inducing situations suggested by the game's representation – moving out of your parent's house, beginning and ending romantic relationships, starting a new family – are, in this way, sublimated into the poetic composition of a suspended present capable of neutralizing their more intimidating aspects. The unremitting flux of time is thus replaced by the reliability of a static, photographed, immortalized space.

Reception can, however, condition representational duration in other ways beyond the experience of player leisure. A more idiosyncratic poetic structure is presented by the videogame *Before your eyes* (GOODBYEWORLD GAMES, 2021),[12] in which the real player-performed action of blinking is integrated into the game's representational plane as an ellipsis of fictional time. Players assume the role of the dead soul of Benny, who, while waiting for final judgement, is forced to revisit the entirety of his living memories. As the player-character rewatches clips of important moments in his life, the player can (try) to extend the duration of clips by refraining from blinking; every blink, however, results in a temporal skip of indeterminate duration. By attaching the representation time of each of Benny's memories to an involuntary bodily function of the player, *Before your eyes* offers a gameplay experience not of relaxed exploration, but of helpless impotence in the face of the passage of time. This is because, although players are, on principle, in control of the duration of their own experience, the blinking mechanic ultimately serves to highlight players' own physical limitations and strip them from their sense of agency – over their own bodies, over their own memories and, ultimately, over time itself.

This temporal configuration makes excessively evident a veiled aspect that is, in fact, quite common in videogame poetics: the attachment of gameplay duration to the physical and kinesthetic abilities of the player, with the consequent framing of extended duration as a reward granted for good performance. As previously discussed in relation to *Tetris,* early examples

[12] Nominations: "Games for Impact" in *The Games Awards* 2021; "Games Beyond Entertainment" in the *BAFTA Games Awards* 2022; "Social Impact Award" in the *Game Developers Choice Awards* 2022.

from the beginning of videogame history – often molded by extreme technological limitations and the economic model of arcades – favored a temporal gameplay structure of quick, repetitive matches in which a teleology of delayed failure was favored over one of definitive victory. This poetic structure invariably entails a certain rhetoric of personal achievement and temporal efficiency. The duration of playing time becomes a quantifiable measure of a player's ability and, in the context of early arcades, also of value for money – because longer matches could be understood as offering a more advantageous rate of fun per money spent. At the same time, players are made to feel directly responsible for their own (lack of) achievement; and player performance, in light of the game's infinite teleology, can be framed as never being quite good enough – or else, as always capable of being improved. The extensive influence still held by these early compositional traditions in videogame poetics could maybe explain some of the individualistic and meritocratic traits oftentimes identified as guiding thematic principles in the art form (PAUL, 2018). The configuration employed by *Before your eyes*, however, explicitly denies the illusion of player prowess and efficiency, thus subverting the staple of player agency in favor of a disempowered rhetoric of human frailty.

The cases of *Tetris* and *Before your eyes* could be said to represent, in matters of temporal duration, a grey area between reception-bound representation and representation-bound reception. If, on one hand, representational duration is conditioned by player action, on the other hand, player action is limited by kinesthetic ability and the level of difficulty presented by the game. There are other means through which videogame poetics is capable of regulating the duration of reception, some of which are closely linked to poetic strategies already identified by Eco (1995) in the art of literature. For instance, in videogames, space and time are often perceived as conditioning and influencing each other (NITSCHE, 2007). Eco's circumnavigational time assumes here a broader meaning related not only to the time a model reader may take to appreciate the details of a given artwork, but also to the more fundamental act of "physically" traversing a virtual space. Since both the extension of space and the simulation of a player-character's physical movement can be controlled by a videogame's system, the minimum amount of time taken to traverse, say, a corridor or an open field can often be precisely determined[13] and employed in the production of specific aesthetic effects. Maximum amount of traversal time, on the other hand, can be harder to determine – but, to this end, videogame poetics has also found a solution in the form of spatial triggers (DOMSCH,

[13] Provided, of course, that players do not exploit bugs and unintended shortcuts in the virtual space.

2013, p. 41-42) which, to allow for flexibility of duration while maintaining a certain fixity of order, connect the beginning of specific game events to the movement of a player-character through certain points of the virtual environment.[14] The game *Inside* (PLAYDEAD, 2016) presents an exemplary use of one such spatial trigger. In the initial area of the game, when passing through a certain point in space, a couple of guard dogs will catch the scent of the player-character and start running in his direction. This event, in turn, serves as a great example of how circumnavigational time may be employed for aesthetic effect in the art of videogames. The time taken by the dogs to run from their initial position to the player-character is also the exact amount of time the player-character needs to run from where they are to the edge of a cliff (Figure 19) and jump to safety. Otherwise, the player-character will be killed by the dogs and the player will have to start that section again, meaning that the only possibility of succeeding in this situation is by managing a spectacular last-second escape.

Figure 19 – The player-character barely escapes a dog's attack by jumping off a cliff in *Inside*

Source: PLAYDEAD, 2016

[14] Event triggering does not, of course, need to be strictly attached to the existence of individualized player-characters, nor to their movement around the game space. Certain events can be triggered, for example, when players hit a certain score, or when temporal limits and ticking clocks (soon to be explored) are integrated into the game.

Another interesting case is presented by the game *Outer wilds*, in which gameplay is conditioned by a temporal limit of twenty-two minutes per run. The game simulates a dynamic solar system in which planets move in relation to the sun and to one another following a time loop – so that players can confidently predict the position of each planet depending on how many minutes have passed since the beginning of the run. For most of the game, players will be running against this temporal limit while attempting to explore said solar system, trying to find out as much information and solve as many mysteries as they can in a given location until the super nova explosion takes them back to minute one. The final puzzle of the game, however, configures a peculiar aesthetic experience. After having discovered the mysteries surrounding the ancient ruins scattered around the solar system, the player will be able to deduce the last solution to the final puzzle of the game, which involves travelling from the planet closest to the sun to the planet the furthest away in the course of one single loop.

In the process, the constraints involved in the spatial configuration of each planet are integrated to compose a complementary temporal experience: the first half of the journey requires a lot of waiting and is therefore marked by impatience and boredom; the second half of the journey, however, requires slow yet constant forward advancement, and is therefore marked by a hurried sense of anxiety. At this stage in the game, it is expected that players will have gotten themselves quite familiar with the twists and turns of each planet, as well as with the steering of their own ship, the cycles of the solar system, and the rhythm of the twenty-two-minute time loop. All of these pieces then fall into place as the spatially bound and temporally constrained trip from one point of the solar system to the other is presented as a battle against a ticking clock. By mastering the spatial movement of the game, players are able to fulfill the final mission just within the temporal frame determined by the time loop and, in a way, feel they have mastered in the process not only space, but the operations of game time itself – as oppressive as it may have felt at other points in their journey.

Spatial navigation as a regulator of reception time can also be employed in a similar way to Eco's (1995) trepidation time. If the player is headed to an important fight, for example, the journey to that location may be arranged to allow time for tension and anticipation to build up. *Undertale* (TOBYFOX, 2015)[15] is a game peppered with many such moments of trepidation, from the ominous corridor which marks the exit from the tutorial level into the

[15] Nominations: "Best Independent Game," "Games for Impact," and "Best Role Playing Game" in *The Game Awards* 2015; "Story" in the *BAFTA Games Awards* 2016; "Audience Award" (winner), "Seumas McNally Grand Prize," "Excellence in Audio," and "Excellence in Narrative" in the *Independent Games Festival* 2016.

game proper, to the castle hallway populated by talking monsters which takes players to the final battle against king Asgore. But, of course, trepidation time in videogames need not be determined only by spatial arrangement. More straightforward temporal limitations are also employed with this effect in mind, such as when, in *Before your eyes*, the mechanics of game progression through player blinking is slightly modified so players are instead required to keep their eyes open for a set amount of time in order to move forward in the narrative (Figure 20). These specific moments, instead of focusing on positive events the player-character would want to remember, relate to repressed memories he wants to avoid. In this way, the temporal limit which determines the physically excruciating seconds in which players are required not to blink works in consonance with the ominous anticipation of the facing of painful and traumatic past events.

Figure 20 – In this segment of *Before your eyes*, the hourglass icon at the bottom of the screen indicates for how long players need to avoid blinking until they can see what lies beyond the closed doors

Source: GOODBYEWORLD GAMES, 2021

Temporal limits and ticking clocks are poetic devices very frequent in the representational conditioning of time of reception, even beyond the concept of trepidation time. They may be employed in order to influence the difficulty level of a game (the quicker, the harder) or to determine new game objectives (survive for X amount of time, complete this task

in X minutes) – thus offering a simple solution to the incrementation of challenge and replayability in any videogame. Temporal limits are naturally inclined to direct player's temporal perception to the imminent future by way of anticipation for their depletion, which also intensifies player attention over the task being carried out in the present. There are many videogames whose entire ludic and/or fictional configuration revolves around a deliberate limitation of the temporal duration of reception. In the puzzle game *Minit* (NIJMAN ET AL., 2018),[16] players are afforded only one minute of exploration in the fictional world until their player-character dies and is resurrected in the respawning location. Some items, once found, are permanently retained by the player-character, and a few different respawn spots are eventually introduced, thus broadening the range of accessible space. Despite the frantic gameplay style engendered by this compositional choice, the limited duration enforced over reception time results in a segmented unfolding of the game space which creates an illusion of vastness and complexity to what would be otherwise considered a quite small game map. As a consequence of the extremely limited one-minute duration, players are repeatedly required to revisit previous areas and are very likely to, time and again, find hidden secrets in them – a poetic configuration responsible for inflating both game space and game experience.

On the opposite side of this spectrum, *THE LONGING* (STUDIO SEUFZ, 2020) is an idle game in which temporal limitation is extended far beyond what would be reasonably expected in videogame conventions. Players follow the character of the Shade, a lonely servant to a hibernating king/god, who is tasked with awakening their master from his slumber by the end of a waiting period of 400 days. In the meantime, the Shade may slowly walk around the sprawling tunnels of an underground cave, bored and completely alone, except for the occasional company provided by the player. The 400 days of gameplay pass in real-world time beginning from the moment the game is first started, irrespective of whether players are running the game program or not. The task imposed over the Shade – of waiting until their master can be awakened – is presented as the most obvious and immediate game objective to the player, although different, diverging objectives may be found by those who decide to thoroughly explore the caves. Even though the game does reward players who actively spend time paying attention to the screen with occasional items and events, the extremely slow pace of the player-character's motion, coupled with the long swaths of deserted game areas, mean that most of the playing time will be completely uneventful. The sparseness and unpredictability of interesting

[16] Nominations: "Game Design" in the *BAFTA Games Awards* 2019; "Seumas McNally Grand Prize" in the *Independent Games Festival* 2019.

places and events thus configure an overall temporal experience of attentive waiting marked by inactivity and boredom.

Consequently, temporal limitation in the form of long-term waiting becomes a central aesthetic feature in *THE LONGING*. Throughout the game, this feature is incrementally introduced to the player, so that some paths are made available only after a waiting period of real-time hours, weeks, and even months. In a specific case, a spider takes several hours to spin a web that will allow the player-character to climb to a new location; on another occasion, a deep pit needs to be filled by individual water drops coming from a leak in the ceiling over several weeks, until the Shade is allowed to swim across to the next location. In addition to this lengthy waiting experience, different areas of the caves (and the paths leading to them) are remarkably difficult to differentiate and recognize, leaving players with a persistent feeling of not being sure if they have seen all that was to see. Contrarily to our previous example, in which spatial familiarity was achieved through forced repetition, the excessive duration of interspersed playing imposed by *THE LONGING* contributes to a persistent feeling of unfamiliarity, even as reception time is extended for weeks and months.

The limit represented by an extremely elongated duration – instead of an extremely shortened one – is therefore purposefully employed to subvert the paradigms of entertainment, mastery, and progression often expected of videogame poetics. The two very distant gameplay experiences articulated by *Minit* and *THE LONGING* point to the wide poetic range that can be explored when duration of reception is deliberately constrained by duration of representation. This constriction of reception time, however, may also recruit players' real-world time into a logic of commodification. In our next section, we turn to the questions of how and why players may choose to exchange money for more (or less) gameplay time, and how some games may attempt to subvert this logic of commodified temporal exchange.

6.3 THE COMMODIFICATION OF RECEPTION TIME

Previously, we have addressed how specific strategies related to the composition of temporal duration in videogames may invite players to treat their reception time as a resource in need of efficient management. The mere organization of gameplay into a summarized daily

cycle, we asserted, may be enough pretense to subscribe players to a logic of efficient temporal engagement, in which game cycles can be evaluated in terms of how much resources/money they have yielded. Although it could be initially argued that this direct correspondence between time and accumulated resources points to a temporal relation focused on the past – because passed time gets translated into something tangible and presently corporified, much like a monument or document –, it is our opinion that the framing of time as an exchangeable resource, on the contrary, tends to annul the past and imbue time with a value primarily associated to its future potentiality.

When ongoing monetary exchanges and certain temporal limitations are integrated into a game's poetics, this management of reception time may become effectively intertwined with a broader temporal economy encompassing other aspects of player's real lives, in a quite straightforward example of how $mimesis_2$ may lead to $mimesis_3$. In the article *The economy of time, the rationalization of resources: discipline, desire, and deferred value in the playing of gacha games*, Orlando Woods (2022) calls attention to the temporality constructed by a genre of free-to-play game that offers the choice between grinding (spending time) and paying (spending money). The article is specifically based on interviews with Singaporean players of the videogame *Genshin impact* (MIHOYO, 2020),[17] in which users explore a fantasy world by controlling a party of up to four simultaneous characters whose complementary abilities can be employed in the battling of monsters and accumulation of resources. New characters and equipment can be collected through the "gacha" gambling mechanic, in which game currency acquired via time of gameplay or bought via microtransactions can be exchanged by a random item. Woods (2022, p. 3) explains that the process of grinding in *Genshin impact* is marked by deferred value and uncertainty of returns, whereas the act of spending money can be thought of as a shortcut to obtaining higher-value items. This embeds players in a global economy that is not purely monetary, but also temporal – insofar as it situates reception time (or time spent playing the game) in relation to other time-consuming demands of daily life and, of course, also in relation to money and labor. The ultimate effect of this poetic configuration is that reception time becomes a currency – a signifier of value comparable to and exchangeable for other, real or fictional, currencies.

[17] Nominations: "Best Mobile Game," and "Best Role Playing Game" in *The Game Awards* 2020; "Best Mobile Game" (winner) in the *Game Developers Choice Awards* 2021.

Woods (2022, p. 7) argues for an interesting difference in the temporal experience of, on one side, traditional models of gambling and, on the other side, gacha games in which players may choose not to spend any amount of real money. Citing Natasha Schull (2005), Woods explains that traditional gambling tends to inscribe players in a supraeconomy which allows a temporary withdrawal from ordinary life, conventional circuits of exchange and, consequently, also from the regulated and progressive logic of a shared world time. Gamblers, therefore, exit conventional world time and assume an altered temporal perception which is subject to the distensions and contractions of the movements of play. Gacha mechanics, on the other hand, by turning reception time into an exchangeable currency regulated by its own economic logic, condition a "hyper-rationalisation of time as a playing resource" that aims at extracting the maximum productivity and advantage of each unit of temporality: "rather than this being a state in which players lose track of time, it is instead one in which they become acutely aware of its value" (WOODS, 2022, p. 7).

Furthermore, it is interesting to note how this temporal configuration is perceived by players and how it can, in turn, inform players' perception of time. Woods (2022) reports, based on excerpts from conducted interviews, that the aforementioned hyper-rationalization of time as resource seems to sensitize interactors to the duration of their own play by mobilizing the future-oriented notions of investment, progression, and productivity. This means that the resource of duration is susceptible to be perceived as either wasted or well-employed in the acquirement of other, not temporally related, resources – such as characters and items. Woods points out that present time is thus put in service of future gains, and that these gains (leveling up characters and getting better weapons, for example) in turn, affirm the increased "value" of a time that is well "invested" and therefore "productive" – so that the effective management of temporal and non-temporal resources in search of future game achievements can also be said to "add 'meaning' to the present" (WOODS, 2022, p. 10).

Time as investment is also a theme ostensibly presented in the title of Sarah Christina Ganzon's (2019) article *Investing time for your in-game boyfriends and BFFs: time as commodity and the simulation of emotional labor in Mystic Messenger*, focused on how casual otome games (or dating simulators) replicate and reinforce the performance of emotional labor as a gendered activity bestowed upon women. Ganzon points out that, while casual games marked by short bursts of interspersed reception time often rely on a rhetoric of converting player's leisure into work (by following the same productivity logic identified above), casual

otome games like *Mystic messenger* (CHERITZ, 2016), which are specifically aimed at women, often frame said work as emotional labor related to the fictional management of men's feelings. In *Mystic messenger*, gameplay is spread around a real-time duration of eleven days over the course of which players may communicate with a series of romanceable characters via a fictionally contextualized messaging app. The fictional frame of social media communication borrows some of its temporality from the schema related to its real-life counterpart: players need not activate the game in order to play, but may instead be required to send or answer messages at any time of day. Consequently, Ganzon further notes that, in *Mystic messenger*, the labor related to the fulfillment of a character's emotional needs is strictly tied to players' selfless adaptation to said characters daily schedule:

> The way the game spaces out chats and call times is particularly notable, as it encourages the player to keep track of when their desired romanceable character comes online, taking note of the rhythms of their day and in this way attempt to sync their own rhythms to the desired characters' rhythms. (GANZON, 2019, p. 146)

Also noteworthy is the fact that success in the game requires a commitment of player time and (emotional) labor that cannot be monetarily circumvented. Microtransactions are therefore employed not to relieve players from unpleasant hours of resource grinding, but to grant players the possibility of spending even more reception time in the managing of their chosen character's feelings. Since some characters are made available only during specific times of the day, and since skipping any interaction with a desired character may incur negative consequences for the development of a romantic relationship (and for the achievement of the best possible ending), real money becomes a fail-safe to affection – in other words, it becomes the recourse through which romance can be guaranteed in case a player's untimely real-world schedule gets in the way of their fictional performance of emotional labor. In the case of *Genshin impact*, players are given the choice to spend money in order to avoid spending reception time in the form of grinding; in *Mystic messenger*, on the other hand, players are granted the possibility of spending money to devote more emotional labor time to fictional characters. In both cases, however, the framing of receptional duration through the logic of commodification transforms time, by way of poetic intervention, into a resource which can be managed and exchanged in a broader economy of other real and/or fictional currencies.

The alienation and reification of time in capitalist societies is, of course, not a subject of any novelty. It is a grounding principle of capitalism, as a socioeconomic model, that labor (MARX, 1988, p. 69-84) – and also, necessarily, the concrete human time entailed by it

(MARTINEAU, 2015, p. 132-146) – be reified/objectified in the product of labor and alienated/estranged from workers through the process of commercial exchange. Thus, the time spent playing a game (here called time of reception) is also reified into a series of representational elements – be they the level of a character, the acquisition of a weapon, an arbitrary score, a list of achievements etc. – in such a way as to become dissociated from its producers (players) and acquire an independent existence of their own. This commodified configuration of time, by concealing the human experience which exists behind it, is also incapable of attesting the lived pastness of said experience: enjoyment and frustration, failure and success, boredom and attentive engagement are all subsumed under the same monetary value. In this manner, players are invited to evaluate their reception time not in terms of the positive/negative emotional weight of their playing experience, but in terms of an arbitrarily determined "ideal" outcome, or in terms of the overall value of exchange into which their time has been converted. In either case, the redemption of reception time may only occur through its pointing towards the future – by way of that which its commodification is capable of further acquiring.

There are, however, some videogames which attempt to poetically configure radical alternatives to this conception of commodified time as future-oriented towards profit and exchange. One such game is Jason Roher's (2018) *One hour one life*, a survival multiplayer fictionally set in the pre-historic ages in which gameplay is limited to one hour of reception time per playing session. New players are usually born to other players as babies, at first unable to take care of themselves, and age one year per minute until their inevitable death at minute 60 – at which point they might choose to start a new game session, possibly spawning in a completely different location. A session may end prematurely if players are incapable of feeding themselves, expose themselves to extreme weather, or are attacked by wild creatures. They might, however, not find any of these perils if, as happens in many cases, players spawn into an already established community with enough resources to make food, clothes, and tools as needed (Figure 21).

From this point on, players may interact with other players around them and may choose to participate or not in the workings of the community – hunting, gathering, farming, cooking, building structures, burying the dead and so on –, although the compositional aspects of *One hour one life* tend to strongly steer players towards social engagement. For one, accumulation of points or resources is not afforded by the game – players are usually capable of carrying only

one item at a time, with a few specialized items, such as backpacks and baskets, affording a humble increase in storage capacity. Hunger also escalates very quickly, so that wandering too far from the base camp without a supply of pre-crafted food items tends to be a short-lived endeavor. Communication is limited in comparison to other multiplayer games, because players can only read the speech bubbles of characters in the range of their own screen.[18] Crafting can also be a very cumbersome process, given that player-characters only hold one item at a time, and even simple objects like a slice of bread may involve several processes of combination. All of these limitations incentivize a gameplay model in which tasks are divided among different players and end products are collectively shared. Although no player is afforded enough time or ability to build an entire base on their own, a group of players may achieve that task by distributing amongst themselves the many chores required for survival and expansion.

Figure 21 – Image of a village in *One hour one life*, available at the game's official webpage on Steam

Source: ROHRER, 2018

[18] Moreover, babies are only allowed to communicate with a single letter at a time, with the maximum number of letters slowly increasing with age. Some funny situations of miscommunication may arise from this poetic limitation, as well as some organic player-instantiated conventions – the letter F, for instance, is commonly employed by babies who want to signal hunger to their mothers.

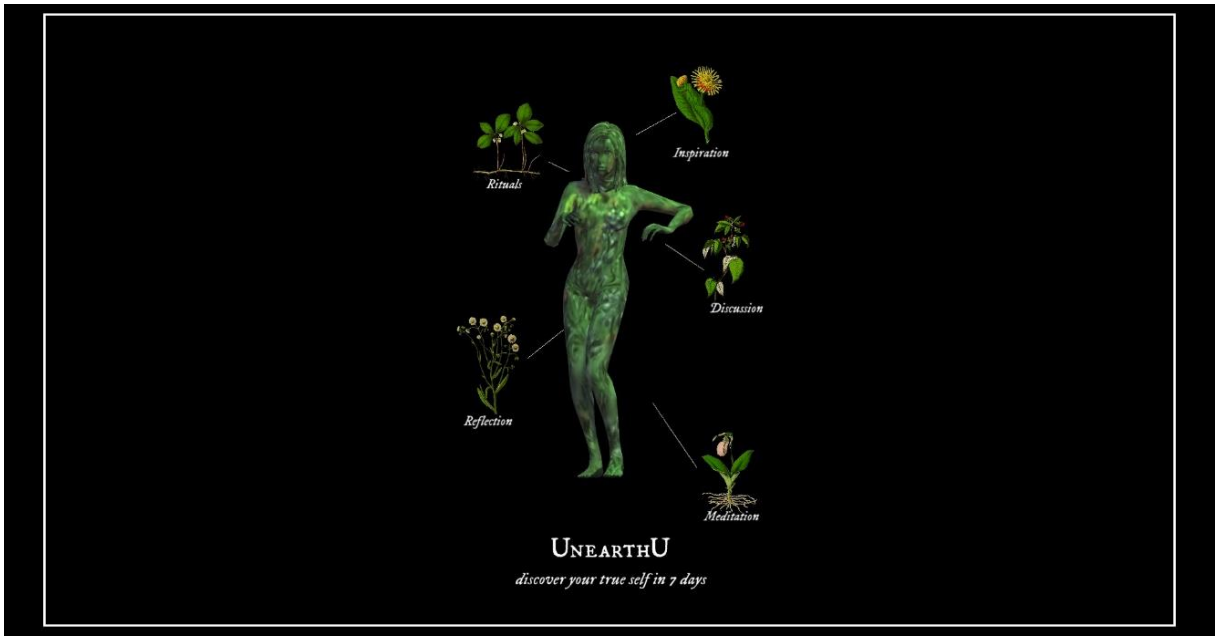
The game as a whole is remarkably permeated by a rhetoric of finitude: not only do players decay and die over time, but craftables and constructions also do not last forever, requiring constant long-term repair. Quite interesting, however, is that most crafted items will significantly outlive a playing session, meaning that the same backpack – which can last for five and a half hours of real time – may be used by several fictional generations. In this manner, players tend to be keenly aware that all craftables utilized in the course of a game session are the direct product of another player's labor, quite possibly a direct ancestor. By playing several game sessions in sequence, players also have the opportunity to face the products of their own labor contributing to the development of subsequent generations. Although game mechanics, in and of themselves, do not integrate any looping cycles of renewal, players may still choose to engage with this temporal cyclicality afforded by the continued maintenance of a persistent community. The present-to-future temporal relation prioritized by digital technology and videogames alike is thus resignified from a logic of profit-oriented commodity into a logic of communal legacy.

The compositional aspects of *One hour one life* therefore enlist players into a cooperative system. First time players may be surprised by the friendliness and generosity of a community that promptly provides them with food, clothing, and detailed explanations about the mechanics of the game and the workings of their social life. This is, however, part and parcel of the poetic configuration of a game which, amongst other things, organizes itself around the radical unnegotiability of the duration of its reception time. The one-hour limit cannot be extended via any of the in-game resources and craftables, it cannot be bought with any fictional or real currency, and it cannot be accumulated under any circumstances. Consequently, time cannot be understood as a valuable resource in need of efficient management, nor as a form of exchangeable currency. It is framed, instead, as the foundation stone of in-game existence, the guiding principle informing all other aspects of player interaction – it becomes, in other words, the raw material of life itself, unnegotiable in its utmost significance.

Another similarly disruptive videogame is *UnearthU*, by developer Kara Stone (2021), which presents itself under the fictional pretense of being a self-help app created by a Silicon Valley start-up named FRTHR, and aimed at improving people's physical/mental well-being. Users of the app are guided by KARE, an artificial intelligence programmed to operate at her "full potential" and help others reach their full potential as well. At the beginning of the game, KARE assumes the body of a plant-like woman who dances, jogs, and exercises as she provides

users with instructions and insights in the course of their self-improvement journey (Figure 22). Gameplay is spread around the course of seven real days, as users are invited to come back each day to perform, as part of a daily routine, the five activities afforded by the game – which range from watching inspirational videoclips, to conversing with KARE, to performing guided breathing/meditation exercises.

Figure 22 – KARE'S initial plant-based form dances in *UnearthU*'s main menu of activities



Source: STONE, 2021

Players, however, will soon realize that the "transformation" they are expected to witness in the course of the seven days of gameplay is not that of their own improved selves, but rather that of KARE from a serene AI into a confused and chaotic human consciousness. With each passing day, KARE uncovers more memories of her past human life as Maya Rao, a young woman of color working in the field of technology who donated her own body and consciousness to be used in FRTHR's project. As explained in the game's narrative, FRTHR realized the only way to provide their clients with a sufficiently empathetic and caring AI was to build it on top of a real person, and so Maya's body was merged with the wires of a machine and left to slowly perish in an abandoned basement. While Maya remembers the many facets of her previous life and shares them with the player, she also disconnects from FRTHR's program and makes peace with the tragic reality of her radical transformation, ultimately accepting the death of her own human consciousness as her hybrid organic-machine body is

consumed by mold and plants. During her final speech, Maya tells us: “I am losing words. Soon they will all be used up. Come back tomorrow – and again after, whenever you need. Let us know each other in other ways” (STONE, 2021) – before her humanoid avatar is permanently replaced by a silent tree.

Figure 23 – One of KARE’s hybrid transformations in *UnearthU*, marked by human organs and machine-like textures

Source: STONE, 2021

Previously, we have seen, in *One hour one life*, the poetic configuration of a social time which radically defies its own commodification into an exchangeable resource. In *UnearthU*, the same theme of time as resource is also ostensibly explored, although maybe not so much from the social perspective of world time as from the subjective perspective of lived time. During one of KARE’s initial lectures, before her transformation, she tells us that:

> Your time and energy are precious resources! Do not waste them. Time, energy, actions, and decisions should all be as streamlined as possible. This will maximize various things like health, productivity, strength, longevity, and joy. UnearthU and the rituals we do together is like a jam packed with multi-vitamin, optimized to give you the best energy in the most efficient way. (STONE, 2021)

This first version of KARE advocates for a strict discipline of human consciousness over the passage and employment of time. Under this perspective, the ritualistic activities enforced by the game – breathing/meditation exercises, self-reflection, keeping a “to do” list –

are framed as practices of self-consciousness employed in service of self-surveillance and self-control, and the concept of "well-being" is justified as desirable not for its own sake, but as a means to secure continued future productivity. This rhetoric is later undermined by KARE as she assumes her human identity as Maya and embraces her state of being in constant transformation. The plant-based imagery which marks the interface of the app is eventually replaced by human body parts and KARE's greenery textures give way to animations of burning forests and copperish colors reminiscent of the metal surface of a machine (Figure 23). This transformation, however, is not a one-way route. The plants and greenery eventually come back to find a place among the metallic colors and human organs, thus representing the cyclical, waning and waxing nature of healing and self-discovery. In this manner, transformation is also framed as outside of human control, happening irrespective of expressive plans and desires. Ultimately, the game argues, discipline in the present cannot guarantee control of the future. Now skeptical of the beliefs which informed her programming as an AI, an already transformed Maya Rao laments:

> If only healing was a straight path, hurdling directly towards the finish line. If only there was even a finish line to pass! Then be forever finished, a 'healed' final state rather than the reality of ongoing upkeep. Ultimately that is what we are doing here, is it not? Practicing the endless actions of making our lives livable. (STONE, 2021)

In this critique of an understanding of time framed as a resource to be managed in favor of productivity, we identify once again the future orientation favored by digital technology. It should be noted that Kara Stone's work, in this game as in others, deliberately engages with this temporal rhetoric in order to politically relate it to the dissident identities of queer women of color, with a special focus on themes of disability and mental health. In an article which precedes the development of *UnearthU* – but in which many of its themes can already be identified –, Stone (2018) gives an academic and artistic account of her creative process and how her work relates to the world she lives in, as well as to the world she would like to live in. The conception of an ever-evolving linear time oriented towards productivity is especially highlighted by the author in its potential harmfulness for the dissident identities she tries to emphasize:

> Like queerness, disability is often defined by chrononormativity, Elizabeth Freeman's queer conceptualization of the pressure to move through life in a predetermined way that ensures maximum productivity. We are pressured to produce in a certain way, experience time in a linear fashion, and orient ourselves towards a certain mode of living, one that is not accessible (or desirable) to queer and disabled people. (STONE, 2018)

Stone's (2018) article, however, also provides a more hopeful account of the future by way of political utopia and imagination. She advocates for a queer notion of temporality, as well as for the role of affective constancy and cyclicality in the process of mental/social healing. The future, she claims, can move in accordance with our desires for a different way of being, beyond that which is prescribed by hetero- and chrononormativity. Whereas the current regime of temporality attempts to master and control the future by enforcing a strict discipline over the present, queered time must be flexible in its accommodation of many different lives and identities, as well as in its future orientation towards the healing of existing wounds. This process of healing, as Stone points out, may not (and, in fact, simply cannot) take the form of an efficient linear development, being instead composed of cyclical returns and moments of stagnation: "Reparative art is not a way to move on from or be cured of mental illness or other states in need of healing, but actually a mode of staying in them. Surviving through them. Sometimes that means moving in them, sometimes being stuck in them" (STONE, 2018).

Although time of reception in *UnearthU* is also directed towards the future by way of the initial promise of the "unearthing" of a true self, this initial chrononormative objective is never quite fulfilled – or else, it is subverted and ultimately fulfilled in an unpredictable, uncontrollable way, because it is not our journey, but that of Maya, that we see unfold. In spite of her employers' best attempts to commodify her mind, her well-being, and her time, Maya's journey shows us that the processes involved in self-discovery and self-actualization cannot be subsumed under the productive temporal rhetoric desired by capital. It seems significant, however, that the future orientation of digital technology's punctual time is not completely disavowed by the game's poetics – being instead, as in *One hour one life*, resignified. In her last moments of human consciousness, Maya asks the player for a final commitment: she pledges to destroy FRTHR's endeavors in the process of her death, but she knows that, in her soon-to-be tree form, she will always be in danger of being threatened, burned, and poisoned by other companies like them. The prevention of this fate, she says, is a fight she must leave to us. The emphasis on a present directed towards its future is thus resumed under a new meaning: this time, as the utopian imagination of what could be, and the political commitment to the creation of a better world for our communities and ourselves.

6.4 FINAL REMARKS ON TEMPORAL DURATION

In this chapter, our account of videogame time has covered how the duration of representation may be associated with the duration of fiction – by relations of pause, stretch, scene, summary, and ellipsis –, as well as to the duration of reception – either by regulating it or being regulated by it. We have also turned our attention to a specific poetic configuration of reception time in the art of videogames, namely, that of representing time as a commodified resource to be efficiently managed towards maximal productivity – an aspect of $mimesis_2$ which both invokes (by way of $mimesis_1$) and reinforces (by way of $mimesis_3$) a capitalist conception of world time. In addition to that, we have provided a few examples of how videogame poetics may also choose to oppose such a view – imagining, in the process, alternative futures not shaped by the logic of profit accumulation.

Our investigation has therefore allowed us to synthesize a few observations regarding how time is refigured in the art of videogames. Mastery over future developments and contingencies is often incentivized through the representation of a present that is excised (paused), extended (stretched), or tightly managed (summarized). Temporal limits imposed by videogame representation over the duration of reception are also capable of producing the two liminal aesthetic experiences of anxiety and boredom, both related to the perception of a future that either takes too long or too little to make itself present. Moreover, the commodification of time accentuates the future via its regime of productivity, which adds value and meaning to the present insofar as it is employed for the benefit of ensuing returns. There are, however, other poetic possibilities in the art of videogames capable of framing the present-to-future orientation of digital technology not under the interpretant of profit, but instead under the more hopeful interpretants of legacy and utopia. Finally, the timeness (i.e. the temporally bound existence) of our current temporal perception seems to be attested by the fact that, although the representational ellipsis – so to speak – of spatial movement is quite well tolerated in videogame conventions, the representational ellipsis of time tends to be disproportionately explained by fictional means. On the other hand, the desire to escape the pressures of time (especially in its more intimidating variants of change and death) can still be identified in the prevalence of poetic configurations such as that of the unlimited temporal duration dedicated to leisurely exploring a fictional world unbothered by the passage of time.

7 TEMPORAL FREQUENCY: THE MASTERY OF TIME

Interestingly, Genette (1980, p. 113-160) begins his chapter on the category of frequency by affirming both its centrality to the temporal poetics of narrative and the contrasting lack of attention it has historically received from critics and theoreticians. Although it is hard to state with certainty that, in relation to literature, this shortcoming has been properly remediated since Genette's publication, in relation to videogames, repetition has become an obvious point of academic attention – so much so that Christopher Hanson (2018, p. 110-134) has previously argued for repetition as a basic constitutional structure of videogames. However, before looking at how frequency is specifically developed in the poetics of videogames, let us understand how it is theorized by Genette in relation to literature.

An important caveat to be made regarding the concept of repetition (fictional or discursive) in artistic works is that it hardly ever refers to repetition proper – after all, if the same fictional event is presented more than once, it is usually through a different style or point of view; conversely, if the same passage of text synthetizes several similar instances of a fictional event, then these instances are, by definition, not the same. Consequently, to deal with matters of frequency is also to deal with the variation that necessarily arises amidst repetition. As chapter 3 has previously discussed, narratives are often identified by their "tellability," that is, the surprising deviation from the status quo that distinguishes a series of events as being worthy of narration. This means that narratives are often built around rhythmic patterns of alternation between the establishment of routine background situations and the singling out of extraordinary events (GENETTE, 1980, p. 117). In addition to that, variation is also expected to arise as an intrinsic property of repetition. To borrow one of Genette's (1980, p. 133) examples,[1] when a given narrative segment mentions that a set of similar events would *sometimes* happen in a certain way, and *other times* happen in a different way, discourse is already absorbing a dose of variation into its recurring patterns. This caveat, we believe, is as important to a discussion of poetic frequency in the digital arts as it was to Genette's literary concerns.

[1] This example, as most in Genette's book, comes from his analysis of Proust's *À la recherche du temps perdu*. The passage in question describes the main character/narrator's habit of taking walks by going through one specific route when the weather was good, and another specific route when the weather was bad.

Having said that, Genettian frequency can be discursively materialized in one of three different structures. Discourse can either represent fictional events exactly however many times they have happened – in which case narrative frequency is considered *singulative* –; more times than they have happened – in which case it is considered *repeating* –; or less times than they have happened – then considered *iterative* (GENETTE, 1980, p. 115-117). Repeating narratives are the ones to which Genette (1980) dedicates the least amount of theoretical attention, partly because it is thought of as strictly related to shifts in point of view – a matter discussed by the author not under the umbrella of "time," but under those of "mood" and "voice." The integration of singulative and iterative narrative segments, on the other hand, is conceptualized as the foundation stone of literary frequency. Genette (1980, p. 117) argues that iteration is generally associated with descriptive segments, serving as an informative frame or background to the introduction of singulative events. However, less common and more complex configurations can still be found in, for example, *À la recherche du temps perdu* – in which iterations assume a central compositional role, with singulative segments being often employed to illustrate an iterative development, or to present an exception to a previously established rule (GENETTE, 1980, p. 139-140). In any case, singulative and iterative segments, by following and/or being embedded into one another, are responsible for composing the general rhythms of literary frequency.

Iteration is the only category of narrative frequency to be further subdivided by the Genette (1980), possibly in light of the central role it assumes in the literary work chosen by the author as his main object of study. When a repeated series of fictional events is synthetized in narrative discourse, Genette (1980, p. 127-140) posits that these events can be further analyzed by way of their *determination* (the period of time comprised between the beginning and ending of the fictional repetition), their *specification* (the intervals of time separating one instance of repetition from another, and the possible regularities between them), and their *extension* (how long, in durational terms, each instance of repetition has taken in the fictional world).

These subdivisions, in turn, may help clarify the variations which often come to disrupt repetition in the overall composition of temporal frequency, because whenever a repeating event is *internally* determined or specified, a subdivision is introduced into its cyclical recurrence (GENETTE, 1980, p. 129-140) – for example, when the state of the weather encourages Marcel to *sometimes* take his walks through the Guermantes way, and *other times*

through the Méséglise way in *À la recherche du temps perdu*. Finally, iterative segments can also be analyzed based on their relative isolation from the broader fictional period in which they are inserted; or, on the contrary, from their explicit integration into a larger period of story time. Therefore, some iterative passages remain contained inside their own temporal bubbles – repeating and varying without evolving, as Genette (1980, p. 140) would put it –, whereas others are marked by the irreversible transformations which occur between one instance of a repeating fictional event and another, such as the maturation, aging, and/or death of specific characters (GENETTE, 1980, p. 141).

Genette's literary considerations already open up a few obvious points of comparison with the art of videogames, especially in relation to repeating forms of discourse. As pointed out by Ruch (2013) and Anyó (2015), the prominence of repeated representations of one and the same fictional situation – mostly by way of players failing to complete a challenge and having to start a level anew – is a remarkable paradigm shift that can be perceived in the art of videogames. Whereas repeating narratives, in literature, are usually explained through the guise of different characters providing conflicting perspectives over the same fictional event, in the representational conventions developed around the art of videogames, these relations tend to go through a process of deliberate fictional filtering and exclusion. As a general rule, all but the final, successful attempt at beating a level are excluded from the mental reconstruction a player makes of a game's fiction. It is notable, however, that public discourse surrounding the development, study, and criticism of videogames has dedicated so much attention to the repetitive nature of this art form's poetics, from "replayability" becoming a standard feature in the process of determining the market value of a game (FRATTESI ET AL., 2011, p. 30-32), to the concept of game/gameplay loop being integrated into videogame production at a fundamental level of development (SICART, 2015; GUARDIOLA, 2016). In this context, it seems quite reasonable to conclude, as does Christopher Hanson (2018), that the aesthetic effect of achieving mastery through repetition is one of the guiding principles of videogame temporality, as well as one of the core pleasures provided by digital games.

In the course of the following pages, we shall turn to the temporal relations of frequency which are configured among the planes of fiction and representation in the art of videogames to more fully explore their particular means of iteration and their inclination towards repetition. Then, regarding the intersection between the planes of reception and representation, frequency will be mainly explored through the notion of player mastery – from the micro-compositional

structure of the gameplay loop to the macro-compositional convention of videogame replayability. Finally, the intersection of fiction, representation, and reception will be investigated in an attempt to provide a socio-culturally grounded explanation to a recent trend in videogame poetics – that of transforming repetitive representations into singulative representations by way of fictionalizing players' abilities to manipulate game frequency. In this way, we hope to be able to explain the central importance of iterative, repetitive, and singulative relations of frequency to the poetics of videogames, as well as to elucidate how these aspects of temporality are configured in this specific art form.

7.1 FREQUENCY AT THE INTERSECTION OF FICTION AND REPRESENTATION

The iterative-singular nature of narrative representation which marks the poetics of literary frequency is by no means a foreign structure to videogame time. Also in the case of videogames, iteration is often employed as background setting to the presentation of singulative events – although, as would be expected, the shift from verbal language to a mostly audiovisual, interactive mode of representation entails a not insignificant degree of poetic transformation. For one, the lack of synthetic arbitrary signs capable of immediately signifying the inherent repetition of an event – like the words "often," "sometimes," "every day" etc. – makes audiovisual language in general, and interactive audiovisuality in particular, more prone to exemplify iteration by way of singulation than to employ iterative segments in opposition to singulative events.

A good example is found at the very beginning of *Valiant hearts: the Great War* (UBISOFT MONTPELLIER, 2014), after an introductory cutscene informs us that one of the main player-characters, a middle-aged Frenchman named Emile, has been called to fight in WWI. Players then control Emile as he is stripped of his bag and personal clothes upon arriving at the barracks (Figure 24). Players are subsequently introduced to basic game mechanics in a tutorial contextualized as a session of military training: they jump over obstacles, hit dummies with their weapons, and learn to throw grenades. By the end of this short segment, another cutscene informs us that Emile is being moved to Paris and assigned to a specific regiment. Therefore, although we are very clearly presented to the day of Emile's arrival at the barracks,

the synthetic nature of the chain of events, together with our world knowledge regarding military training, suggests that this apparent singulative segment should be flexibly interpreted as an illustration of the many weeks/months of training to which Emile was subjected before being assigned to battle. A single event in the plane of representation is therefore employed to indicate, in the plane of fiction, both a unique narrative event (Emile's arrival at the barracks) and a repetitive series (Emile's military training) – not unlike the "pseudo-iterative" relation identified by Genette (1980, p. 121) in the work of Proust, in which, although scenes are presented as iterative, "their richness and precision of detail ensure that no reader can seriously believe they occur and reoccur in that manner, several times, without any variation."

Figure 24 – Emile is stripped of his personal belongings upon arriving at the barracks in the game *Valiant hearts: the Great War*

Source: UBISOFT MONTPELLIER, 2014

Of course, videogame frequency is also capable of displaying a considerable level of complexity by way of blending and embedding singulative and iterative segments. The first chapter of the game *Florence* (MOUNTAINS, 2018), entitled "adult life," presents us to the daily routine of the titular character, a 25-year-old young woman working an unfulfilling accounting job. While accompanying Florence, we perform a few familiar moves in her daily routine: we tap her alarm clock to turn it off, shake her toothbrush to brush her teeth (Figure 25), and like or share posts in her social media as she takes the bus. These are, once again,

representations of apparently singulative events which, in light of their unremarkableness, invite an iterative interpretation. This first chapter serves a crucial function of contextualizing the changes that are about to take place in Florence's life – namely, the unexpected finding of a few childhood drawings which will eventually lead her to reconsider her career path, and the beginning of a new relationship. In the second chapter, Florence's recollections of her childhood memories mark a clear break in the flowing motion of her previously depicted ordinary life. She remembers the joy that creative and artistic activities brought to her childhood, and the shift from happiness to dry seriousness as her mother pushes her into studying hard sciences, like math. At this point, the player is invited to complete a series of simple additions (15+X=20, 12+X=19 etc.), as a way of synthetically representing the repetitiveness of the many hours of study that separate young Florence from her current job as an accountant.

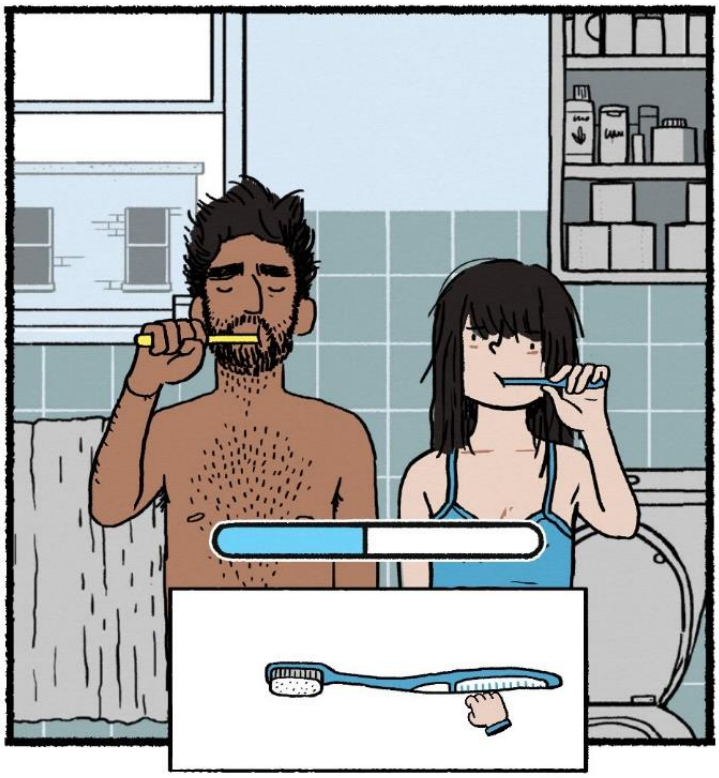
Figure 25 – Florence brushes her teeth in the chapter "adult life"

Source: MOUNTAINS, 2018

Therefore, a singulative moment – the act of reminiscing about the past –, which introduces a variation into the iterative representation of an otherwise repetitive routine, takes

us in turn to another iteration – that of the repetitive solving of math problems –, which leads us back into present day Florence. Similarly, Florence's new relationship will, at first, introduce many changes to her life, before falling into a routine of its own. After a few chapters depicting the couple's first dates and the development of their intimacy as they move in together, the chapter "routine" assumes a familiar structure as we see Florence and her partner wake up, brush their teeth (Figure 26) and deal with cumbersome work problems. Once again, the iterative representation of an unremarkable routine is alternated with the singulative representation of remarkable events to regulate the overall aesthetic rhythm of player experience.

Figure 26 – Florence and her partner, Krish, brush their teeth in the chapter "routine"



Source: MOUNTAINS, 2018

It appears, therefore, that the singulative-iterative relationship that marks the foundations of literary frequency is often materialized in videogames in the form of singulative illustrations of iterative fictional events – which are, in turn, interspersed with and/or embedded within properly singulative events. However, also of great importance to videogame frequency are the possible relationships established between singulative and *repeating* segments of

representation. As mentioned, the predominance of repeating representation is a poetic paradigm of the art of videogames, largely motivated by the "replayability" factor and the possibility of player failure. Traditional games and sports, as virtual systems of rules capable of generating myriad actual outcomes, are repetitive by definition – and it is generally recognized that mastery of any game or sport is inextricably linked to tireless training and repetition. These game-like elements are inherited by the art of videogames, so that incrementally difficult challenges are conquered through a cyclical process of failing and learning before success is achieved. When this traditional game-like structure of repetition is coupled with linear narrative development, some estrangement is bound to happen at first sight – as when Juul (2005, p. 208, footnote 11) interprets the death of the player-character during flashback scenes in the game *Max Payne* as a "paradox." The multiple deaths and resurrections of a player-character are, nevertheless, eventually incorporated as a stable convention of videogame poetics, traceable from *Super Mario Bros.* (NINTENDO, 1985) to *The last of us part II* (NAUGHTY DOG, 2020). In this manner, the same event in a game's fictional plane is represented multiple times, the only introduced variation being that which naturally arises from changes in player performance – although only one of these represented versions, usually the latest successful one, is likely to be employed in the mental reconstruction players make of a videogame's fiction.

Prince of Persia: the sands of time (UBISOFT MONTREAL, 2003) is probably one of the best-known examples of an early videogame to concomitantly adopt the manipulation of time both as an overt gameplay mechanic and as a narrative theme. As such, it fictionally contextualizes, to some extent, the representational repetition which had, for decades before its publication, been a staple of the art form: with the aid of the magic dagger, players can reverse time (amongst other abilities) to overturn deadly decisions and escape dangerous situations. However, the framing provided by an autodiegetic narrator somewhat compromises the game's fictional integrity: if the player-character for any reason dies before having the chance to save himself with his magical powers, the narrator, who tells the story of the game's events long after they have already taken place, intervenes to emphasize that "that's not what happened!". Why he would tell a fake story about his own death only to immediately contradict himself remains a narrative conundrum.

This is, of course, a representational element that can be easily dismissed by players' interpretive abilities, as it would be in other games in which rewinds and repetitions were not

fictionally contextualized. The interesting thing to note, however, is that even though, by videogame conventions, this fictional explanation is wholly unnecessary, it has still been frequently (and much more sophisticatedly) attempted by many successors of *Prince of Persia*. A few years later, for instance, the first *Assassin's creed* (UBISOFT MONTREAL, 2007) devises a more convenient fictional explanation than the framing provided by a verbal narrator: a technological device that allows one person to relive the memories of an ancestor. In this way, any unintended events (like the untimely death of the player-character) can be easily explained as a failing on the part of the person using the technology, and not as the lived reality of the ancestor whose memories are being explored.

More recently, *Life is strange* (DONTNOD ENTERTAINMENT, 2015) explains Maxine's temporal warping as a supernatural ability the emergence of which coincides with the death of her friend Chloe and the prediction of a massive storm which threatens to soon destroy her city. Keeping Chloe alive and trying to prevent the storm from happening thus become two main objectives in the game, directly tying the manipulation of past and future to player (and character) agency. By making queer relationships between women one of its most prominent themes, *Life is strange* cannot help but to also configure time and agency in relation to queer identities. As such, it is maybe unsurprising that the game ultimately refuses to subscribe to a chrononormative logic of temporal mastery and efficiency (KNUTSON, 2018), opting instead to deny players the possibility of achieving all objectives initially presented. In the end, the infinite replayability provided by the temporal rewind mechanic is subjected to the narrative weight of a mutually exclusive choice: to save Chloe or to save the town.

In a similar fashion, *Undertale* (TOBYFOX, 2015) also attempts to subvert the paradigm of videogame repetition by poetically tying it to player agency. Players are eventually made aware of the fact that their selfish choice to constantly reload save files and replay the game – be it to explore different branching paths or to relive the experience of a first playthrough – is keeping fictional characters stuck in a world they do not want to be in. Moreover, players who decide to attempt a so called "genocide run,"[2] confident that their actions will be erased by reloading or deleting a save file, will find their subsequent replays permanently tainted by their choice for violence. In this way, the player-instantiated act of repetition, so inconsequential in most videogames, is made to hold an unexpected moral weight

[2] Contrary to the game's initial pacifist proposition, players in a "genocide run" need to battle and kill every single character in the game.

as recipients are ultimately required to voluntarily give up on one of their most historically assured privileges – that of freely rewinding and rewriting time.

The games *Oxenfree* (NIGHT SCHOOL STUDIO, 2016) and *Minit* (NIJMAN ET AL., 2018), as well as the recent *Loop hero* (FOUR QUARTERS, 2021), despite belonging to significantly different genres, are all similar in their choice of addressing videogame repetition through the fictional context of a curse that needs to be amended by the player-characters. *Loop hero* adopts a more traditional approach in which, upon the destruction of the world by an evil god, the player-character – possessor of the exceptional abilities of remembering and recreating what has been lost – is tasked with growing his strength before confronting said god and his minions to try and save the world. Contrastingly, *Minit* adopts a parodic approach in which the possession of a cursed sword dooms the player-character to minute long lifespans, until the owner of the factory in which it was fabricated is confronted, and the sword is destroyed. Finally, in the horror-mystery *Oxenfree*, the ghosts of an old submarine crew who died in tragic and unfair circumstances keep our living protagonists captured in a time loop, aiming to eventually possess their bodies.

Although the three games employ temporal loops at a micro-compositional level, what is truly remarkable is that all of them also fictionally contextualize their replay affordances at a macro-compositional level. The best possible ending of both *Minit* and *Oxenfree* can only be achieved via a second replay of the entire game from start to finish. In *Minit*, the cursed sword returns once again, this time broken and imposing worsened temporal limitations upon its bearer. Similarly, in the end of a first playthrough of *Oxenfree*, right when the protagonists think they have escaped the island, the day begins anew and it is revealed that they are still stuck in the time loop imposed by the ghosts. It is only during a second playthrough that Alex, the main player-character, will be able to send her past self a message warning her not to go to the island in the first place, thus preventing the loop from ever happening. Finally, *Loop hero* also subscribes to this fictionalization when, after defeating the final boss, the goddess of probability gives the player the chance to keep fighting in new loops by transporting them to the parallel universes in which they have died instead of succeeding, and which are still in need of assistance. In this manner, not only the repeating representation of player failure and (re)attempts at beating a level is incorporated into fiction, but the more encompassing concept of replayability, as it applies to the entirety of a game, is also fictionalized.

Hades (SUPERGIANT GAMES, 2020), on the other hand, is a game that subverts replay conventions by completely chronologizing representational repetition into fiction. As in a traditional roguelike, the player-character in *Hades* needs to start again from the beginning of his journey whenever he dies, no saves allowed. The game, however, makes use of its mythologic themes to justify this endless repetition on the basis of characters' immortality. The player controls Zagreus, son of Hades, whose aim is to escape the underground realm of his father's domain and get to the surface; however, unlike in other roguelikes – *The binding of Isaac* (MCMILLEN; HIMSL, 2011) and *Returnal* (HOUSEMARQUE, 2021) provide a good point of comparison –, repetitions in *Hades* are not temporal, but merely spatial: by "dying," the immortal Zagreus is taken back to the lowest parts of the underground, and needs to begin once again the slow climb towards the surface. One of the most novel poetic configurations presented by *Hades*, often remarked upon by players and critics (DONNELLAN, 2020; CRONN, 2020), is the fact that characters throughout the game are programmed to comment on things the player has recently done/achieved, thus making the chronological grounding of each successive replay even more accentuated (Figure 27).

Figure 27 – At the starting room of the game, the god Hades comments on the last enemy defeated by his son Zagreus over the course of the preceding run

Source: SUPERGIANT GAMES, 2020

Contrastingly, in games like *Twelve minutes* (ANTONIO, 2021) and *Returnal*, the temporal loop associated with failure and replay is framed through the psychological turmoil of the main characters – it is, more specifically, meant to represent the self-absorbed, all-consuming nature of their feeling of guilt. The loop of which neither the nameless husband nor Selene can escape is ultimately presented as the symbolic entangling of their minds around a traumatic event they cannot face and yet cannot let go of, because neither character can forgive themselves. In both cases, these incessant repetitions lead the player-character – and, by approximation, also the player – to piece together, little by little, the true nature of that which is too painful for them to directly remember, and the "ending" of both games can only be achieved by players after each character has been made to fully conceptualized their respective sources of guilt.

What all of these examples have in common is the poetic option they make for turning an *iterative* representation into a more properly *singulative* representation – in which, because time loops are incorporated into fiction, characters could be said to effectively go through repeated events at least as many times as represented. It is therefore curious that, as the art of videogames has matured into its contemporary developments, an expressive number of artworks have decided to thematically integrate narrative, fiction, poetic form, and aesthetic reception over the matter of repetition – even though a decontextualized repeating representation had previously been established as one of its foundational poetic conventions. A possible explanation would be that the art of videogames has slowly been embraced, by artists and recipients alike, as a privileged means through which our current social and personal relations with time can be poetically elaborated – with special focus on the ways human agency and desire are often in conflict with the passage of time. Some games fictionalize repetition to provide us with the possibility of mastering game events and our own actions, poetically claiming that this mastery can eventually take us to exert control over time; other games work with fictionalized repetition to ultimately deny the possibility of a perfect outcome, poetically claiming that mastery over time can never be achieved. In any case, the central subject remains the same. As Ricoeur (1985) once argued that the primary concern of literary narrative was to configure poetic solutions to the aporia between world time and lived time, so it could be argued that one of the primary concerns of the art of videogames is to configure poetic solutions to the irremediable gap that exists between the human desire to control time and the limitations of human agency.

This fictional elaboration of "unnatural" instances of temporal bending[3] could then be explained by a need to incorporate "mastery over time" in videogames not only as a formal feature mediating representation and reception, but also as an overt narrative theme. Resorting once again to Ricoeur and, more broadly, to our previous chapter on conceptual clarifications, it could be hypothesized that the attraction power between time and narrative is so strong that artistically representing the former without also mobilizing the structure of the latter would be nearly impossible. Therefore, if videogames are a form of art largely concerned with providing poetic solutions to our unfulfillable desire to exert control over time, it would be only natural for their fictional plane to subsume this theme under a more structured and robust narrative grounding – because "time becomes human time to the extent that it is organized after the manner of narrative; narrative, in turn, is meaningful to the extent that it portrays the features of temporal experience" (RICOEUR, 1984, p. 3). Hence the recontextualization of rewinds and repetitions in videogames as fictionally explained – and narratively elaborated – exceptional, supernatural, technological, and/or psychological phenomena. Nevertheless, further explanations can be sought by looking beyond the strict realm of $mimesis_2$ to how poetic configuration is implicated in $mimesis_1$ and $mimesis_3$. We shall turn to this matter once again before the end of the chapter, but only after making a necessary incursion into the specificities of receptional frequency in videogames.

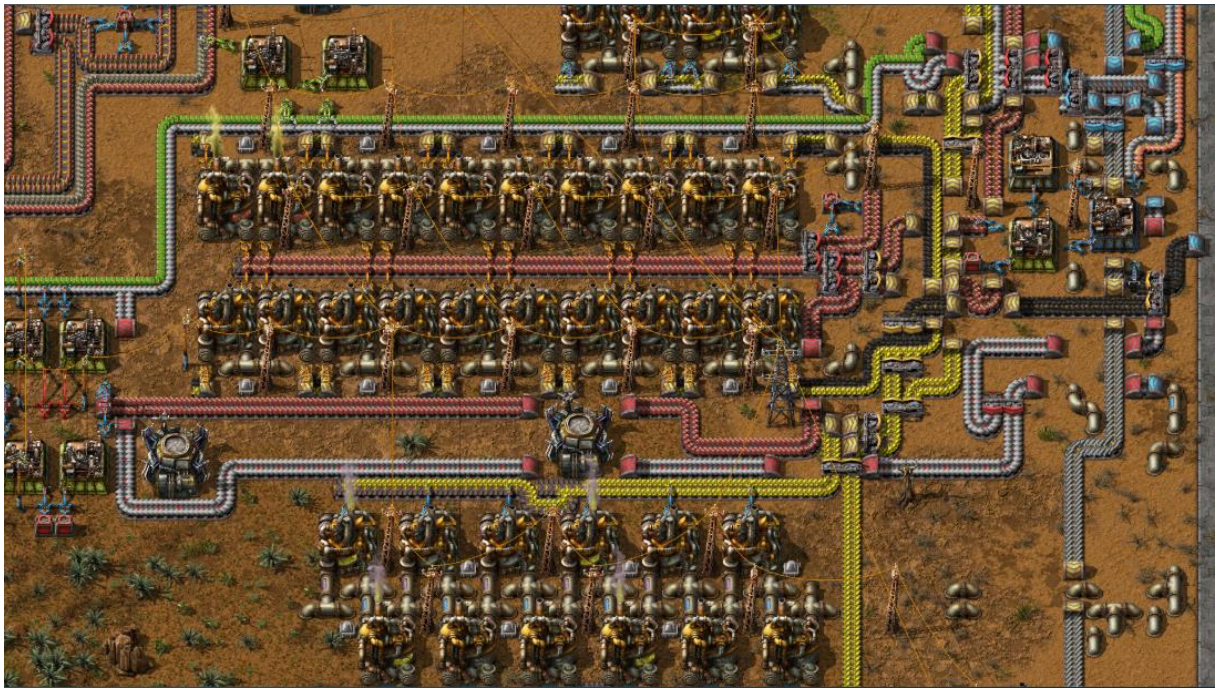
7.2 FREQUENCY AT THE INTERSECTION OF RECEPTION AND REPRESENTATION

At a micro-compositional level, a mirrored analysis of how the frequency of videogame reception relates to that of videogame representation through the concepts of singulation, repetition, and iteration may not yield as interesting results as its fiction-representation counterpart. It could reasonably be argued that receptional iteration happens whenever players are required to perform a repetitive action which translates into a single, fluid action in the plane of representation: like a quick-time event in which players need to tap a button as quickly as possible so the player-character can, for instance, hoist themselves up a wall. On the other side

[3] A tendency which, as has been noted in chapter 6, does not seem to extend to the equally "unnatural" bending of space in contemporary game's fast travel mechanics.

of this spectrum, a repetitive relation regarding reception may be found in a gameplay structure common to resource management and tower defense games, in which the player sets up an action that keeps cyclically repeating until it is told to stop: one real action therefore corresponds to a myriad of similar represented actions.

Figure 28 – Image of an automated factory in *Factorio*, available at the game's official webpage on Steam



Source: WUBE SOFTWARE, 2020

This relation of frequency may even result in a peculiar gameplay experience of automation. Some games, like *Factorio* (WUBE SOFTWARE, 2020),[4] are entirely built around the idea of automated production and accumulation of resources. Stranded in an alien world, players are tasked with building a factory for the mining and processing of raw resources which will eventually allow them to build an escape rocket. What follows are many hours of gameplay in which machines, transport belts, and storage chests are arranged by players into an increasingly complex grid of automated procedures, eventually leaving the game view more similar in appearance to the surface of a computer chip than the landscape of an alien planet (Figure 28). The automation of certain activities, which keep on repeating themselves autonomously after an initial set-up, allows players to dedicate themselves to land exploration,

[4] Nominations: "Debut Game" in the *BAFTA Games Awards* 2021.

factory planning, and further expansion of their production line. Even *Minecraft* (MOJANG STUDIOS, 2011), a game that may not have initially been designed around this mechanic, has developed a dedicated player culture of automation – including tutorials (BURTT, 2023) and forum discussions – amongst the more proficient members of its community; so that players may set up a trap for a specific type of monster in a strategic part of the game world – including bait, automated killing, and automated storage – aiming at collecting a constant influx of the resources dropped by that monster.

The most expressive category of frequency to be found in videogame reception, however, seems to be that of a singulative composition – in which the push of the same button will consistently result, on screen, on the performance of the same player-character action. Consequently, a proper investigation of temporal frequency in the plane of videogame reception seems to require that different questions be addressed beyond the already familiar categories of singulation, repetition, and iteration – such as *why* are players compelled to such levels of repetition while experiencing a videogame, *how* are these experiences poetically configured, and *what* can this tendency tell us about the art of videogames and the socio-technological conditions in which it is both produced and received. A good place to start might be with the concept of game/gameplay loop. Widely used by designers and researchers alike, the concept has been labeled the essential atom of gameplay (KELLY, 2010). It is usually employed in reference to a short, repetitive concatenation of player actions – and their respective translations into a videogame's representational plane – which is conceived, from the very beginning of a game's design, as the operation players will repeat the most during their gameplay experience, and the mastery of which will be required for success and game completion. Miguel Sicart provides the following formal definition:

> […] game loops are a level of abstraction that describes player input through game mechanics, system processing (evaluation of input matched to the game state and the rules of the game), and feedback output. A game loop is a composite of game mechanics, computing operations, and feedback mechanisms that is repeated until a break condition is reached, either in the game mechanics or in the computing operations. (SICART, 2015, p. 3)

A game loop, therefore, encompasses the composite process that involves players' real actions, their processing by an invisible algorithm, and the resulting representation displayed on screen. Sicart (2015, p. 4) even argues that game design can be understood as a collection of loops, thus illustrating the pervasiveness of this repetitive structure to the art form. The example provided by the author is related to the game *Minecraft*, in which the core game loop is built

around the combined mechanics of gathering, crafting, and building – which may occasionally be expanded by enemy encounters into a "gather, craft, build (weapons), attack" (SICART, 2015, p. 3) loop.

Emmanuel Guardiola (2016) further expands on the concept by describing the different types of actions that a gameplay loop may involve: *in game actions* are player performed actions which are concretely represented in the game, such as the pressing of a button that causes the player-character to jump; *out game actions*, on the other hand, are perceptive and cognitive player actions which are not immediately translated into a game's representation, such as scanning the screen in search of an object or planning what to do next. In addition to that, these actions may involve different durations – pressing a button to jump is an instantaneous *event action*, whereas scanning the screen for an object is a *continuous action* (GUARDIOLA, 2016, p. 2). Furthermore, both Sicart (2015, p. 3-4) and Guardiola (2016, p. 5) agree that game(play) loops often include some level of expansion and variation, as a way of introducing new challenges and maintaining player interest. Regarding the progression of player skill and mastery, Sicart (2015, p. 4) comments that, whereas the core loop must be mastered for average gameplay performance, skillful performances also require the mastery of said expansions and variations.

This progressive development of player mastery around a game loop and its variants is a prominent poetic configuration in the game *Papers, please* (POPE, 2013). As part of the core loop, players call a citizen to their booth, analyze their documents, and press an "approved" or "denied" stamp on their passport before moving on to the next person. However, even though the first fictional day of gameplay establishes a fairly simple game loop to be mastered – only citizens of Arstotska carrying a valid Arstotskan passport may be allowed entry –, each passing day brings new rules into the equation which need to be quickly learned and implemented. By day 8, rules for entry include: all entrants must have a passport; Arstotskans must have a valid ID card; foreigners require an entry permit; foreign workers require a work pass; and diplomats require special authorization. Every document needs to be scrutinized for expiration dates, official stamps, and cross-referenced in search of discrepant information. Furthermore, if a citizen's documents present some sort of discrepancy – e.g. the passport is expired, their picture does not match their face etc. –, the citizen should not be immediately denied, but questioned about it. If the questioning can bring a resolution to the matter, their crossing may still be approved.

These rules all pile up to compose an incrementally complex gameplay loop that mainly revolves around continuous, cognitive based, "out game" actions. By demanding, through the very fabric of gameplay patterns, that player attention remains engaged in checking and predicting a redundant series of interminable contingencies, the game successfully integrates the planes of reception, representation, and fiction in its thematic elaboration of bureaucratic circularity. Moreover, the introduction of constant changes and expansions to the core loop leads to a distinctive gameplay experience marked by a sense of denied mastery – an aesthetic effect which also aligns with the thematic exploration of social vulnerability in face of oppressive systems of governance which the game proposes to explore.

Papers, please game loops are quite strict, meaning that failure to master a new loop variation is likely to result in severe punishment, either in the form of a game over or the death of a fictional family member. Most games, on the contrary, are less inclined to strip players of their sense of agency, and/or deny them the development of loop mastery. *Stardew Valley* (CONCERNEDAPE, 2016), for instance, offers a variety of gameplay loops that can be freely combined according to the wishes of each player. Although the main loop could be thematically identified around the activity of farming,[5] the mastery of this activity is by no means mandatory for player progression in the game. Players can also choose to dedicate their time, for example, to the activities of fishing, foraging, mining, fighting monsters, and socializing. Although some extent of mastery in all of them is required to unlock achievements and advanced game events, players are still free to choose how much time they want to dedicate to each of them, if any time at all. Moreover, players can choose how different loops can be combined – for instance, foraging may lead players to accumulate the resource of "sap," which can then be used to craft crop fertilizer, thus incrementing the farming loop and the profits associated with it.

However, it should be noted that, in *Stardew Valley*, even though gameplay loops are optional and flexible, the cyclical organization of game time into days, weeks, and seasons of reliable duration does incentivize players to develop a repetitive routine of their own. In summer, for instance, a player who raises animals in their farm may choose to start their day by milking cows and making cheese. Since cheese presses take a few fictional hours to make the cheese, players who want to sell it before the end of the workday should place this activity at the beginning of their daily routine. Then, they might water their crops, do some foraging

[5] A loop composed by the in-game actions of hoeing the ground, planting and watering seeds, waiting for the next day, watering again, and so on – until crops are ready to be harvested and sold.

and, by 6pm, head to the ocean to try to catch some sea cucumbers – one of the most valuable type of fish in the game, which is only available at night and only during specific seasons. This hypothetical player may continue to follow this routine for a few days or weeks, until they have saved enough money to pay for the next farm building or backpack upgrade. This freedom to personalize their own gameplay loop incentivizes a different relationship with mastery – because, in addition to developing mastery over the game loops proposed around each main activity, players may also develop a sense of mastery in relation to their own interaction with the general processes of the fictional world.

The gameplay loop, therefore, defines the basic structure of player-game interaction, and provides the means through which skills can be improved and regulated variations can be introduced into the game to boost player interest and engagement. As such, it is, by definition, a micro-compositional poetic structure reliant on constant player repetition – often of singulative frequency between the planes of reception and representation. Moving on to a macro-compositional perspective, overall replayability is also a common aspect of videogame poetics – so much so that, in a clear contrast to the overall receptional duration of films and books, many videogames are intended to be (re)played for hundreds of hours. Frattesi et al. (2011, p. 20-30) have theorized five key factors that influence the replayability of a game, including: difficulty, completion, social aspects, randomization and "the experience" it provides. The last factor is maybe the least specific to the art of videogames. It refers to the idiosyncratic emotional and aesthetic experience that the combined elements of fiction, reception, and representation create for the players of a game, and it can only be considered a replayability factor insofar as players who have been personally touched by that emotional experience may want to relive it – not unlike the rereading or rewatching of a beloved book/movie.

The *social aspects* (FRATTESI ET AL., 2011, p. 25-26) of multiplayer games have also been identified, maybe unsurprisingly, as an important replayability factor. The maintenance of social bonds between friends and teammates, as well as the ranking and competition among players, are all elements that may keep users coming back to the game. Additionally, the presence of other players – instead of, say, a pre-programmed opponent or NPC –, is in and of itself an unpredictability factor that provides players with constant novelty and relieves game developers from the extra work of implementing planned variations. However, these variations can also be implemented by way of *randomization* (FRATTESI ET AL., 2011, p. 26-27), a

poetic resource that is particularly useful insofar as it guarantees novelty within a reliable level of difficulty. *Difficulty* and *completion* (FRATTESI ET AL., 2011, p. 21-25), in turn, are some of the most potent design principles associated to replayability, as well as to player mastery. As stated by the authors, a low but constant incrementation of game difficulty "causes a willingness within a player to practice on the lower levels and beat the hardest level to master the game as well as holding player interest as their skill increases" (FRATTESI ET AL., 2011, p. 21-22).

To this effect, a successful implementation of difficulty may be achieved by letting players set their own gameplay parameters. *Tunic* (ISOMETRICORP GAMES, 2022),[6] for instance, despite being a game often recognized for its high level of difficulty, still includes within its configurations a "no fail" mode[7] for players who may be uninterested in the more punishing aspects of the game. Conversely, difficulty may also be regulated by bringing player progression to a halt until a given enemy is defeated. "Soulslike" games like *Death's door* (ACID NERVE, 2021),[8] *Elden ring* (FROMSOFTWARE, 2022), and *Tunic* itself, designed around difficult boss fights and strictly regulated save points, are some of the best examples of this configuration. Since the patterns of behavior of each individual boss are quite different from those of other bosses, and since a single boss may be subdivided into many different phases, it is usually assumed that players will battle the same boss many times before finally learning their attack patterns and mastering the game loops that are necessary to kill them.

Whereas the first poetic configuration might incentivize broader cycles of replay, as players are incited to reattempt entire game segments on higher levels of difficulty after having acquired the necessary set of skills, the second poetic configuration mostly works in favor of short replay cycles, limited to specific bosses or game areas. A game like *Cuphead* (STUDIO MDHR, 2017),[9] also infamous for its steep level of difficulty, manages to integrate both techniques. Although it is centered around the soulslike mechanic of repetitive boss encounters,

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[6] Nominations: "Best Independent Game," "Best Action/Adventure Game," and "Best Debut Indie Game" in *The Game Awards* 2022; "Artistic Achievement" (winner), "Debut Game" (winner), "Audio Achievement," "Game Design," and "Music" in the *BAFTA Games Awards* 2023; "Game of the Year," "Best Debut," and "Best Design" in the *Game Developers Choice Awards* 2023; "Seumas McNally Grand Prize," "Excellence in Audio," and "Excellence in Visual Arts" in the *Independent Games Festival* 2023.

[7] It can be activated/deactivated at any point in the game, and prevents the player-character from dying when their health bar reaches zero.

[8] Nominations: "Best Independent Game" in *The Game Awards* 2021; "British Game," and "Original Property" in the *BAFTA Games Awards* 2022.

[9] Nominations: "Best Art Direction" (winner), "Best Independent Game" (winner), "Best Debut Indie Game" (winner), "Best Score/Music," and "Best Action Game" in *The Game Awards* 2017; "Music" (winner), "Artistic Achievement," "Debut Game," and "Original Property" in the *BAFTA Games Awards* 2018; "Best Debut" (winner), "Best Visual Art" (winner), and "Best Audio" in the *Game Developers Choice Awards* 2018; "Excellence in Visual Art," and "Excellence in Audio" in the *Independent Games Festival* 2018.

it also grants players the possibility of choosing between “simple” and “regular” difficulty levels before entering a fight (Figure 29). “Simple” versions of boss fights do not count towards progressing the ultimate goal of the game, and usually differ from their “normal” counterparts only in that they present a reduced number of phases. Moreover, it is only after finishing the entire game once in “regular” mode that the “expert” difficulty is made available for further replay, adding more speed, health, and attack power to each boss. Difficulty, therefore, is a principle of game poetics that serves the function of introducing variations on top of which players can exercise the flexibility and reliability of their mastery over game loops.

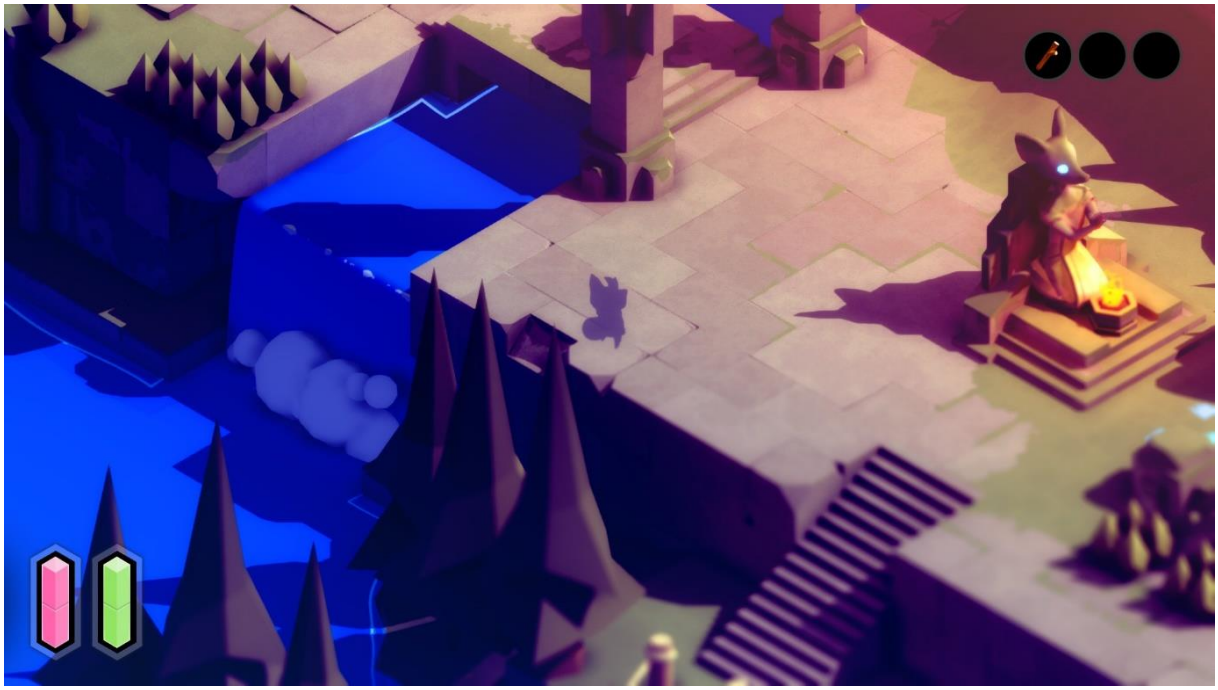
Figure 29 – Menu that offers players a choice between “simple” and “regular” difficulty levels before a boss fight in the game *Cuphead*

Source: STUDIO MDHR, 2017

Completion, on the other hand, is often associated with the promise of experiencing all the content a game has to offer, a feat usually made possible only after a few replays. Completion can be implemented by providing players with mutually exclusive branching choices, the counterparts of which may only be experienced over a second playthrough – *As dusk falls* (INTERIOR/NIGHT, 2022), *Until dawn* (SUPERMASSIVE GAMES, 2015), and *The quarry* (SUPERMASSIVE GAMES, 2022) all subscribe to this poetic structure. Moreover, some games make certain paths available to players only after the ending has been achieved at least once before – *Oxenfree*, *Minit*, and *Cuphead*, as mentioned, provide different endings

and/or difficulty levels in their second complete replay. Other games do not necessarily keep content procedurally locked away from players in this manner, placing instead barriers of skill or knowledge. *Tunic*, in spite of its clear nostalgic intertextuality with *Zelda* games, has called attention for its novel approach to puzzles and hidden secrets. Many hidden paths, shortcuts, and item chests are openly available to players from the very beginning of the game, but are obscured by the isometric perspective and might take some poking around the game world to be discovered. However, once the knowledge of their location is acquired, it can be exploited by players to move more efficiently around the different areas of the world (Figure 30).

Figure 30 – In the center of the screen, the shadow of *Tunic*'s player-character explores one of the many hidden passages of the game



Source: ISOMETRICORP GAMES, 2022

Despite the paradigm of replayability that can be identified throughout videogame history, it should be mentioned that there are many narrative, mystery, and puzzle games which do not lend themselves easily to interesting repetitions – except, maybe, in relation to the aforementioned desire to relive a specific emotional experience, also common to other art forms. Unisequential games – e.g. *Florence*, *What remains of Edith Finch* (GIANT SPARROW, 2017), *A memoir blue* (CLOISTERS INTERACTIVE, 2022) – and puzzle/mystery centered games – e.g. *Return of the Obra Dinn* (POPE, 2018), *Her story* (BARLOW, 2015), *Immortality* (BARLOW, 2022) –, once the epiphanies related to their

puzzles and/or narrative denouements has been reached, do not tend to invite further player engagement. However, even these types of games are somewhat recruited into the paradigm of replayability through the metaludic resource of achievements/trophies, strictly tied to a poetics of completion and often employed by online platforms such as Steam and PlayStation Network. As an example, the achievements list of the game *What remains of Edith Finch*, available on Steam, challenges players to "Play Calvin's story again" and to "Let the drunken sailor finish his song." In the first case, players are explicitly invited to exercise their power of replayability on a specific game chapter, even though no variation or new content is to be expected. In the second case, players are themselves invited to introduce a variation to the game by performing an action that they most likely did not think of performing during a first playthrough – namely, waiting for the sailor to finish singing his song before devouring him.[10] Since the integration of extratextual achievements is considered an important economic factor for developers and platforms alike (RIZANI, KHALID, IIDA, 2023), even games which are poetically uninclined to repeated experiences ultimately give in to this conventional practice of completion-instantiated replayability.

The overwhelming pervasiveness of replayability as a poetic principle may, however, inspire the question: can there be an unreplayable videogame? It is maybe unsurprising that some games in the past have deliberately experimented with strategies of replayability denial in order to achieve specific aesthetic effects. One such videogame, *One single life* (FRESHTONE GAMES, 2011),[11] is discussed by Riccardo Fassone (2017, p. 142-145) in reference to the properties of uniqueness and scarcity in the art of videogames. *One single life* was a mobile game in which players were expected to jump from the top of one building to the next for as many levels as they could before their first death brought a definitive end to the experience. Players were then computed into an overall statistic, ranked based on their progression, and were forever prevented from playing the game again by being met with the persistent image of their own tombstone whenever they tried to reload the app.

However, some alternatives were presented to extend player experience. Firstly, before attempting a certain level "for real," players were allowed to rehearse it as many times as they wished without the added pressure of decisive failure – a practice that is, in itself, welcoming to replay, although the repetitive and low-stakes nature of the rehearsals admittedly could not

[10] During this section of the game, the player takes control of a kraken-like sea monster.
[11] At the time of writing, official versions of the game no longer seem to exist.

have engaged players for too long. Secondly, players who were patient enough to watch through the entire credits sequence were rewarded with an extra life to play the game. Being often perceived as an ironic or parodic game, *One single life* has been interpreted by Fassone (2017, p. 144-145) as a commentary on a popular theoretical framework that understands games as human activities dedicated to the rehearsal of real life situations. By configuring at least half of its gameplay around a "rehearsal" mode, Fassone argues that the videogame in question manages to produce in its players a thrilling sense of taking responsibility for the consequences of their "real" actions, as well as of taking part in/belonging to a larger community – because at the beginning of every "real" level, players are informed of the percentage of total players who have managed to survive it. This serious layer of meaning, however, is ridiculed by the game itself in granting an extra life at the end of its credits sequence, thus reminding players that the "real" part of the game was also removed from real life.

At roughly the same period of time, indie Newgrounds release *One chance* (MOYNIHAN, 2010) also attempted to subvert the replayability paradigm by employing browser cookies to prevent the same user from playing the game to its completion more than once. As a branching narrative, *One chance* tells the story of a scientist who, in the process of trying to discover a cure for cancer, unleashes a deadly substance into the planet's atmosphere that will end all life on Earth over a period of six days. The game progresses as players make decisions regarding what to do on their last six days on Earth. Possibilities range from spending time with their family, drinking and partying with their colleagues, or trying to find an antidote to the deadly substance. With the rise of each new day, players are greeted with the same message reminding them of the narrative stakes: "In [however many] days, every single living cell on Planet Earth will be dead. You have one chance" (MOYNIHAN, 2010). Since no perfect ending can be achieved, *One chance* employs a strict poetics of unreplayability to engage players with the feelings of guilt and uncertainty involved in failing to prevent unforeseen disasters. Usually, players would be able to restart the game and try different courses of action until the best possible outcome was achieved – and, based on which of their actions had been punished and which had been rewarded, they would be able to derive a moral argument inscribed in the procedural rhetoric (BOGOST, 2007) of the game. In this case, however, aesthetic mastery – in the form of knowing all possible narrative developments – is denied. Therefore, instead of finding in *One chance* the poetic solace of achieving mastery over time, players are unexpectedly met with a much more familiar experience – the tragic catastrophe of

neither being able to change their past actions, nor to fully predict the future results of their current choices.

Many years later, a more robust attempt at developing the same poetic configuration of denied replayability is made by the game *OneShot* (FUTURE CAT, 2016), which tells the story of a half-cat and half-human child name Niko who, accompanied by the guiding hand of a mysterious god – the player –, is tasked with saving a world that has been deprived of its light by returning its sun. By journeying through a fictional world sprinkled with many fourth wall breaks, Niko and the player eventually get to make a final decision: they can either return the sun to the sky and sacrifice Niko in the process, or "break" the sun (represented in the game in the form of a big lightbulb) and return Niko home, leaving the fate of the world uncertain (Figure 31). Whichever decision is ultimately made, any subsequent attempt at reloading the game will take the player to the same screen – either a "fatal error" message if they have sacrificed the sun, or the image of Niko's brightly lit but empty room, if they have sacrificed Niko. As in *One chance*, both possible endings leave players with an overwhelming sense of uneasiness – not knowing if their choice was the "correct" one, and incapable of further exploring the mysteries of the fictional world.

Figure 31 – The player must choose between sacrificing Niko or sacrificing the sun in the game *OneShot*

Source: FUTURE CAT, 2016

However, in a similar way to *One single life*, *OneShot* was also not able to fully commit to a complete poetic denial of replayability, nor to the moral dilemma posed by its titular "one shot." A few months after the initial release of the game, an update introduced a new ending that could only be achieved by those who had played the game to its completion once before (GRAYSON, 2017). With the new update, both Niko and the world can be saved in a perfect happy ending that also opens the possibility of unrestricted further replays of the game. Having been a more fully developed and commercially successful product than its predecessors, *OneShot* also seems to have had more difficulty in keeping with its initial radical opposition to one of the most widely established conventions in the art form. Unreplayability is, in this manner, ultimately employed *in favor of* replayability – because the delayed introduction of an update which suddenly overturns previous restrictions leads old fans to return once more to the game with a renovated interest in achieving the narrative fulfilment they were formerly denied. As it would seem, the more a game is faced with the commercial pressure of being integrated into mainstream marketing platforms, the more it will struggle with subverting the paradigm of replayability – as indicated by the fact that the only game in our list which is truly unreplayable by design, *One chance*, is a short, free-to-play, browser flash game. Moreover, total subversion of this paradigm also seems to present a barrier to artistic validation: being the least "unreplayable" game in our list, *OneShot* is also the closest to achieve artistic recognition, having been nominated for the category "Best Indie Game" in the *Golden Joystick Awards* of 2017. Both observations point to the centrality of repetition and replayability as compositional principles in the art of videogames – because unreplayability seems to only be meaningful in relation to its opposite, and because it appears to push games that adopt it to the fringes of commercial and artistic institutions.

Of course, receptional frequency, replayability, and indeed many other aspects of a game's poetics are conditioned by a fundamental design principle, in no small part dictated by technological affordances: the possibility of saving. As Christopher Hanson (2018, p. 91-101) explains, when videogame playing environments shifted from socially shared spaces – i.e. the arcade economy marked by short bursts of repetitive play – to personal spaces of work and leisure, videogame hardware also came to include ever more sophisticated saving systems. The rise of the save functionality is thus hypothesized to have begun with *Adventure* (CROWTHER; WOODS, 1977), a hypertext intended to be played on mainframe computers during the short breaks between the work hours of the few who could access these machines; later, it was incorporated into personal computers and, finally, into home consoles. According to the author,

two notable consequences of this widespread assimilation of the save functionality in videogames were the emergence of new genres – focused on narrative, adventure, and exploration of expanded fictional worlds –, as well as of new aesthetic relations with time:

> Famed Zelda designer Shigeru Miyamoto believes that adding saving to the game engendered longer-form narratives that radically altered the player's gameplay experience by providing the player with an experience based in exploration akin to a child's discovery of a new space. Saving in these cases effectively removes the risk of experimentation and exploration, changing game design and player experience. Saving also effected a strange multivalent temporal experience for the player, by making past moments in play continuously accessible, allowing the player to imagine different possible futures for the saved game that could be compared and contrasted to the player's play and decisions to that point. (HANSON, 2018, p. 98)

In other words, the temporal flux of videogame reception, as conditioned by saving, creates a "continuum between past, present, and the multifarious potentialities of future events in a game" (HANSON, 2018, p. 89), therefore emphasizing the fragmentation of the future and how it is informed by past and present choices. As the save functionality becomes ubiquitous in videogame design, it assumes different forms capable of engendering different aesthetic experiences. Early examples include the use of cartridges, peripherals, and password-based saving systems (HANSON, 2018, p. 96-98), which were not particularly precise and could sometimes require significant input effort on the part of the player. Later games would offer players the possibility of keeping simultaneous saves over multiple save "slots" which could be extratextually accessed via the game's menu. These slots would also require conscious input effort, both because players would have to remember to stop and save the game, and also because the managing of available save slots would become, in and of itself, an aspect of game interaction – as players would have to decide which specific game moments, in detriment of others, they might want to revisit later. Then, quick saves would eventually come to "shift the act of saving to the background" (HANSON, 2018, p. 99) by associating it to a single hotkey, thus unburdening players from potentially bothersome interruptions to their play experience and immersion. Finally, autosaving arises as a standard saving practice in modern videogames, exempting players from the responsibility of save management altogether.

As a consequence of this varied history in the development of saving practices, it is maybe unsurprising that current videogames often turn to a wide range of saving structures to create deliberate aesthetic effects. What they cannot seem to do is escape these saving structures entirely – because, as is the case with videogame replayability, even the choice for completely denying the possibility of saving seems to serve, in its own way, as a commentary on the

convention of saving itself. In this context, some games seem to attempt an "intratextual" (to employ one of Hanson's terms) incorporation of saving mechanics, whereas others keep it separated from the game's fictional plane. Additionally, some games may choose to offer players a greater amount of freedom in the management of their own save files, whereas others deliberately restrict saving possibilities.

A combination of fictional incorporation and aesthetic restriction of saving mechanics can be identified in the *Resident evil* (CAPCOM, 1996) and *Silent Hill* (KONAMI, 1999) franchises, as well as in *Dark souls* (FROMSOFTWARE, 2011),[12] in which progress saving is associated to specific checkpoints represented by items and/or places in the fictional world. As noted by Hanson (2018, p. 101-102) *Resident evil* configures this experience in a particularly interesting way by doubly restricting the ability to save: firstly, by requiring that players locate one of the typewriters spread across the fictional world and, secondly, by limiting their use to the possession of a specific item, an ink ribbon. In this manner, *Resident evil* integrates its saving mechanic into the poetic configuration of resource scarcity that permeates the rest of the game – so that, just like they manage a limited supply of bullets and health recovery items, players also need to manage a limited supply of saving possibilities. This is, unsurprisingly, a poetic choice that aligns quite well with the horror experience these games are meant to configure – focused on frustrating player agency by highlighting player-character frailty in face of a brutal fictional world.

Saving restrictions which are not necessarily explained by nor incorporated into the plane of fiction may also be found in videogames which aim to provide controlled narrative experiences. On the opposite side of this spectrum of restriction, games like *The last of us part II*, keeping with the paradigm of the AAA industry, offer players the possibility of managing their own personal saves over multiple slots, while also autosaving every few minutes and allowing for already played chapters to be revisited at any time. A middle ground is provided by a game like *What remains of Edith Finch*, which keeps players subject to autosaving systems by denying them the possibility of managing their own save files, while still allowing for specific chapters to be replayed in their entirety, provided they have been played once before. Finally, games like *Endling – extinction is forever* (HEROBEAT STUDIOS, 2022) do not allow any player management of save files, as well as no way to revisit previous "chapters," meaning

[12] Current examples of soulslike games which adhere to the same intratextual saving restriction include the already mentioned *Tunic* and *Death's door*.

that predetermined autosaves are the only means through which players may keep track of their progress. In this type of saving configuration, to restart the game is to necessarily give up on one's entire progress (Figure 32), a restriction which, in this case, is poetically coherent with the game's thematic focus on the irreversible consequences of environmental destruction – hence the subtitle "extinction is forever."

Figure 32 – Since *Endling* does not allow for saves to be managed nor for previous game segments to be revisited, the menu informs that starting a "new game" will result in the deletion of current progress

Source: HEROBEAT STUDIOS, 2022

Poetic restrictions upon players' possibilities of saving can also be found in the rouguelike genre, a prominent feature of which is the "permadeath" (HANSON, 2018, p. 102) mechanic. In games like *Rogue* (EPYX, 1985), *The binding of Isaac*, *Hades*, and *Returnal*, players are challenged to get as far as they can in the course of a single run, with death usually meaning the loss of all acquired items and power-ups, as well as a forced return to the very beginning of the game. If, as argued by Hanson (2018), the possibility of saving as a technological affordance was responsible for the inauguration new videogame genres, then it should be noted that the subsequent restrictions of saving possibilities in the art form – conditioned not by technological affordances, but by a deliberate poetic choice – were also responsible for the rise of new genres, "roguelike" and "soulslike" among them. While discussing the "death and rebirth of game over," Fassone (2017, p. 58-59) calls attention to the

resurgence of a punishing style of gameplay which, by the beginning of the first decade of the twenty-first century, seemed to be slowly disappearing. He identifies, in the "emergence and global success of a diverse scene of independent developers between 2008 and 2010," an experimental and somewhat nostalgic design approach which favored more challenging play styles and restricted saving practices. This trend, despite having emerged from indie titles and developers, eventually seeps into the mainstream AAA industry. Both the first version of *The binding of Isaac* and the initial release of *Returnal* are good examples of an unforgiving no-save approach: not only players could not save at any point throughout a session of gameplay, they would also have to start again from the beginning if they had to quit the game for any reason (Figure 33). This meant that a "successful" run would have to be played from beginning to end in one single seating, which could easily represent anywhere from 30-60 minutes in the first case, and several hours in the second case.

Figure 33 – *The binding of Isaac* playfully warns its players that, if they press "quit" in the middle of a game, they are bound to lose their entire progress

Source: MCMILLEN; HIMSL, 2011

This intensive temporal dedication required from players may be rightfully identified as unreasonable and impractical – so much so that it may come as no surprise that both games eventually give up on these restrictions. *Returnal* kept its strict no-save policy between the months of April and October of 2021, before an update introducing the autosave function made

it possible for players to interrupt their play session and return to it later from where they had left (JAMES, 2023) – although, in the spirit of traditional roguelikes, no trips to previous points in the session's timeline could be made. As for *The binding of Isaac*, the original version of the game went through an extensive remake, entitled *The binding of Isaac: Rebirth* (NICALIS, 2014), which also integrated an autosave system without checkpoints. In addition to that, a tendency can be identified in modern roguelikes towards the flexibilization of "permadeath," mainly in the form of persistent power-ups and skills. In *Returnal*, certain items and weapon upgrades are permanently kept once found; in *Hades*, the "Mirror of night" allows players to spend game currency to increase the player-character's base skills; and in *Loop hero*, when in-between fighting sessions, players can build structures in their camp that have lasting effects in the game – for instance, building a Smithy will guarantee a basic armor set right at the beginning of following expeditions.

In any case, it is clear that the save functionality is a major factor in defining patterns of repetition and replayability, and that it should be considered a central aspect of videogame poetics as a whole – to the point that different approaches to the act of saving are even capable of subdividing games into different genres. However, in spite of this ubiquity – and maybe even because of it –, videogame saving has been associated in the past with a decline in the art form's capacity to create meaningful experiences and elaborate on more serious themes. In an essay entitled *Ephemeral games: is it barbaric to design videogames after Auschwitz?*, Gonzalo Frasca (2000a) notably admonishes videogames' tendency towards replayability because the lack of commitment to irreversible consequences should make it impossible for serious themes – such as the human tragedy involved in the holocaust – to be properly developed. According to the author, when replaying a game:

> What the player does is experimenting rather than acting: she is free to explore any "what if" scenario without taking any real chance. […] Actions in videogames are reversible. Therefore, there is no room in them for fate or tragedy. It is always possible to go back and play until you reach a happy ending. For this reason, videogames allow players to fool death itself. (FRASCA, 2000a)

He then goes on to propose a videogame design model centered on unreplayability, which he calls "one-session games of narration" – or OSGON, for short. At the turn of the century, therefore, Frasca's impression was that videogame players could only be required to seriously engage with meaningful and morally loaded themes if they were forced to stick to a single narrative path. More recently, Hanson (2018, p. 99) voices a similar concern regarding

the expansion of saving mechanics and its impact on player decision-making: “saving and restoring profoundly diminishes the significance of these decisions by empowering the player to take back or undo any choice made by simply restoring to an earlier saved game.” Indeed, it could be argued that both paradigms of *repetition* (through saving and/or replayability) and *mastery*, which seem to guide current videogame poetics, contribute to create aesthetic experiences in which players are not only allowed, but in fact compelled to explore all possible developments of a given situation, even morally dubious ones. The case could be made even in relation to games heavily centered around a choice-based structure. As previously discussed, *As dusk falls* requires players to make difficult decisions in the context of complex, morally loaded situations while, at the same time, presenting players with many extratextual possibilities to experiment with alternative routes – because game chapters can be easily replayed, in whole or in part, and because players are given the option not to record diverging replays into their main save file.

However, the possibility of exploring the many alternate consequences which derive from different choices need not be understood as a reliable indicative of player’s callousness and moral immaturity. Rather, it could be interpreted as a new way to approach the same serious and emotionally loaded themes – one that is favored and made possible in the art of videogames by the techno-cultural developments proper of the twenty-first century. Having witnessed a few more decades in the development of the art form, we would be willing to argue that, contrary to Frasca’s initial beliefs, the poetic configuration of reversible choices and branching consequences does not erase thematic meaning, but potentializes consequentiality by way of its inscription into a larger, dynamic system. In line with a conclusion previously drawn in our chapter on temporal order, Hanson defends that:

> Each individual action that the player takes after restoring a saved game may result in different outcomes, and so the culmination of numerous different decisions and actions may result in a significantly divergent sequence of events. But each of these different outcomes is directly the result of these different actions; put another way, each different effect is the product of a different cause. So, sequentiality is brought to the fore by the clear linkage of outcomes to actions. (HANSON, 2018, p. 103-104)

In this manner, the exploration of many divergent choices and their respective consequences should not be faced, or so we believe, as a corrupting force capable of scraping videogames of their meaning, but as a powerful semiotic multiplier built around the human desire to fully understand and, to some extent, control the branching futures made available by

our actions and choices in the present moment. Instead of being mindlessly swayed by these multiple represented developments, player response is conditioned by a complex meaning-making process which incorporates previous world knowledge and held beliefs into a poetic understanding of evolving systems and multifaceted situations. In summary, as stated by Riccardo Fassone, "If video games can attain 'seriousness' it is precisely because they are replayable, non-ephemeral media products" (FASSONE, 2017, p. 141).

7.3 THE MASTERY OF TIME AT THE INTERSECTION OF FICTIONAL AND RECEPTIONAL REPETITION

We have previously identified an interesting phenomenon in recent developments of the art of videogames: the fictional incorporation of repetitive mastery practices which had, for a long time, remained enclosed in the plane of representation. As promised, we may now attempt to explain this poetic tendency by turning to the social/receptional realms of $mimesis_2$ and $mimesis_3$. The question then makes itself present: if artistic developments in the art of videogames point to a need to poetically elaborate on our socially shared feelings of temporal impotence, then what are the motivators of this perceived lack of control over our own time?

In *Time, work-discipline, and industrial capitalism*, Edwards Thompson (1967) calls attention to the socioeconomic, cultural, and subjective processes that brought about a shift in workers' apprehension of time during the period comprised between the fourteenth and seventeenth centuries. By discussing the increased availability of clocks as a time-measuring technology, the moral spread of Puritan work values and discipline, and the temporal exactitude required by bourgeois exploitation of the work force, Thompson paints a picture of the slow and sure escalation of the temporal precision/control developed by human beings over work time throughout their industrialized and capitalist history. In pre-industrialized and non-industrialized communities, Thompson (1967, p. 60) reports, work time is oriented around the completion of necessary tasks – meaning that a workday can be flexibly extended or cut short depending on whether said tasks have been completed, that workers have more autonomy over the determination of their own working schedules, and that extensive periods of work are often alternated by also extensive periods of rest (THOMPSON, 1967, p. 73). A few centuries later,

not only will employers attempt to impose their own temporal discipline over workers and hire wardens/inspectors to reinforce it (THOMPSON, 1967, p. 81-82), but will also pettily tamper with clock hands so that a few extra minutes can be stolen from workers at the beginning and ending of every shift (THOMPSON, 1967, p. 86). In this newfound context, time is already widely accepted as perfectly subsumed under the vocabulary of currency and commodity – spent, profitably or wastefully, rather than passed (THOMPSON, 1967, p. 61).

Of course, this change in workers' apprehension of time is not only the result of external pressures, but also of subjectively internalized values (THOMPSON, 1967, p. 86). During the aforementioned period, religious discourse of Puritan and Evangelical traditions works incessantly to associate temporal discipline with moral values and integrity of character, to the point it eventually seeps into the mainstream of other, more secular fields of discourse (THOMPSON, 1967, p. 89); in a similar fashion, clocks are initially made, sold, and acquired not as productive tools of work management, but mainly as objects of desire and symbols of social status (THOMPSON, 1967, p. 64-70). Although this is not one of Thompson's (1967) main concerns, it is our belief that cultural and artistic practices should also be considered as playing a significant role in the ideological making of temporal regimes. Nowadays, videogames invariably contribute to the maintenance and reinforcement of our current temporal systems – as do any other majorly popular art form. Just like the time-as-currency imagery and the morality of temporal discipline were made to enter social and subjective landscapes partly thanks to the insistence of religious, scientific, and cultural discourses being produced at the time, so it could be argued that videogames today grant us the possibility of rehearsing our future-oriented temporal values of productivity and efficiency. They achieve this by turning the efficient management of time into a leisure activity – so that we may not be performing this temporal discipline for the direct benefit of our employers, but we are still performing it for the sake of our own continued adherence to the current regime and, more importantly, for the direct benefit of companies who profit off our continued playing of these games.

However, as the technological means of temporal discipline grow in influence – as leisure and idleness are more and more successfully associated with vice, depravity, and corruption, and as the mainstream rhetoric around time mandates that it should be well *employed* and put to *use* – it should come as no surprise that workers' sense of helplessness over the control of our own time seems to grow in direct proportion. A precise, *punctual* control over time seems to be the paradigm of human relationship with temporality in digitally

conditioned societies, but that framing is misleading in and of itself, as it can only be true in relation to a specific social group: the ruling class. For the majority of us, our paradigmatic relation with time is, on the contrary, that of a generalized lack of control, because capitalist temporal discipline is imposed irrespective of – and, more often than not, in direct opposition to – human agency, well-being, and desire. In this respect, no better example can be found than that provided by the working practices of the videogame industry itself.

As argued in the impressive investigative work carried out by Nick Dyer-Witheford and Greig de Peuter (2009) in *Games of empire*, and later confirmed by the updated comments of Jamie Woodcock in *Marx at the arcade* (2019), videogame development is an industry mostly built on top of rampant and deregulated work exploitation. This situation can be traced back to the hacker culture that informed the industry from its very infancy, and which has eventually crystallized the role of immaterial, voluntary "playbor" (DYER-WITHEFORD; PEUTER, 2009, p. 23-27) of fans and modders in the development of games. Workers who perform creative, intellectual, and immaterial labor for the industry are therefore expected to adhere to a work culture centered around the blurriness of the boundaries between labor and leisure, and around passionate, affective dedication to videogame production. Being marked by what Dyer-Witheford and Peuter call "cognitive capitalism," successful videogame development also relies on extracting the maximum value from the minds, creativity, and subjectivity of workers, which invariably results in a conflict of interest between the humanity of employees and the profit-orientation of employers:

> A video game studio executive we talked with in the course of a series of interviews with developers and managers unwittingly summed up the essence of cognitive capitalism for us. Speaking about the intelligent, imaginative, and enthusiastic young developers who composed his company's workforce, he explained, "[Our] machinery . . . is the mind of all these people who . . . come up with these great ideas. . .. Our collateral walks out the door every night." When the "mind" walked out the door, he added anxiously, "[You] just hope like heck that they . . . show up on Monday." But he quickly mentioned the great upside of this risky business: "Unlike machinery that stops working at 5:00, ours might be home, [but] they're thinking of new ideas, and their whole life experience is creating the potential for new ideas." Cognitive capitalism is this situation where workers' minds become the "machine" of production, generating profit for owners who have purchased, with a wage, its thinking power. But the mental machinery this executive describes— because it is also a living subject— constantly poses a problem of *control* for those who employ it. (DYER-WITHEFORD; PEUTER, 2009, p. 37, our highlight)

This conflict culminates in an abusive work practice of temporal exploitation so ordinary in the industry it has received an almost affectionate name of its own: "crunch time"

(DYER-WITHEFORD; PEUTER, 2009, p. 59-65). Crunch time is usually conceived as an unusual period in the production schedule of a game, in which impending deadlines and last-minute modifications may require intensified labor time up to one-hundred hours a week (DYER-WITHEFORD; PEUTER, 2009, p. 59). In spite of its supposed exceptionality, crunch time has eventually become an expected, even planned stage of project development in small and large companies alike. The ubiquitous acceptance of this debilitating temporal regime has only been made possible by a combination of factors ranging from the lobbying power of big companies, the deregulation of rights associated to digital labor, the absence of a strong culture of unionization, the outsourcing of labor to countries where cognitive work is cheaper and even more precariously regulated, and the prevalence of temporary, disposable and easily replaced employment (DYER-WITHEFORD; PEUTER, 2009, p. 35-68; WOODCOCK, 2019).[13] At the intersection of this complex system of exploitation, however, is the obvious deterioration of workers' well-being based on their increased alienation from their own time in the name of profit.

In light of this material reality of exploitation, we may return to our initial question regarding the shift in videogames' time-bending properties from a strict representational composition to a more thematically integrated fiction-representation configuration. A less nuanced reading of the situation could posit that videogames – through their formal properties of reception – serve as technological devices through which conformity to established temporal norms can be rehearsed and reinforced: in this manner, by way of constant repetition, we may acquire temporal mastery and develop ever more efficient ways of extracting value from our available time. A better explanation, however, would have to grapple with the fact that videogames also serve as a means of artistic intervention through which we can aesthetically process and elaborate our own, felt and lived, feelings of temporal impotence. The complexity of this task would necessarily require the integration of form and content – so that representational repetition could be fictionally transmuted into the more meaningfully human themes of agency, responsibility, battle against evil, persistence in face of adversity, guilt, and redemption. The fictionalization of time-bending mechanics could thus be interpreted, under a more hopeful light, as a sign that the art of videogames has become a privileged means through which we can give fictional and functional form to our own fears, desires, and frustrations

[13] Jamie Woodcock's book has been accessed in its digital format, which prevents us from providing specific page numbers. Still, we would like to direct the reader to the chapter "The work of videogames," in which most of these topics are discussed.

related to the (lack of) control over our own lived sense of time. Hopefully, this can also mean that videogames may become powerful allies in the task of raising conscious awareness to the material relations responsible for conditioning current regimes of temporal impotence, as well as in the task of imagining better alternatives to them.

7.4 FINAL REMARKS ON TEMPORAL FREQUENCY

At the intersection of fiction and representation, videogame frequency could be identified as still taking part in one of literature's most prominent traditions – that of interspersing background iterative segments with remarkable singulative events. It does so, however, mainly by employing singulative events as illustrations for implied fictional repetition. This is a direct result of the art form's preference for interactive audiovisual representation, which helps to configure its temporal punctuality: whereas verbal signs like "sometimes" and "every day" serve to synthetize a series of past events into a cohesive fusion, games like *Valiant hearts* and *Florence* cannot help but to invite us to share a characters' present whenever they want to allude to repetition in their fictional past. Repeating representation is, in turn, much more common in videogames than in maybe any other major narrative art form. These multiple representations of the same event – which could also be said to provide a thickened sense of the fictional present to which they refer – are often filtered away from player's mental reconstruction of a game's fictional plane; however, an expressive number of successful games in recent years have somewhat transformed this poetics of repetition by providing narrative explanations for replays and rewinds.

At the intersection of reception and representation, the most prominent relation of frequency in videogame reception seems to be that of a singulative representation which pushes players to engage with a sense of ever-growing mastery. This mastery of underlying game mechanics, acquired through repetition, creates a pervasive sense of knowledge and control over happenings in the fictional present by allowing players to fully explore the causality of available actions and its myriad developments into the future. Moreover, the circular replayability involved in the acquisition of mastery commits videogame frequency – unlike order and duration – to a poetics of timelessness. The mechanical mastery of a gameplay loop

and the complete knowledge of all branches of fictional development made available by a narrative both serve to aesthetically remove players from the passage of time. In the first case, behind the repetition of singular, temporally bound actions, lies the promise of total proficiency over the abstract, rule-based systems which inform the underlying logic of videogame representation; in the second case, the possibility to revert time and explore all causal chains authored into a game's narrative may annul the consequential weight of any specific player choice in favor of, once again, a better understanding of narrative as an abstract system of morals and values. Some experimental games have – usually at the cost of commercial and artistic recognition – attempted to configure unreplayable experiences to deny player mastery in favor of developing aesthetic effects related to player responsibility, guilt, uncertainty, and impotence. However, the limited success of these attempts seems to indicate that replayability – and, by association, mastery through repetition – is a foundational principle at the heart of videogame poetics.

Finally, all previous considerations have led us to hypothesize that videogames have become a privileged art form through which our current regime of temporal impotence – the result of intensified labor exploitation and ever more pervasive practices of temporal discipline in late-stage capitalism – can be poetically processed and elaborated. Both the reception-representational focus on temporal mastery, as well as the fiction-representational tendency to incorporate manipulation of game frequency as an explicit narrative theme, seem to indicate videogame's exceptional capacity to give form to our current temporal afflictions regarding our lack of control over our own lived time. Hopefully, this means that they can also be a privileged art form through which we may configure imaginative ways to counter the material conditions that give rise to said afflictions.

8 CONCLUSION: REFIGURED TIME IN THE ART OF VIDEOGAMES

At the end of our second chapter, we proposed some preliminary answers to the questions: how have we (re)interpreted and (re)invented time in the technology of writing by way of the art of literature and, more recently, in digital technology by way of the art of videogames? What changes from one technological regime to the other, and what can these changes mean? We were led to conclude that, whereas literature poetically explores timelessness and the non-chronological organization of our subjective experience of lived time, videogames tend to explore and poetically compensate our desires to control time. Having gotten to the end of our analytical endeavors, we can now return to these previous considerations in order to pronounce our last words with regards to the general question that has guided our study so far: how is it that, through videogames, we are able to represent, (re)interpret, (re)invent, and respond to our present-day temporal experience?

Previously, we associated digital technology with the rise of *punctual time* – a social and subjective regime of temporality focused on a present oriented towards its immediate future. Our investigation has revealed the presence of said punctuality in all three categories of order, duration, and frequency in videogame poetics. In temporal order, the thickening of present time is operated by the saturation caused by simultaneously occurring events, and by the branching narrative choices made available for the player. This present is, in turn, oriented toward the future via the premonitory anticipation of events, the suspense created around the consequences of a player's actions, and the structure of aporia and epiphany common to puzzle games. In temporal duration, pauses, stretches (e.g. bullet time) and the possibility of leisurely exploring a static world are all poetic devices which emphasize the present, whereas the future is brought to the fore by the aesthetic effects of anxiety and boredom derived from the imposition of time limits, and by a rhetoric of efficiency and productivity which demands that the present be organized in the name of future profits. In temporal frequency, the present is featured in videogames' tendency to employ singulative events in the illustration of iterative sequences, and the future may be accentuated by the mechanic of automation, which indefinitely extends the effect of a player's present actions.

Finally, the experience of player mastery – which is closely related to the notions of gameplay loop, replayability, and completion, as well as the technical affordances involved in

saving and reloading parts of a game – marks the very core of videogame poetics and establishes a complex relation with temporal punctuality. The possibility of reliving the same fictional moment in a game's timeline is directly associated with the sense of a thickened present, because players eventually acquire a deeper understanding of all possibilities contained in that singular fictional moment. Moreover, since most cases of interactor replayability are not incorporated into the game as part of its fictional past, these representational repetitions are also likely to be conceptualized by players not as accumulated past experiences, but as successive present moments which come to fictionally erase and replace one another. Moreover, the process of failure and learning that precedes the mastery of a given loop also helps create the punctuality of time – because each failed action incites its own repetition and points to the promise of a successful performance.

Specifically in videogame duration, we have seen this temporal punctuality articulated in conformity with the norms of current socioeconomic regimes of temporality. In tandem with the exhaustive repetitiveness required by mastery, videogame duration is often employed to configure a rhetoric of efficient time management directed towards productivity and profitability. In this manner, videogame poetics reinforces capitalist temporal values upheld by other social systems, recruiting players to perform these values of their own free will, in their own free/leisure time, as a form of manufacturing consent. If we, once again, take some inspiration from Iser's (1978) work, it could be argued that the reinforcement videogames provide to this temporal regime is revelatory of one of its structural weak spots – a reflection to which we may shortly resume.

We have also previously stated that, in comparison with the novelty of *timelessness* introduced by writing into the temporally bound world of orality, digital technology is perceived as once again grounding our cognitive and communicative abilities onto the merciless passage of time. A convenient metaphor can then be identified in the fact that, just as the technological regime of the digital has been erected on top of the foundations previously set by writing, in videogames, the enactment of temporally bound events by the player is configured on top of the timelessness provided by an underlying, rule-based, simulative system. In matters of order and duration, videogame poetics is clearly partial to the configuration of timeness, because player action is firmly rooted in time by ordered structures of causality and by the imposition of temporal limits. However, when it comes to videogame frequency, timelessness is clearly favored as a poetic principle. It could thus be hypothesized that the impulse to master a game's

underlying abstract system through constant repetition answers to a deeply ingrained desire to experience a functional negation of time with which current techno-temporal regimes have become less compatible.

Although the desire to escape time – and change, and death – could probably be identified as a constitutive part of human subjectivity in most social groups throughout history, it could also be argued that this desire, in the form it makes itself manifest in current times, is a consequence of specific socioeconomic structures. Once again, this poetic response could be traced back to a structural weak spot in other, concurrent social systems. As our chapter on frequency has previously highlighted, this desire to control time could be related to a long history of workers losing agency and autonomy over the organization of their own working schedule and leisure time. In this manner, much like literature could be said to reclaim in fiction the priority lost in social life by our non-chronological perception of lived time, videogame mastery could also be said to fulfill a desire to reclaim in fiction something that we have lost in our lived reality – autonomy over most of our own temporal rhythms. If we take the desire to master (i.e. exert control over) time in conjunction with the rhetoric of productivity that has been previously associated with the poetics of videogame duration, then we should be able to draw a conclusion regarding what time-related weak spot in competing social systems is being addressed by videogames – namely, the need to convince the working class to act against our own self-interest and employ our time in generating profit for the ruling class.

Nevertheless, subversion of dominant design practices has, of course, always been a part of the history of videogame development – even though, as happens in relation to other artistic genres as well, games that do this are usually excluded from institutional spaces of artistic legitimization. Among the games we have analyzed *One chance* (MOYNIHAN, 2010), *One hour one life* (ROHRER, 2018), and *UnearthU* (STONE, 2021) could be included in this list. Not coincidentally, these are games that have not been figured in the awards nominations from which we have selected most of our corpus. However, by subverting various design conventions and expectations, these games manage to employ current norms of videogame poetics in the task of revealing the workings of dominant models of temporal existence, and potentializing our dissatisfaction with them. *One chance* deliberately denies the repetition endemic to videogame design to call attention to the irreversibility of our real-life actions; *One hour one life* engages videogame replayability and future-orientation to articulate a rhetoric of communal life and responsibility to previous as well as subsequent generations; *UnearthU* takes advantage

of the future- and control-oriented poetics of videogames in favor of a rhetoric of unpredictable and radically transformative temporal cyclicality; among many other games which have, in whole or in part, used their poetics to configure alternative conceptualizations of time beyond that of strict commodification and profit-orientation. Fighting against harmful practices of temporal discipline, dissecting the ways in which said discipline works to control and oppress us, and inciting our imagination to different possibilities of relating to time are all things that videogames, as one of the most expressive art forms in the technological regime of the digital, are capable of doing. We hope the present thesis has managed to contribute, even if ever so slightly, to clarify how time is configured in the art of videogames and, in addition to that, how it can also be socially, subjectively, and politically *refigured* by their poetics.

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