Digitally Interactive Works and Video Games:
A Philosophical Exploration

Shelby Moser

79,372 words

Table of Contents

Acknowledgements

I have so many people to thank for their involvement with this dissertation.

I am grateful to the many comments and discussions from various conference organisers and audiences. The European Society of Aesthetics (2013) for their helpful discussion on an early draft Chapter 1; the British Society of Aesthetics (2014) for feedback on portions of Chapter 2; the American Society for Aesthetics (2015) for their useful discussion on an early draft of Chapter 6; the Just A Game? conference (2015) for comments on a draft of Chapter 9; the Philosophy of Games Conference (2016) for an in-depth discussion of an early draft of Chapter 7; the American Society for Aesthetics conference (2016) after I presented an earlier draft of Chapter 9; finally, the Eastern American Society of Aesthetics (2017) for helpful comments on portions of Chapter 10.

More specifically, I wish to express my gratitude to my supervisors, Hans Maes and Michael Newall for having the confidence in me to pursue a doctorate in philosophy in the first place, for their support, comments, and for showing me that philosophers can be fun (and all around nice) people. To my amazing colleagues and friends, Mark Windsor and Eleen M. Deprez, for their philosophical insight on chapter drafts, unfailing encouragement, laughter, and exquisite beer. I owe Mark an extra thank you for offering a keen eye on later drafts of this dissertation. Also, thanks to Brock Rough who willingly accepted regular Skype calls and window chats to discuss the philosophy of games, even in the midst of becoming a new parent and starting a new career. I also thank my examiners, Aaron Meskin and Johnathan Friday, for their helpful discussions and comments. Many other conference colleagues, whom I am happy to call my friends, have also been very helpful and supportive along the way. Any mistakes that remain in this dissertation are my own.

Finally, I must thank my family and friends who, over the years, have put up with my stress, helped me through failures, and celebrated my small victories. Special thanks to Steven, Julian, and Finn Moser, because I could never have done any of this without them (and their love for video games). Since this dissertation process began, I don't think anyone has listened to me discuss and obsess over my dissertation more than Steven.

Thank you all.

Abstract

This dissertation explores the philosophy of digitally interactive works and video games. There are two central questions to this thesis, namely, what is distinctive about computer art, and more specifically, what is distinctive about the interactivity that these kinds of works afford? The latter question is a response to the former, but, as I will articulate in the chapters that follow, this distinctive type of interactivity is not restricted to works that are comprised of digital media. As it turns out, games (especially video games) are paradigmatic examples and so both analytic aesthetics and game theory are relevant to a discussion of interactivity.

In what follows, I address topics that pertain to interactivity such as art categories, prescriptions, appreciation, and ontology. This thesis will show that interactive works consist of unique displays and prescriptions and are, therefore, a distinctive category of art. I conclude that interactive works do not belong in a performance ontology, that the prescriptions of interactive art bear player engagement, and, importantly, the distinctive features of digitally interactive works hinge on an algorithmic ontology.

Introduction

The broad focus of this dissertation is digitally interactive art and video games with an aim at pinpointing the distinctive features of such works. In order to achieve this aim, I analyse a number of standard conditions of digital works that pertain to their formal features, their ontology, how a viewer responds to them, and some of the potential problems these features raise for philosophical accounts of art. Although the scope of this dissertation pertains to interactive works, in which the computer and digital media drive the foundational research, the primary objective is to discuss the value of video games within analytic aesthetics. In other words, while I do address video games and 'the art question', I am more concerned with the ontological and aesthetic relevance of video games. I shall argue that certain interactive works are distinctive because of their display variability and this type of variability bears upon user (and player) engagement. In short, I argue that interactive works, given some of their distinctive features, are ontologically different than performance works.

Of course, no account of video games is complete without experiencing at least some amount of gameplay first hand. Therefore, in order to fully deal with certain philosophical issues entailed by video games in the chapters that follow, I draw on my own gameplay experiences and present them in first person.

This dissertation has two sections. Section 1 concerns a philosophy of digitally interactive art, or what we now define as computer art, and Section 2 focuses more specifically on video games.

The first section is comprised of four chapters. The reader will notice that I interchangeably use the phrases 'computer art', 'digitally interactive art', and 'digitally interactive works'. Although these phrases reference similar works, I have tried to be intentional about the ones I use (and when I use them) because, while computer art is necessarily art, digitally interactive works are not. I make this distinction in recognition that not all video games are works of art and I would not wish to indicate such a claim or mislead the reader.

Chapter 1 examines the perceptual features of computer art, which highlights, in a Waltonian sense, the features that are standard and contra-standard to the category. This chapter introduces the significance of interactivity, the key feature of computer art and primary topic of this dissertation.

Chapter 2 offers a summary of the many ways in which the term interactivity is used and understood within the arts. Building from philosophers such as David Novitz and Dominic Lopes, I present categories of interactivity that differentiate works based on what the work prescribes of the viewers. Works that are 'strongly interactive' in the Lopesian sense are the focus for the remainder of this dissertation.

Chapter 3 focuses on the digital medium. This chapter reflects my initial interest in the distinctive properties of digital media and how digital technologies allow for certain works to be responsive to the users. By the completion of this chapter, it became clear to me that interactivity, rather than digital media, would be the new focus. I should also note that at the time of writing this chapter in 2012, Katherine Thomson-Jones had not published her seminal 2015 article, which addresses many of the issues I tackle here.

Chapter 4 concludes Section 1 of this dissertation with a look at the ontological issues that surround digitally interactive art. This chapter has two parts. Part 1 offers a cursory look at the autographic-allographic distinction as it relates to computer art; Part 2 is a detailed account of the type-token distinction and computer art, which is a topic that is referenced in proceeding chapters.

Section 2 is comprised of six chapters and begins a narrower focus on video games. It will of course be obvious that, in many of the chapters that follow, I draw upon the instrumental features of games in order to discuss various philosophical issues about them. However, before beginning, I wish to point out that it is my view that games can be important in and of themselves. My statement echoes games philosopher Bernard De Koven who, in 1978, said with games, 'there is no higher purpose than play'.[1] In a new edition of De Koven's book, *The Well-Played Game: A Player's Philosophy,* Eric Zimmerman writes a forward to the volume with a similar sentiment and says, '[l]ike music, creating images, or telling stories, engaging in play is what it means to be human. Games do not have to justify themselves by appealing to something outside themselves'.[2] There is a clear 'art for art's sake' corollary with these views, which I, as someone who regularly plays games and appreciates art, am sympathetic to. Of course, in the pages that follow, I have set the autotelic nature of games aside to focus on other philosophical aspects of video games, such as their ontology and the prosocial behaviour that we potentially can learn from gameplay.

Chapter 5 is an introductory chapter for the reader who is unfamiliar with the many kinds of video games that are available for gameplay; it also addresses how video games might qualify as artworks. I provide an overview of video games to show why some are clearly considered art forms more than others, but also to show that the distinctions between them are hazy. At the end of this chapter, I offer an account of different player types.

Chapter 6 is one of the thesis chapters in this dissertation in which I analyse the ontology of interactivity. Although computer art and video games are newer studies within analytic aesthetics, philosophers of art have already made great progress in pinpointing the distinctive features of interactivity. Consequently, I begin with a literature review of the significant ontological accounts of interactivity and work display objects. I then discuss interactivity and player engagement before I conclude with a section on performance versus interactive art. This chapter has been provisionally accepted for the *Routledge Handbook to the Philosophy of Games*, edited by C. Thi Nguyen and John R. Sageng.

---

[1] De Koven (1978).

[2] In the introduction by Zimmerman as found in De Koven (2013).

Chapter 7 is one of the significant developments in this dissertation. I defend an algorithmic ontology of video games, which includes significant accounts by Lopes, Berys Gaut, Grant Tavinor, and Dominic Preston. This chapter is important within the philosophy of art and games for two reasons – one, because it fills a gap within the current literature regarding what, exactly, an algorithm is and, two, it defends a compatibility between aesthetics and philosophy of games regarding game identity. This chapter has been provisionally accepted for *The Aesthetics of Videogames* in the Routledge Studies in Contemporary Philosophy series, edited by Grant Tavinor and Jonathan Robson.

Chapter 8 continues the algorithmic ontology discussion to address the abstract nature of video games (if they are abstract). Loosely following a Levensonian approach, I conclude this chapter by proposing that video games, although they are abstract-like, are destructible entities.

Chapter 9 changes the focus of this dissertation to the phenomenological and epistemic aspects of video games. More specifically, I focus on virtual reality games and discuss how players might empathise with their avatars or their player-characters.

Chapter 10 is the final chapter, which takes a closer look at the gaming groups, rather than the games. I first discuss certain paradoxes that arise for players during gameplay, and then turn to an explanation of how those paradoxes help create successful game communities.

I conclude with a summary of this thesis and a few brief remarks about future research.

SECTION 1: DIGITALLY INTERACTIVE WORKS

Chapter 1: Perceiving Digital Interactivity: Applying Kendall Walton's 'Categories of Art' to Computer Art

Appreciating an object, of any category, begins with perception. If we see an object that is small, feathered, and beaked, then we normally assess it as a bird. This psychological process, according to Kendall Walton, is also how we categorise things, not only in ordinary life, but with works of art. We perceive some works as paintings and others as music because the former consists of flat surfaces and pigment and the latter consists of tonal sounds and timbre. These features are typical of the works and their respective categories even though we usually take these kinds of features for granted. By now, this is a well-known theory within aesthetics, but in this introduction chapter, I apply Walton's formative essay, 'Categories of Art' to discuss the significant features of the relatively young art category called computer art. [1]

I begin by summarising Walton's key claims about how certain features affect how we categorise things, and his view that not every category we perceive a work within is correct. Second, I describe two examples of computer art that are typical of both the digital works that we find within the museum and of the works we can access from a networked computer. For both kinds, I consider the perceptual features that we view as standard and unusual to the works. In the final section, I present my view that computer art is not a category that one would normally assess works within (in a Waltonian sense) due to their perceptual features and the history of more institutionalised artworks. As I will explain, the perceptual features of these works would, instead, cue our senses to categorise them as interactive versions of their established parent categories (e.g., interactive literature instead of computer art, and so on). This will also emphasise a paradox between Walton's conception of standard features and one of computer art's signature features, interactivity. I use the word signature rather than necessary because, contra Lopes, I will suggest interactivity is merely standard to the category of computer art. Interactivity will be the primary focus of this dissertation.

1.1 Categories of Art

Categorising art is important because our aesthetic judgements are broadly influenced by the category we are judging a work within. In this respect, our judgements are dependent on the perceived category and, therefore, certain values we place on a specific artwork are also dependent on that perceived category. In other words, if we look at a work of art within one category, its properties can seemingly differ if we were to later perceive it within another category. By now, this Waltonian concept is broadly accepted, but the category of computer art is relatively new, and so this chapter will investigate certain features which we take to be standard to the category and question if those perceived features help us determine that computer art is the correct category. But first, what, according to Walton, is an art category and how do we know if it is the correct one?

Categories of art consist of groups of works that are perceptually discernible, meaning, the artwork must have, according to Walton, perceptual features that are distinguishable

---

[1] Walton, K. L. (1970).

enough to guide our classification of it. One such category that Walton regularly refers to in his essay is the category of 'painting'. Paintings are readily recognised because its constitutive artworks are typically stationary and flat with a pigmented surface. There are also sub-categories that can be perceptually distinguished from this broader one like paintings that are abstracted or paintings that are impressionistic. These distinguishable categories do not require background information or empiricism to be perceived as such because the features of the works act as sense-making cues, which naturally inform our judgements about them.

Of course, a viewer will need to be familiar with certain features in order to recognise them as pertaining to a certain category. I must be familiar, for example, with the features of Surrealism if I am to recognise a work as a surrealist painting. Interestingly, Brian Laetz suggests then, that categories such as forgeries or fakes would not qualify as 'Waltonian categories' because faked works are not *readily* distinguishable from their forged originals.[2] This would also indicate, as Walton claims, that 'Rembrandt paintings' is not a category of art but 'paintings in the style of Rembrandt' is. Notice that such a category could include Rembrandt forgeries.

The properties or features of the work that are perceptually distinguishable and guide our categorisation are either standard, variable, or contra-standard relative to the category you perceive a work within.

(1) Standard features are features relative to a category 'just in case it is among those in virtue of which works in that category belong to that category'.[3] Walton's own example, again, is the category of 'painting'. If an object is perceptually distinguished as a painting, its flatness and immobility would not be surprising features because they are standard within painting. For the viewer, these features are unremarkable.

(2) Variable features have nothing to do with features that qualify it for that category, whether the features are present or absent. So, with a painting it would matter little whether an Impressionist painter used blue or green pigment to render a patch of grass; in this case, the colour makes no difference to its being perceived within the category of "Impressionism". As I stated earlier, all features, including variable features, are relative to the category you perceive it as belonging to. Although colour is a variable feature within some categories of painting, in a category of 'painting-in-the-style-of-Picasso's-blue-period', the colour blue might appear standard, not variable, or in the case of Picasso's rose period, it would appear contra-standard.

(3) Contra-standard features are defined as "the absence of a Standard feature with respect to that category - that is, a feature whose presence tends to *disqualify* works as members of that category".[4] Again, within the category of painting, mobility or three-dimensionality might seem at odds because, as mentioned above, we expect works of paintings to be stationary and flat. Sometimes, if a contra-standard feature becomes standard over time, a new category will emerge and then the contra-standard feature will

---

[2] Laets (2010).

[3] Walton, p. 144
[4] Ibid.

be seen as standard to the new category. So, paintings with objects fixed to the surface became more readily distinguished as mixed media, assemblage, collage, or the like, rather than mere paintings. Within those former categories, any degree of three-dimensionality would seem standard and flatness would, perhaps, appear contra-standard.

The above does not suggest that just *any* category is correct for a given work. Consider, for example, Rauschenberg's *Bed* (1955), which can be perceived as having both depth *or* lacking depth because, as stated, its standard and contra standard properties are dependent on the work's perceived category. If *Bed* appears to have volumetric depth then you might have perceived it as a sculptural work, but with unusual flatness; if you perceived it as flat, then you might judge it as a painting, but with unusual depth. Either of these perceptions are likely to occur, which puts another claim of Walton's to the foreground, that a work might belong within many categories.

In light of the above, it is important to note that for Walton's defence of categories, that his account is not based in aesthetic relativism; the category that we perceive a work within will not necessarily be a correct category. We might give *Bed* a poor critique if we assess it as a sculpture and criticise its lack of three dimensionality; sculpture is not the correct category. *Bed* also lacks the standard features of paintings, which would also be an incorrect category. Assemblage is, however, the correct category. This is not to say that a category that is not correct is a wrong category altogether, it might just be the case that it is not correct *enough*. For example, an object can correctly be assessed as a flower, and it can also correctly be assessed as a daisy. Classifying an object as a daisy would be more correct than if we were to leave it at 'flower' because the former category helps to distinguish its distinctive features. In the case of categorising a flower, 'daisy' is more informative.

An initial categorization will most likely be automatic, but there are guidelines that ultimately point us towards the correct category. According to Walton, there are five general rules we can use to determine category correctness.

Walton suggests,

> The following circumstances count toward its being correct to perceive a work, W, in a given category, C:
>
> (i) The presence in W of a relatively large number of features standard with respect to C. The correct way of perceiving a work is likely to be that in which it has a minimum of contra-standard features for us. I take the relevance of this consideration to be obvious. It cannot be correct to perceive Rembrandt's Titus Reading as a kinetic sculpture, if this is possible, just because that work has too few of the features which make kinetic sculptures kinetic sculptures. But of course this does not get us very far, for "Guernica," for example, qualifies equally well on this count for being perceived as a painting and as a guernica.
>
> (ii) The fact, if it is one, that W is better, or more interesting or pleasing aesthetically, or more worth experiencing when perceived in C than it is

when perceived in alternative ways. The correct way of perceiving a work is likely to be the way in which it comes off the best.

(iii) The fact, if it is one that the artist who produced W intended or expected it to be perceived in C, or thought of it as C.

(iv) The fact, if it is one, that C is well established and recognized by the society in which W was produced. A category is well established in and recognized by a society if the members of the society are familiar with works in that category, consider a work's membership in it a fact worth mentioning, exhibit works of that category together, and so forth – that is, roughly if that category figures importantly in their way of classifying works of art.[5]

Walton offers these four conditions as guidelines for correct categorization, and he adds a fifth, that it might be important for a correct assessment of a work for us to consider the mechanical process used to create it.[6] It is important to understand that Walton's non-empiricism view places a strong emphasis on the natural instincts and the psychology of a viewer. This means she will not use these conditions in the immediate process of categorising a work because she will have already perceived an object as belonging to one category or another. These guidelines do, however, indicate the correct category that a work *should* be assessed within. The usual interpretation of this is that a work will have correct categories that it belongs to just as it will have categories it does not belong to (e.g., the painting *Guernica* belongs to a category of painting, not to a category of 'guernicas').

Laetz offers a slightly different interpretation of a 'correct' category. He says,

> A different way to see Walton's discussion supposes that a correct category is not merely one that a work belongs to. Rather, among all the various categories any work belongs to, it is a special, privileged category that actually helps determine a work's aesthetic character. On this interpretation, seeking a correct category to judge a work is not to seek a category that it belongs to; instead, it is to seek—among all the categories we already know it belongs to—one that is aesthetically active. Such a category might be complex or it might be nested within other categories—as the category of cubist paintings is nested within the category of paintings, to take a simple example.[7]

The above conception of categories is an attractive one because it requires the correct category to be the one in which the work appears at its best. However, I take issue with the fact that Laetz' interpretation seems to elevate Walton's (ii) condition over all the others. Walton gives no indication that one condition is privileged over any other in determining correct categories. According to the

---

[5] Walton, p. 151-152.
[6] Ibid., p. 152-153.
[7] Laetz, p. 295.

other conditions (including the mechanical process), it will not always be the case that a work will appear at its best in its correct category. In fact, condition (iii), as I will show, factors significantly in the following discussion of computer art.

1.2 The Perceptual Features of Computer Art

I am interested in the above with respect to a category defined by Dominic Lopes, which he calls computer art. I will discuss his definition in more depth shortly, but in brief, computer art is a category for artworks that are interactive, and they are interactive because of the computer. The proliferation of digital systems within the arts makes computer art an increasingly critical category to analyse and, since it is a more recent category of art compared to established ones like painting and literature it is worth pointing out the discernible features. Before analysing the distinctive features, and before applying Walton's theory to works of computer art, I will defend my reasons for analysing Lopes' category, opposed to other categories associated with digital technologies (many of which are used interchangeably in art texts today).

The digital medium (if we can describe it singularly) has been around for nearly one hundred years and so it is not so new any longer, yet it continues to receive considerable attention within the arts. Technology and digital systems have been introduced into many, if not all categories of art, making digital media relevant to discussions within film, photography, installation and, and more. As such, the digital term is broadly used and we see it applied to works in general ways.[8] For these reasons, Lopes clarifies that digital works are not necessarily a category of art, or, as he calls it, digital art is not an *appreciative art kind*. Instead, Lopes claims that digital art characterises broad grouping of works (e.g., we can classify specific photographs as digital versus those that are non-digital). Broad art kinds such as digital art can be useful especially when we want to group works based on their similar characteristics, e.g., there are art kinds such as paintings created before 1900, songs whose lyrics have the word 'seventeen' in them, or films directed by those under the age of 40. These can all be interesting and useful categories for various reasons, but these kinds are not *appreciative* art kinds.[9] According to Lopes,

> a kind is an appreciative art kind just in case we normally appreciate a work in the kind by comparison with arbitrarily any other works in that kind.[10]

Appreciative art kinds consist of categories like painting, music, and film.[11] While acrylic paintings can be distinguished from oils, acrylic paintings are not appreciative art kinds, whereas 'paintings' are. Lopes claims that the digital medium is similar to acrylic paint in the sense that, while acrylics are a type of paint, they did not create a new appreciative system to assess paintings when they were introduced; rather, paint created the

---

[8] I will elaborate in the next chapter that categories commonly used, such as 'New Media' and 'Digital Art', are ambiguous and overlapping terms.
[9] Lopes (2010). p. 17.
[10] Ibid.
[11] One potential problem with an account of appreciative art kinds is that it does not address sub-categories that are also appreciative kinds.

appreciative category.[12] Therefore, digital works are better suited within subcategories under their traditional parent categories, and so works like digital films belong to the broader appreciative art kind of 'film', digital photographs belong to the appreciative art kind of' 'photography', digital installations belong to 'installation', and so on.[13] If digital works belong within other categories, then I agree with Lopes that the *computer* creates an appreciative art kind and, therefore, computer art is worthy of the 'Waltonian treatment'.

Defining the computer is not necessary for Walton's process of categorisation if the category is already familiar to us, but a definition could benefit our understanding of what computer art's distinctive perceptual features are (in the same manner that Surrealist features must be known to a person if they have any chance of categorising it correctly). A computer is simply anything that runs a computational process. According to Lopes, this needs fleshing out or else, by this definition the human brain would qualify as a computer, which would falsely lead to placing some works like conceptual art, literary works, and musical compositions into the category of computer art.[14] A distinctive requirement of computer art is that a computational process must follow a set of prescribed rules to generate the perceivable features of the artwork (the output).[15] Lopes goes on to say that "a computational process is any pattern of actions that instantiates formal rules and controls a transition from input conditions to output conditions."[16] A device is needed to input information and the output will become the work's display, be it an image, text, sound, environmental change, etc. The input and output must relate in such a way that the input by the viewer (henceforth the 'user') causes the output; this relationship is known as a transfer function, although the mechanics of a transfer function can be analogue or digital.

Criticisms regarding Lopes' conception of the computer arise because of its inclusivity for things that are not intuitively computers. Although his aim is to exclude things like the recitation of the alphabet as constituting a computer-generated work, his definition of a computer seems to broadly, nonetheless, include the human brain. Brains do compute yet, while there is no agreement on whether brains function *like* computers or not, they are not themselves computers. Brock Rough is one such critic of Lopes' broad definition of computers, at least as it relates to computer art, which he claims stems from the use of the word 'anything' that runs a computational process is therefore a computer.[17] Rough has other objections in relation to the unbounded definition of computers by Lopes, but those pertain to his focus on video games and are less relevant to computer art in general. Perhaps some artificial requirement should still be included in a definition of computers, at least where computer art is involved, in order to exclude biological matter from qualifying as a computer, thus, exclude brains from qualifying as art generating organs. Rough defines a computer as a device intended for running the computational process of

---

[12] Ibid. p. 19.
[13] Ibid. p. 18-19.
[14] Ibid. p. 16-19.
[15] Ibid. p. 29-35.
[16] Ibid. p. 44.
[17] Rough (2016), p. 217.

instantiating the rules and which mediates the inputs and outputs in a fixed manner.[18] This paraphrasing of Rough's reformulated definition of a computer is more restrictive, in this artificial sense, than Lopes'. Given the debate at hand, my following analysis will suppose the computers are electronic devices.

With greater clarity on the kind of computer device in hand, let us return to Lopes' account of computer art. Lopes claims that computer art is an appreciative kind because "we normally appreciate a work in the kind by comparison with arbitrarily any other works in that kind".[19] For Walton, the perceived features of a work are the indicators that factor into our psychological process of classifying a work. Under Walton's definition, we see a work as belonging to a certain category, or comparison class, if we see certain features as standard to that category. Consequently, we should analyse what the features of computer art are in order to determine if it is bona fide *Waltonian* category.

Lopes defines a work of computer art just in case:

(1) it's art, (2) it's run on a computer, (3) it's interactive, and (4) it's interactive because it's run on a computer.

According to Lopes, these jointly sufficient conditions are what make this category distinctive, and the final condition is especially important for my research here.

Interactivity is primarily what distinguishes works of computer art from works with related media such as digital images.[20] However, one could argue that there are no significant reasons that computer art should *necessarily* be interactive. To a larger degree, it may be argued that necessary conditions are too restrictive and we should instead endorse that standard conditions as Walton proposes. I am sympathetic to this criticism of necessary features, especially when we consider examples like digital installations that consist of moving images and sounds, but, while it may seem like a work of computer art, the changes are not related to user input.

The trouble with necessary and sufficient conditions is that they will often fail, in principle or over time, especially as artists find new ways to transgress against the norms of established art categories. That so, it may be odd to think of computer art without interactivity as a necessary feature because, after all, there is a wide range of established non-interactive digital works that we would be hard pressed to view as computer art (i.e., digital images or photographs). Indeed, computer art seems odd without interactivity as a condition, but recall Walton's account of contra-standard features. If interactivity is standard to computer art then our response to a non-interactive computer work would be to question this difference in comparison to other computer artworks because it is not consistent with our computer art-viewing practices (or, in this case, art-interactive practices). Perhaps this is where one could question the appropriateness of the appreciative art kind account that Lopes proposes because it offers no reason to think that sub-categories might exist where each sub-category is also an appreciative kind. In this case, I could offer that computer art consists of interactive and non-interactive sub-

---

[18] Ibid., p. 218.
[19] Lopes (2010), p. 17. Also see Lopes (2014).
[20] It will be discussed later on why I find this interesting, but I do not intend for this to mean the experience is superior to the experience of other works.

categories.[21] All this to say, Lopes is right to emphasise interactivity as a distinctive feature of computer art, but it need not be a necessary one because Walton's theory of art categories and standard conditions suffice. Nonetheless, in what follows, I will focus on interactivity as a significant feature of most computer artworks.

Let's consider two prototypical works of computer art to analyse.

Dear Esther, developed by The Chinese Room, sometimes labelled as a game and sometimes as a work of literature, allows users to navigate through environments and create different narratives on the computer. According to its description on the website,

> Dear Esther is a ghost story, told using first-person gaming technologies. Rather than traditional game-play the focus here is on exploration, uncovering the mystery of the island, of who you are and why you are here. Fragments of the story are randomly uncovered when exploring the various locations of the island, making each journey a unique experience.[22]

The next example is, *Looking at a Horse*, created in 2013 by Evan Boehm:

> You walk into a dark room and projected on the wall in front of you is a frenzied mass of dots. A friend walks in and the dots are connected by a wireframe body-the thing you're watching, you realize, is a galloping horse. As more viewers trickle in, the horse continues to evolve, adding polygonal musculature and a shimmering skin. Eventually, when enough people are watching, the beast transcends its earthly form and transforms into some other ghostly, ethereal thing entirely. Then, as people filter out of the room, it goes through the same process in reverse, dissolving back to the elemental cloud of points.[23]

Computer art, as defined by Lopes, includes works with vastly different displays, genres, and ways in which the works are consumed. With that said, the two described above make an obviously limited list. I choose these two examples because, broadly speaking, computer art consists of works that are either run directly on a recognisable computer system and from your own home (usually videogames or those like *Dear Esther*), or the kinds of works found in gallery spaces, which do not usually include salient systems that the user will interact with (such as *Looking at a Horse*). Although I am sure there are exceptions that could be applied in the following analysis, my discussion of the following features will be as inclusive to all works of computer art as possible and exclusive of other categorical works.

A typical feature that seems standard to many categories are their display components. For the moment, my use of the terms 'work' and 'display' is general, but a more precise meaning will follow in the chapters to come. For paintings, it is usually standard that the display consists of some kind of flat surface (usually a canvas) and some kind of pigment

---

[21] Thanks to Aaron Meskin for pushing me on this point.
[22] http://dear-esther.com/?page_id=2.

[23] http://www.creativeapplications.net/openframeworks/looking-at-a-horse-by-evan-boehm/.

(usually paint). This is more complicated with computer art because there are many components that we might consider to be the medium in the same manner as we do with paintings, but ones that we might not always perceive as the display. The display of a work requires hardware, which sometimes includes a monitor, mouse, and keyboard.[24] These recognisable devices are standard to computers, but not necessarily standard to computer art. Although we may not perceive the computational system (as with *Looking at a Horse*) I take it for granted that a computational device is understood by the user to be present.

Also, there are the code and digital media to consider, which cannot be perceived in the same way that paint, marble, or wood are perceived. In the case of digital systems, the algorithm and code are one thing and their instantiations, or the perceived features of the work, are another. Even the ones and zeros that are responsible for instantiating the work's representations are themselves representations of other values, or voltage levels, that have been assigned binary symbols. Although the disguised medium is unique with all digital kinds, it does not necessarily preclude our recognition of a work as digital in kind because the effects of the digital medium are perceivable nonetheless. If the kinds of effects are readily understood as digital, then there should be no problem for a user to comprehend that a computer and digital media are involved, even if they are not salient to the user. I will point out that my treatment of the algorithm and code here is somewhat general, however, they have significant bearing on the ontology of these works and so a more detailed account of the two features will be addressed in later chapters. It suffices to say for now, the computational device and digital medium would be viewed as standard features of computer art.

Another standard feature of computer art is interactivity. According to Lopes' definition of computer art, it is a necessary condition of this category that the works be interactive.[25] Although agnostic about interactivity being a standard or necessary condition of computer art, Margaret Boden also stresses the aesthetic value that interactivity has for certain interactive works. She states:

> In computer-based interactive art, the aesthetic interest is not only, or not even primarily, in the intrinsic quality of the results (images and sounds). Rather, it is in the nature of the interaction between computer and human beings.[26]

Recall that the interactivity in each comes from the transfer function of the digital system. A function is needed for the user to input information and another function is needed for an output, or number of outputs. *Dear Esther* is interactive because it requires a user to interact with a digital system to instantiate the work and its possible narratological outcomes. *Looking at a Horse* is interactive because the viewer is also needed to

---

[24] For now, I will discuss these hardware components as features of the display because they can trigger our perception and how we identify works. However, this is not to suggest I that consider these as the media of the work. Details of this will be addressed in later chapters.

[25] Lopes considers the interactivity in Computer art might be a kind of medium. See, Atencia-Linares, P. (2011).

[26] Boden, M. A. (2009). p. 23.

instantiate different successive states of the horse. The responsiveness of the work is directly related to the user's interactions with the digital system. Although a typical monitor and mouse are not used for the interaction in the latter work, a sensor or counter receives the input from the person who enters the gallery space and a transfer function generates different stages of the horse, or its outputs. A user would perceive that her own movements are responsible for instantiating certain features of the work that were non-perceptual before she made any movements. Given Lopes' definition of computer art, interactivity is an expected feature. This kind of responsive output would be distinctively discernible to the viewer as belonging to the workings of a computer.

If interactivity is a standard feature in each of these works then *how* they are interactive might be variable.[27] Again, variable outcomes do not pose challenges to our categorisation of a work because they do not prevent a work from being perceived within a category. A variable feature of interest to interactivity is the type of system that creates the results from the interaction. Digital systems have the potential for interactivity via either deterministic or stochastic systems. Arguably, these terms are superfluous to Walton's conditions, however, since a general understanding of the computer is still new to the arts, a brief background may lead to a more accurate recognition of interactivity as a perceivable feature. Deterministic systems have set and predictable outcomes while stochastic systems have known possible inputs, but where the outputs are random. For example, a car has gas and brake pedals. There are two possible inputs-- to accelerate or to brake. Assuming the car works properly, if you press the accelerator, the vehicle will always speed up. If you press the brake, the vehicle will always slow to a stop. That is an example of how a deterministic system works; it has a known outcome, which is dependent on the specific input.

An example of stochastic-like interactivity can be described with the popular arcade game, *Whack-A-Mole*. The user stands in front of a cabinet, the top of which is covered in holes. The user stands there ready with a mallet and with the goal of using it to hit the mole each time it pops up. Once the user whacks the mole on the head (the input), the mole will pop-up again (its output), but in a random fashion. There is no determining where it will pop out, which makes the game more challenging and fun. I should point out that, works of computer art will usually be deterministic because they have to be programmed in a deterministic or certain way, but the works have the potential to *appear* deterministic or stochastic.[28] As just described, deterministic or stochastic system are not an interactive feature exclusive to computer art. Although interactivity is standard to computer art, how it is interactive is a variable feature. In some cases, it is possible for a user to perceive whether the interactivity is perceptually deterministic or stochastic, but the more important claim here is that general interactivity would certainly be perceivable. This also relates to works such as video games, which Lopes considers to be possible subsets of computer art, where some aspects of a game might be more structured

---

[27] How a work is interactive might also be a contra-standard feature.
[28] I suppose we could imagine a work where the artist programs a work to be random, but I am not sure exactly what that would look like within the algorithm (since the potential outcomes need to be accounted for).

and determined, and other aspects might offer more aleatoric results. Either way, the user would recognise these as characteristic features of interactivity.

The two variable features mentioned above describe how interactivity might be perceived, but there are also different kinds of interactivity that computer art might entail. In this respect, the goals of computer art are variable features, which will become known to the user as they interact with it. For example, a work like *Dear Esther* requires a user to make certain decisions along the way, whereas *Looking at a Horse* is different to the extent that it entails very few options. Both require exploration, but in different ways and to different degrees. Consequently, the kind of interactivity that is driven by the goals will provoke a user to perceive the work within more correct categories such as interactive installation art, video game, playable computer art, or, as I will elaborate on later, a category of 'mere games' (e.g., chess). So, while the kind of interactivity is variable to computer art, it can also be standard or contra-standard to certain sub-categories. More on this in Chapter 6.

Other variable features might include a range of sounds, sights, and other instanced displays of the work, not to mention the kinds or number of particular concrete objects that might be included with the displays. Although these features would all be important to the experience of a given work, it would not necessarily prevent a user from perceiving it within a category of 'Computer Art', if computer art is a known category to the user. That so, this would not always be the case. One could imagine that if a work had a greater number of concrete, non-digital objects included, the digital features might be minimised to the point it seems at odds with other associated computer artworks. This scenario does not describe a case where the features prevent the viewer from seeing the work as computer art, but these features will most likely stand out as odd for the category. These are what Walton calls contra-standard features.

Contra-standard features give the viewer reason to pause and, perhaps, second-guess their recognition of a work's category because, unlike standard features, contra-standard ones are noteworthy. Computer art is a relatively newer category, but it borrows (and combines) concepts and features from many established categories of art such as film, painting, installation, and literature. If interactivity distinguishes computer art from the more traditional categories, then a minimal degree of interactivity is likely to seem odd compared to works like *Dear Esther* or *Looking at a Horse*. Minimal interactivity does not disqualify a work from being computer art, but it is contra-standard to the category. One such video game that upends our understanding of interactivity that we normally experience with a video game is *Mountain*. Much confusion has arisen from its being categorised as a video game because it lacks the standard interactive game-like qualities. An apt description of it reads as follows,

> Here's what you do in Mountain: look at a mountain, then look at it some more. It's a little more complicated than that, but not by much. You can rotate around the mountain, zoom in and out, and interact with a simple piano at the bottom of the screen. Every once and a while, an object, such as a banana, will come flying towards the mountain. More objects show

up, the world cycles through day and night, and the seasons change every once in a while. That's really it.[29]

The instructions also upend our notions of interactivity because they state very clearly that the user does not need any controls to play the game. This presents a challenge for a conception of games, but not necessarily for Lopes' definition of computer art because, although the interactivity is minimal, the work still prescribes for users to generate its display. The minimal interactivity is odd for a candidate of interactive games, but Lopes suggests a similar example with *Project X,* a hyperlinked narrative based video game where you can track Vasco da Gama's travels from Africa to Asia. More and more 'art video games',[30] those like *Mountain* and *Project X,* will continue to challenge our concept of art, games, and interactivity, and although they may become more common, for now, their minimal interactivity serves as contra-standard feature within the category of computer art.

1.3 Implications

So, is computer art a category of art in a Waltonian sense? Walton suggests any category must be perceptually distinguishable. In more recent years, broader interpretations of Walton's text suggest we need not place such a strong emphasis on the perceptual properties, but any reading of Walton would suggest that those features be readily discernible (such as the example with the computing device).[31] Certainly, a computer (with a monitor, mouse, keyboard) is perceptually distinguishable. It is also clear in works like *Looking at a Horse* that something digitally computational is at work. However, between the two prototypical examples presented earlier, only *Dear Esther* utilises a perceptually distinguishable device. *Looking at a Horse*, while it would be obvious to the user that a digital response occurs directly from their input, does not have any perceivable devices, save for the video screen. In this case, a viewer would perceive the effects of the medium and most likely presume something digital is involved, but without the standard hardware, a user might be more likely to view the work within an established category, such as (digital) installation, interactive video, etc. As Lopes stipulates, the digital medium alone is not an appreciative category so one could simply view this work as an installation.

Alternatively, if a viewer does recognise a work like *Looking at a Horse* as computer art, in virtue of its features, it is troubling (if not a paradox to the category) that under Walton's conception we should deem the interactivity as standard to the work. While interactivity is an expected feature of computer art, Walton states that these kinds of features that are particular to a category will be un-noteworthy. This creates a kind of paradox for us regarding works like *Looking at a Horse* because artists like Boehm and others use technology to make their works stand out and to awe and impress the users. The last thing anyone strives for with technology is to be un-noteworthy or commonplace (and I think it is uncontroversial to say that most artists would never intend such a

---

[29] Klepeck, Patrick. The Madness of David O'Reilly's *Mountain* in Giant Bomb News. July 15, 2014. http://www.giantbomb.com/articles/the-madness-of-david-oreillys-mountain/1100-4956/. Accessed August 2016.
[30] This will be explored further in later chapters.
[31] E.g., see Stacy Friend's work on fiction.

feature to be un-noteworthy). Again, maybe it is safe to say that interactivity is a standard feature of these works, but recall that I suggested that *how* they are interactive (or to the degree they are interactive) might be a non-standard feature. This view would at least seem to be consistent with Walton's account as well as with the presumed intentions of the artist. What about video games and those similar to *Dear Esther*?

Dear Esther is run on a computer, and so it is more plausible that it, and works like it, will cue their users to viewing the work as computer art. There is also a strong chance that its user might perceive the work within more established categories such as 'literature' or 'game'. According to Walton, there is not just one category a work could belong within, so a viewer would not be wrong to view *Dear Esther* within either of these categories. That in mind, we are told that the five guidelines presented above might help us to determine the correct category.[32] Let's consider the guidelines that Walton framed for this.

As a recap, correct categories will usually decrease the number of contra-standards, will be the one in which the work is most pleasing, is the category the artist intended for the work to be assessed within, and finally, the category should take the mechanical means of production into account. For a game, *Dear Esther* lacks standard gaming features and is less obstacle and goal oriented than paradigmatic video games like *Skyrim* or *Mass Effect*.[33] For a work of literature or film, its free-form and interactivity seems contra-standard. In this respect, condition (i) is met if we assess *Dear Esther* as either interactive literature, or perhaps computer art, but (iii), (iv), and (v) would not necessarily work for computer art. Condition (ii), I would think, suggests a category of computer art. *Mountain* has fewer contra-standard features within a category of 'art game' (opposed to video game). While it could also have fewer contra-standards if viewed as computer art, the developers of the work intended it as a kind of experimental video game and so (iii), (iv), and (v) would suggest its correct category is 'art game'. *Looking at a Horse*, if we consider (i-v) is best suited under interactive installation. Let's unpack this.

Walton states that certain art categories are more established than others, which may have consequences on correct categorization. Computer 'art' has been around for about a century, but it is relatively new as an appreciative art category. 'Literature' has been firmly established as a category and 'Interactive Literature', although mostly associated with children's game books and detective stories, is also familiar. 'Interactive *Electronic* Literature' is probably less established, but recognised nonetheless. With both, literature is the appreciative art kind, which does not seem entirely correct for this work. '[Video] games', have been established in society as a popular entertainment category for the last two to three decades, but less so as an art kind. In both cases, the broader parent-categories are more firmly established than computer art and, while they are all potential categories, they do not fully get at the unique features of *Dear Esther* in the Lopesian sense. Interactive literature need not consist of works that are run on a computer (such as the game books), but it is a distinctive feature of *Dear Esther* that it is. That so, (iv) and (v) are at odds in helping us determine the correct category because interactive literature (or literature) are more established categories within society than computer art, but the

---

[32] Laetz, B. (2010).
[33] I am assuming here that a work can be both a game and a work of art.

mechanical process of production directs us to a correct category of computer art. With the above examples, it would be clear that technology, electronics, and digital media are involved in the method of production, as well as in the display so, condition (v) does not eliminate computer art as a correct category.

The artist's intent might also give us pause with *Dear Esther* because, although it was originally advertised as a game, it was created by Dan Pinchbeck, researcher from the University of Portsmouth (UK) in 2007 as 'part of a project funded by the Arts & Humanities Research Council to explore experimental game play and storytelling'.[34] In this quote, we can see that the intention was for game and literature categories. When it was first released, there was significant backlash from players for its minimal game-like qualities, but equally frustrating for those interested in interactive literature because the game-like features were contra-standard within the narrative. Now, *Dear Esther* seems to have found its niche under the genre of 'art game', which also seems to activate the important perceivable features and minimise the contra-standard features.[35]

Looking at Horse is more typical of museum-related works but it may not be any less problematic for ascribing computer art as its correct category. For one, the video screen is part of its display and it might prompt the viewer to perceive the work within film or video installation, as I previously mentioned. However, its responsiveness to the user's presence and movement is contra-standard to those categories and the work does not seem the most pleasing in non-interactive categories. However, the viewer is likely to intuit its category as either 'interactive installation' or 'interactive video'. Boehm and various art websites characterise the work as an installation, thus relating to condition (iv) (here, given the other conditions, I would wager 'interactive installation' would be a correct category).[36]

But would a user (or player) typically perceive any of these works as computer art? This depends entirely on the type of user because some may regularly play art games and would, therefore, have a greater sense of how to categorise such works; others who consider themselves regular museum goers might view certain works as installation and others would perhaps view it as non-art; still, others more familiar with the philosophy of art literature might readily view any or all the above works as computer art. We would also need to consider the curator's role in conditioning a user's categorisation, especially with works like *Looking at a Horse*. For example, if an exhibition banner was placed outside of the gallery or museum with the title: 'Computer Art Exhibition', or 'Interactive Digital Art', or any other title, viewers would most likely take for granted that the works within the exhibition fit under those categories. Without a gallery's explicit reference to computer art, I am inclined to think that, while agreeing computer art is an appreciative art kind, most of these works would be more readily perceived within other categories. This alone does not mean computer art is not a correct category; Walton says that established categories make a difference in determining correct categories and to be fair,

---

[34] Italics are my own.

[35] This category is potentially controversial since it is debated whether art and games are compatible objects of appreciation.

[36] For example: http://www.creativeapplications.net/openframeworks/looking-at-a-horse-by-evan-boehm/ . Accessed August 2015.

computer art is relatively new. In fact, all the categories that I have suggested above, e.g., interactive installation, interactive fiction, etc., are just sub-categories of the broader category of computer art. Regardless, what this points to, is the significance of the interactive feature.

Walton claims that if contra-standard features become standard within a category, a new category is usually created where that contra-standard feature becomes standard of the work. This is the case with interactive works because most would view the interactivity as a distinct feature compared to works of, say, traditional film or literature. My key point is that computer art, as the new category, has a stronger potential to be perceived (and operate) as 'interactive' forms of Waltonian categories such as interactive film, interactive installation, interactive literature, or perhaps even interactive painting in some cases. It could be that computer art, as a new category, will become more established in society and, at that point, it would be the distinguishable category. It might also be the case that the above points to computer art as too broad a category that needs further parsing between works that are more like literature, video games, or gallery works.

All this to say, regardless of the category that we assess the above works within, we should deem interactivity to be a significant, if not necessary, feature of certain artworks. This is not solely true for computer art, however. As stated earlier, works such as interactive literature exist in hardcopy and electronic forms. The same is true for works belonging to theatre, installation, and video games. If many artworks are interactive in some way, whether the interactivity is standard, variable, or contra-standard to a correct category, then a more specific meaning of the term would be helpful. The following chapter will emphasise the overuse of the interactive term and will also assess the kind of interactivity that is of interest within the chapters to follow.

Chapter 2: Classifying Interactivity

2.1 A Brief Characterisation of the Term 'Interactive'

In the first chapter, I discuss the importance of interactivity as it relates to computer art. But, what do we mean precisely when we say an artwork is interactive? I believe there are good reasons for asking this question because, although it is a phrase commonly used to characterise works of art, in and outside of academia, we apply the term in both numerous and general ways. For example, a basic search on the internet returns this definition of 'interactive', '*(of* two people or things) influencing or having an effect on each other'.[1] And a definition for 'interactive art' (which is seemingly less informative) reads, 'a form of art that involves the spectator in a way that allows the art to achieve its purpose'.[2] Although we intuitively understand these meanings they leave something lacking to the analytic mind; to be sure, all art involves the spectator in some way. As is, this definition is applicable to all kinds of art works, or certainly to more kinds than the digitally interactive ones.

Interactive art is a phrase we have equipped with many meanings. We might apply it to characterise a genre of works such as interactive literature, film, or installation, but how our intended meaning of interactivity relates to each category may be relative to a work's context, type, etc. Consider the game of chess. We might consider chess to be interactive, but one might question the degree or kind of interactivity of chess, especially if it is in comparison to, say, ice hockey. This latter example has more discernible signs of physical interactivity, which might give reason for someone to classify it as more highly interactive than chess. Perhaps, it is that chess needs a comparative class to judge how interactive it is, while hockey does not necessarily need a comparative class. This shows us that certain terms can be absolute at times, and context sensitive when used in a gradable application at other times.[3]

Although far from complete, the task I undertake in this chapter is to survey and analyse the various and current accounts of interactive art. In other words, I view this chapter as a compass piece on the different kinds of interactive art that are discussed in different places. At the very least, more specific characterisations of the various interactive groups will be useful for clarity in moving forward with the kinds of works I wish to focus on in the bulk of this dissertation. More specific to my project here is my aim to differentiate the interactive arts so that I might focus more in depth on a specific kind of interactivity. To that end, this chapter takes up the topic of interactive art and attempts to lay down some groundwork.

---

[1] https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=define%20interactive
[2] Soler-Adillon, Joan (2015-12-21). "The intangible material of interactive art: agency, behavior and emergence". Artnodes. doi:10.7238/a.v0i16.2744
[3] McNally (2007).

2.2 Categorising Interactive Art

The above briefly describes the various reasons we might apply the term interactivity to a work, but, what kinds of works does the term usually refer to? As an art historical genre, interactive art usually refers to works starting roughly between the latter 1950s through the 80s, with Happenings, installation, performance art and other such works that questioned the completeness or materiality of works. This experimentation continued to interest artists from the 1970s through the 90s with the introduction (and curiosity) of technology, all before the World Wide Web was introduced. However, all arts generally require a degree of interactivity if we aim to appreciate them because we can engage with a sculpture, for example, by walking around it to see as many features as possible. As any art historian will tell us, all works are best appreciated if we view the work from different vantage points and when we vary our location in relation to the work. A viewer participates with a work of art to contemplate, appreciate, and evaluate it, which exemplifies interactivity in one (widespread) form. Like participating with *Happenings*, the term interactivity can also imply a physical engagement between viewer and object, whereby a viewer manipulates a work to varying degrees in order to change certain features of it. In short, a work can be interactive in how it is appreciated, how it is produced, or how it is engaged with.

Others have pointed out the dearth of research regarding this term, and so I am not alone in claiming there is a need for greater attention. To name two, digital curator Christiane Paul claims that the term 'has become almost meaningless'[4], while Dominic Lopes similarly states that, '[t]he trouble with 'interactivity' isn't that it's meaningless. The real trouble is that it means too much'.[5] It will become evident in this chapter that Lopes, among others, has done significant work in delineating between interactivity in the 'weak' and 'strong' senses. But what about other, lesser forms of interactivity?

I should make it clear that I am not interested in a typology of interactivity that is based on the kinematics of the viewer or the object, i.e., the degree, appearance, or perceptibility of any physical *movement* by the viewer or of the object, which I feel would only continue to muddle the meaning of this term. After all, some highly interactive video games only require finger movement on the keyboard or controller, but architecture requires us to move our whole bodies from room to room. Would we classify architecture as more interactive than a video game? Most likely not.

The kinds of interactivity I wish to address here are works that require the viewer to become an active participant with the work, where the interactivity is between the viewer and the work (not between artist and viewer nor object and environment). This will not always make the viewer a 'user', however. Here, I will consider the prescriptions of interactivity and the kinds of display the works consists of. I say this to minimise any assumption that what follows takes any evaluative stock of interactive works. In what remains of this chapter, I will explore different degrees and kinds of interactivity that are generally found between the viewer or user and the work, for which we can distinguish three groups: basic interactivity, participatory, and interactive (or strongly interactive)

---

[4] Paul (2003).
[5] Lopes (2010), p. 36.

arts. What is missing from this chapter is a discussion on video games, which I will discuss more thoroughly in Section 2.

In this chapter, I will first discuss a basic kind of interactivity that is usually associated with appreciation. This section is brief and somewhat general but it will serve to distinguish the other kinds of interactivity that I am interested in. The second section discusses David Novitz' conception of participatory art. These works prescribe something additional of the viewer, often prescribing the viewer to be 'in' the work, but the actions do nothing to alter the works themselves, nor do they switch the status of the viewer to a 'user'. The third section discusses works that are interactive in the stronger sense because the viewer, *now* the user, *can* change features of the work to some degree. Here, I employ a definition of interactivity by Dominic Lopes and, although this definition was intended for computer art, it is inclusive of many art kinds regardless of media. This will show us, in preparation for the chapters in Section 2, that interactivity is distinctive because of a work's display, not because of its media.

2.3 Engagement

Is a painting interactive? There are some, at least within academia, who would answer this question in the positive and my guess is that there are many who would agree that all works involve a degree of interactivity. In fact, art appreciation is itself a broad form of interactivity and, although trivial, it is important. Works with purposiveness, either political, social, or conceptual, might create a greater opportunity for cognitive interaction, but contemplative features of a work are not essential for this basic level of interactivity; even less purposive art carries a potential to motivate cognitive interactivity when we attend to the aesthetic and non-aesthetic features. [6]

Many accounts of aesthetic appreciation will conceptualise appreciation as a kind of interaction. I imagine these philosophers, those such as George Dickie, would consider the process of appreciation as a kind of interactivity because it requires active attention.[7] At first blush, this contrasts with Kant's paradigmatic claim that our aesthetic attention must be disinterested.[8] Others such as Martin Seel focus on the paradox of *elective passivity* that allows for strong cognitive participation with works because a viewer can explore many spaces and dimensions of a scene's environment, or perhaps the emotional characteristics of a musical score, and all while in a physically passive state. For example, Seel characterises the spaceship from Ridley Scott's, *Alien* (1979) as portraying an incredible interior and exterior depth, which a viewer can explore like a cathedral.[9] This exploration is accomplished, unlike with architecture, in a stationary position. The same can be applied to sport spectatorship. A viewer who observes a game from the side-lines will do so in a passive state, but, in principle, this does not preclude a strong level of mental engagement.

We can also characterise imagination as a kind (or degree) of interactivity. There are many examples of works from films and novels that contain intentional narrative or

---

[6] Or 'useless art' as Peter Lamarque states (2010).
[7] Dickie, George, (1964) – as found in Zangwell (1992).
[8] Kant (1928) p. 42-43.
[9] Anderson (2009) and Seel (2005).

visual gaps; these allow the viewer to fill details in by way of actively imagining them. Paintings and sculptures allow us to do the same. For example, the ancient Greek sculpture, *The Discobolus of Myron* (c. 460 BCE), is a figure of a nude male in a holding position – arched over and ready to release a discus. Although his posture is static, a viewer can easily imagine the successive movements that would follow from the (imaginative) potential energy and motions that comprise an actual discus throw. It is not just that viewers *tend* to do this, the work inspires such imaginings.

This kind of imagined-seeing means that a rendering of every feature or instance is not necessary for appreciation of a work. There are also instances of works that allow viewers to 'see' fictional or mythological characters. Once again, Seel offers an example of a movie-goer who claims to have 'seen' a vampire on a movie screen, which of course is impossible if vampires do not exist.[10] On this point, that same vampire may never appear on screen, but a viewer might feel like they have 'seen' a vampire when there are other perceived sights or sounds merely associated with it. While this scenario can be extended to role-playing games, video games, or choose your own adventure books, non-interactive categories such as film and music do not require physical activity, but an activity all the same.

In addition to the above, which describes features that are intrinsic to a work, there are theories of art appreciation that require an understanding of external features such as the intent of the artist, the context of the work, or the history of the medium.[11] This goes beyond merely appreciating the work for its perceptual features and, arguably, requires an additional (or at least different) level of engagement with the work. Perhaps knowledge that a particular painting was originally used as a political piece, or that certain works were stolen during World War II, impact how we engage with works and appreciate them.

Surely more examples of how we engage our minds to appreciate art could be added here, but for the sake of my following thesis, I will take it for granted that the point I make here is a relatively accepted one, which is that all art requires an attentiveness to the works. Basic interactivity is not interactive in any interesting sense and should, therefore, not be a candidate for works that we normal consider interactive. As such, basic interactivity is better discussed in terms of *engagement*, rather than interactivity. As viewer engagement is a well-covered topic within aesthetics and philosophy of mind, I will move on to a discussion of more robust accounts of interactivity.

2.4 Participatory Works

Although the above characterises an implicit kind of interactivity that is important to all art kinds, there are artworks that require something additional of the viewer if the works are to be understood properly (or adequately). Take, for example, Edward Kienholz's, *The Beanery* (1965), a life-sized walk-in installation modelled after Barney's Beanery, a once popular bar in downtown Los Angles. Once viewers step inside, they will notice sensory details that are individually important to the work; the sights, sounds, and smells of the

---

[10] Ibid., p. 121-126.
[11] E.g., Levinson, J. (2011).

bar collectively provide a better reading of the work. Without a degree of physical participation, the relevant features of *The Beanery* could not be appreciated, i.e., if a viewer, instead of stepping inside the work were to only look inside, they would miss out on relevant features of the work.

David Novitz defines these kinds of works as participatory art, or:

> [A]rt forms that cannot adequately be appreciated, and cannot function properly, unless the viewer is physically present in the artwork itself or a performance of it, and, while there, participates in certain activities that arise out of and are required by these works.[12]

The term participatory is useful because it implies a different level of involvement than the basic mental engagement described above. Since Novitz uses the term participatory in a specific way, his definition and the conditions involved should be reviewed.[13]

Importantly for Novitz, works that fulfil his above conditions of participatory art will usually be compound works, which means they are comprised of more than one work; non-participatory works will usually be discrete.[14] For this reason, works of installation art or architecture are normally appreciated as participatory artworks because they are comprised of multiple works or events, and because they require 'both an 'external' and an 'internal' (or participatory) response to the work'.[15]

Paintings and sculpture (to name just two) would not usually qualify as participatory artworks because the viewer cannot enter into the works themselves since the works are discrete, or singular.

That so, Novitz admits there are rare discrete works, such as Charles Ray's sculpture, *Still Life*, which can only be appreciated through participation. *Still Life* is described as a table with mundane objects situated on the table top (e.g. a jar, bowl filled with flowers, a drinking glass, etc.). This sculpture is participatory because these objects on top of the table are all the viewer will notice if she does not 'participate' with the work. However, if she crouches down and looks underneath the table, she will notice an unplugged electrical cord that dangles from below the table top. The underneath side of the table, if one is looking upward, reveals an 'electronic infrastructure' of flickering green lights. These operate as on/off switches for the objects above the table. After the viewer notices these features, she will then, in principle, stand back up to have another look at the topside of the table to more adequately appreciate the work.

For Novitz, *Still Life*, although it is not a compound work comprised of multiple works, is a participatory work. This example is like the Kienholz tableau, but, contrary to his definition presented above, a viewer cannot be 'in' *Still Life* in the manner that they can

---

[12] Novitz, p. 153.

[13] In earlier drafts and at various conferences, I used the phrases 'weakly interactive' to characterize these kinds of works and 'strongly interactive' for works in the next category. My main reason for those titles had to do with Lopes' characterization of computer art as strongly interactive. However, I became aware that my use of the weakly interactive category connoted an evaluative meaning I do not intend.

[14] Novitz, p. 153.

[15] Ibid., p. 54. Here, Novitz refers to a hospital and, if it were to be appreciated from only the outside, then we might appreciate it as a building, but not as a functioning hospital.

enter a work like *The Beanery.* Additionally, Kienholz' work is not comprised of multiple works (but only of multiple objects). Although Novitz concedes there are problem cases for the category of participatory art, there is another and rather paradigmatic example of a discreet participatory work that not only serves as a counterexample, but draws attention to the strong possibility that there might be too many works like it for them to all be considered contra-standard. Consider Holbein's painting, *The Ambassadors* with the painted anamorphic skull at the bottom of the canvas. The skull first appears more like an odd disc or an unfortunate mistake made by the artist and its identity is not apparent to the viewer unless she stands within a certain location relative to the painting. If she does so, it becomes suddenly apparent that the odd smear of paint depicts a seemingly protruding skull. Although the meaning of the painting is debated, it is suggested that the skull helps us to re-interpret the painting as a *memento mori*, without which the work can be read quite differently (e.g., double portrait, historical documentation, etc.).[16]

In this respect, *The Ambassadors* requires internal and external responses similar to appreciating a cathedral or hospital, although one cannot be *in* that painting.[17] This suggests to me two things. Firstly, that our appreciation of all works benefits from perceiving as much (if not all) the features of the work as possible. However, that in and of itself does not make a work a participatory because this characterises the basic level of engagement described earlier. Secondly, that a viewer must be *in* the work, according to Novitz's first condition, seems too exclusive when we start to consider all the potential counter-examples, like *Still Life* or *The Ambassadors*.[18] Novitz's definition offers a useful characterisation of some art forms, for works like architecture or some installation[19], although it also unnecessarily excludes too many other works that prescribe similar responses from viewers. Perhaps all that is needed to salvage his definition without excluding works like *Still Life* and *The Ambassadors* is to remove the condition that viewers must be 'in' the work and instead note that what makes participatory works special is a particular prescription that goes beyond the norms of art-viewing. In some cases, the prescription might be as simple as 'stand at point x in relation to the work'.

The examples presented above show us that we can use the term participatory in gradable ways. A viewer could experience *The Ambassadors* as less participatory than *The Beanery* given the varying prescriptions, but even with the degree of difference between these works, we have a sharper understanding of their distinctiveness compared to non-participatory works than when we began. It is (at least intuitively) clear that

---

[16] Hervey, Mary (1900); Rowlands, John (1985); Zwingenberger, Jeanette (1999).

[17] Though perhaps to a lesser degree, some sculptures in the round, like Michelangelo's *David* (e.g., the informative stone that is clenched in his right hand at his side, or the sling thrown behind his back), or paintings, like those by Hieronymus Bosch (e.g., the small characters and details in *The Garden of Earthly Delights*), require specific locations for a viewer to stand in order to adequately appreciate the work. However, this might be (unnecessarily) splitting hairs.

[18] There is a third issue to scrutinize with Novitz's definition, but one I will only bracket here. Whether or not a viewer "participates in certain activities that arise out of and are required by these works", matters little to the ontology of the work. A viewer might not participate with the activities that arise from a work, especially considering the standard museum rules of 'no touching', but even so, the work is still a participatory art kind.

[19] I qualify this with 'some' installation because works like Martin Creeds *Blu Tack* is considered installation art, but we cannot be in the work.

prescriptions for participatory works seemingly have further constraints for adequate appreciation than non-participatory works. However, this difference is difficult to capture given that much of what we say about the requirements of participatory art can also be said of all art where a basic level of engagement is involved.

If there is anything explicitly in common about basic interactivity and participatory works it is that the viewer's *actions* help them to understand the meaning of the work. So, participation as Novitz characterises it, increases our potential to appreciate certain works, but it does nothing to alter any particular feature of the work. That the work itself remains the same while the perceived features of the work become apparent makes participatory works similar to all non-interactive art; our experiences with these works will normally change, but the properties of the them are unchanged. With *Still Life*, the lights would flicker, the cable would dangle, and the objects would remain stable without the viewer noticing them. This is equally so of the skull in *The Ambassadors*. Nothing of these works changes from the participation (or lack thereof). For works like *The Ambassadors*, Lopes offers a nice characterisation with his statement that they require something more like what he calls 'active appreciation'.[20] This engagement places the viewer in an active role with the work of art but not an interactive role.[21]

But what of works with features that can be changed? Works that vary in some way, not just in the perceptions and experiences they afford, would have to be distinguished from the above examples if the term interactivity is going to be useful in moving forward. The following will explore these kinds of works.

2.5 Interactive Works

If participatory works consist of features that are unnoticeable without active (physical) participation, then we need a concept for works that consist of features that can change because of our engagement with them. Dominic Lopes proposes, by now, a well-known definition for the interactivity that computer art entails. I will discuss his definition of interactivity shortly, but first, I will borrow one of his examples to illustrate how it characterises works that change in some way do to 'user' interaction. *Wooden Mirror* (1999) hangs on a gallery wall and is comprised of 830 wooden tiles, which are operated by a servomotor. When a viewer stands in front of the display, a camera captures an image of the viewer and the tiles tilt to various degrees to reproduce the captured image, functioning similarly to the pixels of a digital image.

Wooden Mirror is interactive in a different way than works like *Still Life* and *The Ambassadors* because it is not just that the perceptual features of the display appear to be different, they actually change as a result of our engagement with them. This kind of work is characteristic of Lopes' definition of interactive art, which states that a work is interactive 'just in case it prescribes that the actions of its user help to generate its display'.[22] This definition is informative because it stipulates that an interactive work's display can change in some way, in either appearance, sound or other perceivable state, due to the interaction that are prescribed. We can distinguish these works from the ones

---

[20] Lopes (2010) p. 41.
[21] Ibid.
[22] Ibid., p. 36.

described for the basic level of engagement and participatory works because appreciating a painting or a sculpture does not help to generate their displays in the manner Lopes defines. This concept of interactivity, that a work's features change in virtue of the user's actions, is differentiated from works that alter over time from some natural causation (e.g., Robert Smithson's *Spiral Jetty* changes over time and a bronze sculpture will form a patina, but neither is an interactive work). We can also distinguish interactivity in the Lopesian sense from basic activity. Although basic interactivity, or engagement, grants us access to a work such as turning the pages of a novel, this activity does nothing to generate the direction of the narrative, just as viewing all the relevant features of *The Ambassadors* does not generate any new features of the painting.

Before addressing Lopes' definition any further, I want to point out that non-computer interactive works are compatible with such an account of interactivity. Consider the example, El Lissitzky's *Abstract Cabinet* (1927-28). *Abstract Cabinet* is since destroyed but it originally existed as a modular room comprised of works by Modern artists such as Mondrian and Mies Van der Rohe. Various panels within the room were interchangeable, e.g., the viewer could slide the panels up and down, and side to side to rearrange the positions of the well-known artworks. Today, it is unclear just what Lissitzky's intention was with this work but many suggest that perhaps it was about changing our reading or interpretation of works by rearranging their environment. The prescription to rearrange the work into different patterns is what makes the work interactive in a different way than *Still Life,* or from a curator who moves a non-interactive painting from one wall to another.

In his definition, Lopes stipulates that the interactivity must be prescribed. Prescribed interactivity excludes unwanted behaviour or vandalism from classifying as a permissible act of interactivity. For example, taking a knife to the canvas of Rembrandt's *The Night Watch* does not make the painting an interactive work because the artist never intended that action. Lissitzky intended for the viewers to rearrange the panels and, rules of the museum aside, this fulfils the prescription portion of Lopes' definition.

Lopes' conception of interactivity seems to include works like *Abstract Cabinet* in the same way it includes *Wooden Mirror*, so one might worry that the definition is too broad if it covers both non-computer and computer based works. In what remains of this chapter I will show that nothing in Lopes' definition excludes non-computer artworks from qualifying as strongly interactive like *Wooden Mirror*. What I want to set up for the reader is the point that interactivity of this kind is not limited by media.

To make the broader point about interactive art across media, let us first consider the terms 'to generate' and 'display', both of which are utilised by Lopes in his definition, and both tend to connote functions and features of the computer. Do the users of *Abstract Cabinet* 'generate' the display? Although 'to generate' is not computer specific, I take it that Lopes intends it to mean instantiating something to perceive it. Here, works like *Abstract Cabinet* might be excluded if we claim that the features (panels) of the display are already instantiated and are merely rearranged by the interactivity and not rendered, whereas, interactivity makes visible any of the given image on *Wooden Mirror*. However, this does not conceptualize the differences between the interactivity in these kinds of

works as much as it concerns the materiality of them. *Abstract Cabinet*, although better appreciated if a viewer interacts with it and moves the panels, consists of essential features that are perceptually ready for the viewer to appreciate without the interaction (this is not to discount the importance of rearranging the work). However, I would think we would have to agree that properties that are not intrinsic of the work will arise from the interactivity. After all, rearranging the panels changes the locations and environments of the individual works, which generates the properties.

Perhaps it is better to ask what, with each example, the interactivity is generating. Lopes' definition states explicitly that users generate the *displays* such as the images generated on *Wood Mirror*. Lopes defines a display as 'a pattern or structure that results from the artist's creativity and that we attend to as we appreciate it.'[23] He is clear that 'display' does not refer only to digital works, therefore, a painting is a display of one kind and a novel is a display of another kind. With works like paintings and sculptures, the object and the display are the same thing, but with the case of music, literature, and computer art, the display does not equate with any object *per se*. Instead, the display could be a set of sounds or images or, as Lopes states, something like a change in temperature. A display's variability is a requirement if they are to be considered candidates for the kind of interactivity he defines. A more detailed discussion of Lopesian displays and properties will be addressed in Chapter 6.

So, what makes the former work different from the latter example? Essentially, computer art must have displays that are generated from a computational process. This should not suggest that the digital medium or an electronic computer are essential for a computational process to occur. Lopes offers a hypothetical work, *Wooden Mirror Unplugged*, as an example of non-digital computer art. This imagined work is a non-electronic version of *Wooden Mirror,* which he describes like this,

> Now, in Wooden Mirror Unplugged, a human operator inspects a bank of 830 tiny etched glass screens onto which light is funnelled from the same number of lenses. Next to each screen is a graduated knob which sets an aperture, and the operator adjusts all the knobs until the light intensity is the same across all the screens. He then turns to a second set of knobs which mechanically tilt a grid of wooden tiles, and he adjusts each of these knobs to a marking that matches the marking on the corresponding screen knob.[24]

The above is a work of computer art even though it is not operated on an electronic computer; instead of a digital transfer function, the input/output relationship is functioned between the human operator, who follows a kind of algorithm to match the subject in front of the mirror, and the variable tiles. Although the *Unplugged* version would not be as fast in generating the display outcomes, as Lopes points out, it functions

---

[23] Lopes (2010), p. 37.
[24] Ibid., p. 46 – 47.

similarly to the plugged version, and so both are computer art.[25] If Lopes assumes that brains are a kind of computer, he would not necessarily qualify *Abstract Cabinet* as computer art because the viewer does not rearrange the panels using an algorithm (or rule-set) in the same way the knob turner follows rules to generate an image. *Abstract Cabinet* does not qualify as computer art like the works *Wooden Mirror* and *Wooden Mirror Unplugged*, but it does have a variable display, and the interactivity it prescribes is not so different from the other works. In this respect, Lopes' definition correctly includes the kinds of works that consist of variable displays, regardless of the media and devices used.

A potential counter-example could arise for Lopes' account of strong interactivity. Berys Gaut is one such critic who worries that, without a clearer concept of who the *user* is, there is nothing in Lopes' definition to prohibit bystanders from functioning as interactors of the work. More precisely, Gaut says, "the audience role in the interactive case is to appreciate the work by instantiating it; merely watching the work while someone else instantiates it does not count as fully appreciating it."[26] Although Lopes states that the audience and users of computer art are usually the same, Gaut states the distinction between audience and user is not sharp enough.[27] As it stands, Lopes' definition could include an example such as an audience who watches a performance, making the performance an interactive work because a display is generated by *some* user. Gaut clarifies that the user can only appreciate the work *by* generating it. Andrew Kania, following Gaut, continues this issue and supposes that it is possible a work could be designed so that "only a non-interacting audience could properly appreciate it through observing a third party exploratorily generating a display", then, under Lopes' definition, should be (erroneously) viewed as interactive art.[28]

Gaut's definition will be explored further in Chapter 6. However, to conclude this chapter, the above categories suggest that, although all works need some form of interaction to be properly appreciated, not all art is interactive in the same way. The first group of interactive works consists of everything from paintings, to sculpture, to film, and installation, all of which require active engagement for us to appreciate them. Although this characterises a form of mental activity, it only does so at a very basic level.

Works such as *Still Life* and *The Ambassadors* are representative of the second group of interactive works, or works that are participatory. Although these kinds of works can consist of more than a single display, none of the displays are affected by the viewer's actions. While interactivity is not a standard feature of participatory works, they do prescribe a particular prescription for the viewer to notice certain features; without participation, adequate appreciation is not possible. Participation does nothing to generate the features of its display, but it changes our experiences of the work much like works in the first group.

---

[25] For the sake of this paper, I will fully adopt Lopes' view that WMU is a kind of computer art work. However, I do think this inclusion allows for too many other things, which we do not normally intuit as computer art, e.g. some board games, improve works, etc.

[26] Gaut (2010), p. 143.

[27] See Lopes (2010), p. 83 and Gaut (2010) p. 143.

[28] Kania (forthcoming, 2018) p. 4 (in pre-published draft form).

The third group consists of works that are strongly interactive, in the way Lopes defines it, because their displays are variable. In cases such as these, viewers become users who are prescribed to generate the work's displays via the instructions of the artist or the framework of the algorithm. Works such as *Abstract Cabinet* and *Wooden Mirror* entail different kinds of responses than non-interactive works because both prescribe users, in the Gautian sense, to instantiate certain display features, which will bear on appreciation.

I note in the introduction of this chapter that a discussion of video games is saved for the latter chapters. I preface this here because, while there are similarities in the interactivity we find in works across media, such as *Abstract Cabinet* and *Wooden Mirror*, there are interactive works that consist of even greater distinctions, such as many video games and other interactive fictions. The differences between the strongly interactive works require a more in-depth discussion on the ontology of a specific kind of interactive work, which is, once again, dependent on the displays rather than the media used. More on that in Section 2 of this dissertation.

Each kind of work mentioned above has a better chance of appreciation if we understand their interactive differences. More can no doubt be said about this topic, but with these different groups in place, I am in a better position to distinguish between the ontologies of these interactive works. But before moving on, a background query on the significant properties of the digital medium will be helpful. By doing so, I aim to draw out a few of the unique features of digital works, be they museum driven works or things like video games. This too will be helpful for the ontology chapters that proceed.

Chapter 3: The Digital Medium: Specificity and Appreciation

Although I stated in the previous chapter that the medium of a work does not necessarily affect the kind of interactivity at hand, digital media will bear on the ontology and experience of some works. Therefore, medium specificity is worth some attention. In this chapter, I discuss the distinctive possibilities of the digital medium in the production, display, and experience of certain artworks.

I start by describing a short evolution of the names that are usually ascribed to digital art which have influenced the category we now label computer art. Since computer art includes works that run on analogue computers, I follow with a discussion of the digital medium's distinctive characteristics and how they differ from analogue computers. In the final section, I discuss the copyability of digital works by comparing the reproduction processes between digital works and more traditional works, thereby highlighting a few early observations of the digital medium by Nelson Goodman.[1]

3.1 The Evolution of the Digital Category

Essentially, digital works involve a computer processing system and so digital media refers to any media that has been encoded in a machine-readable format. Digital works pose an initial challenge to our classification of such works because digital media consists of many things like programmes, software, databases, video, and the like, which inspire the variety of nomenclature currently found in the literature. For example, 'Digital Art' is used as an umbrella term within art history to signify a wide array of methods that include the production of an art object or works that have digital displays.[2] Therefore, using the term 'digital' for a category of art is misleading because, although digital technologies can be utilised as a means of production, they do not always factor into our appreciation of the display. For example, there are many films that are now shot digitally, but we do not necessarily evaluate them differently than those shot on traditional film. This points to the fact that the digital medium is incorporated within many mainstream art practices and so is not, in and of itself, an indication of an Avant Garde category. In fact, the digital medium is currently used within many traditional categories of art such as sculpture, photography, film, drawing, public art, and, more recently, graffiti.

In the 1960s, 'Systems Art' was coined to reference certain works because of cybernetics' influence on art, a term used within the field of engineering to describe a closed loop system. This concept was then applied to many social artworks involving a control source and a form of communication, such as performance works, where works created a feedback loop between an artist and a viewer.[3] This category grew to be too inclusive and, therefore, too vague because it began to include any art process where an artist took a systematic, controlled approach to the production of their art, including works by non-digital painters such as Frank Stella.

---

[1] Portions of this chapter develop ideas from my MA thesis submitted to the University of Kent, 2013.
[2] Paul (2008), p. 53.
[3] Ibid, p. 19.

Alternatively, the category 'New Media' (or New Genre) was inspired during the latter part of the twentieth century when art practices began using a variety of technological media for experimental works, within many different genres (e.g., video installations, electronic music, or performance art). New Media is an often-used phrase today, mostly within schools of art, but it too is a problematic title because it ambiguously refers to a wide range of possible media used in the production or the display of a given work. Moreover, media theorists have pointed out that digital media are no longer 'new' and most media technologies have now been assimilated into *software* programmes.[4] This means, artists do not necessarily deal with the digital medium directly like programmers will, and so the media used in the process of production is not always the key appreciative factor.

Controversially, because of the dematerialised nature of digitally based works, a few critics and other art theorists of the twentieth century began to categorise digital works as Conceptual Art.[5] Digital works, however, do not tend to be predominantly language or thought based, or rooted in any other noteworthy traditions of conceptual art. In addition, many works that involve the digital medium normally direct the viewer's focus to the salient perceptual features of the work such as lights, sounds, and other features which are not normally associated with conceptual artworks and their primary features. This touches on another problematic issue because a category of conceptual art (for digital works) presumes the artworks in question are dematerialized. The abstractness of these works is not specifically addressed in this chapter, but as it is a debated issue it will be discussed in the proceeding ontology chapters.

3.2 Digital Versus Analogue

Today, the above titles are still more or less still used for works that contain or use digital media. Although Lopes has, thankfully, narrowed a category for computer art, already introduced in the first two chapters, my analysis of the digital medium will be addressed more broadly in this chapter. As stated, computer art is interactive, and although digital systems do not make these works automatically interactive (e.g., artists can create digital images for display only), they can shape our ontological account of these works.[6] Before elaborating on the differences between analogue and digital computers, which is important for the kinds of experiences they afford, let us first turn to the specificity of the digital medium, which should highlight the distinctive features of certain works.

Like traditional art, digital artworks use a specific method to encode the intended information into a given display device. Typically, when considering a specific medium, we think in general terms such as paints that are oils, paints that are acrylic, and so on. Getting more precise, we can distinguish acrylic based paints according to their texture, viscosity, or even their molecular information. This extreme level of medium specificity is rarely important within aesthetics, but since the specificity of digital media is relevant to a discussion of ontology, it is worth elaborating on here.

---

[4] Manovich (2013). See also Paul (2003), p. 7. The digital medium, although usually associated with recent and experimental artworks, has been around for nearly a hundred years. However, as Paul claims, what remains `new' about `New Media' is the near limitless possibilities the digital medium offers.

[5] Lippard (1973); Tamblyn (1990), p. 253-256; Binkley (1990), p. 238.

[6] I qualify this because, as I mentioned earlier, Lopes includes analogue computers within his definition of computer art. This chapter focuses on the digital medium, however.

Digital technologies allow for the production, the display, and the archival of art. Literature, music and other works with more traditional media music can be digitized for preservation and dissemination, but those digitised displays have nothing to do with the *works*. In comparison to sculpture and music, there persists an idea that digital works are experimental or too 'academic' (e.g., 'geek art') to be appreciated as a high artform, even though much of the traditional arts have used the digital medium (e.g., photography, film, painting, sculpture, music). In this respect, the digital medium does not necessarily challenge accounts of traditional art forms *per se*, but it can affect things like representation and appreciation in ways that bear on our traditional philosophical accounts.

Above, I mentioned that some digital films may be discussed within the same philosophical framework as non-digital movies, but that is not always the case with all digital works. A digital painting, as I will explain below, may require a different manner of regard than an oil painting. The above shows us that it is not always the digital medium on its own that impacts theories of art, but the category that the digital medium is used in. That is not, of course, to say that the medium has no role in digital art appreciation. Digital technology, just like any other media, comes with its own artistic challenges that can become meritorious features if used well. In reference to digital cinema and video games, Berys Gaut says that giving artists more tools to work with does not necessarily mean the work is achieved more easily and, in fact, more tools mean more creative power.[7] So, while a digital film does not become appreciated as digital art, it might be praised specifically for its digital elements.

Typically, the properties of digital media are discussed in terms of being dynamic, automatic, and interactive, just to list a few.[8] Nelson Goodman applauds the digital system's ability for its precision and for being 'sophisticated', 'capable' and 'open'.[9] In her discussion of digital works, Christine Paul employs the commonly used words 'dynamic', 'interactive', 'participatory', and 'customisable'.[10] These are loaded terms because, like interactivity, they are used in various ways by different people within different disciplines. These terms characterise the ability of digital media, but they are vague. For a user to experience the characteristics Paul suggests, they will need to experience the instantiated display – this means that these characteristics are related to the particular properties of the hardware utilised by the work, in addition to the digital media.

Some media theorists (those such as Lev Manovich) say we should not be concerned with the properties of digital media in the customary sense (such as binary digits), and it is not the hardware but the software that produces the experiential properties.[11] Manovich makes an example of this with a digital photograph and notes that the viewer (and the photographer) will not typically deal with the numbers, colour values, or other data of the photograph, as a software programmer does. Instead, digital photographers have the ability to interface with the photograph via the software applications, be it Photoshop, Google Picassa 3.0, etc.

---

[7] Gaut (2010).
[8] Paul (2003) Chapter 2.
[9] Goodman (1976), Chapter 4, section 8 (specifically pgs.166-169).
[10] Paul (2003), p. 67.
[11] Manovich (2013).

Manovich goes on to say,

> So whenever you think of 'properties' of digital media, you should always remember that this term means software techniques defined to work on particular types of media ecologies, content and media data.[12]

Manovich applies 'properties' to application software and not to the hardware that operates the programmes, but his own example shows that there are distinctive properties for *both* the software and the hardware because proper display requires more than functioning software. Suppose an artist created a digital painting on an iPhone. The iPhone would be important to its display but only insofar as it was intended to be displayed in a certain way. That same digital painting would not (necessarily) have to be displayed on a particular iPhone, and the display itself would not be a noteworthy feature of the work. The digital painting could not, however, be adequately appreciated if we attempted to display the same digital painting on a Gameboy, for example. In this sense, it is important that the hardware is compatible with the media and with how the artist intends for a work to be perceived, in the same way that a painter may specify the location or lighting conditions for the installation process. The display device, or hardware, factors into how we perceive and experience the work, which is something Paul Crowther seems to agree with when he says:

> ...the [digital] image is so dependent on hardware and software for its vivid realization, this suspends our sense of its origins in such artifice. It might be thought that since the image is so dependent on technological support, this means that we must be always and inescapably aware of its artefactual origins. However, as in the case of film or TV screens, the supporting technology becomes so familiar as to be unnoticed.[13]

The properties of the hardware impact display realisation and viewer appreciation, but they do not factor into an ontological account of digital works, which is something Lopes points out.[14] Likewise, D'Cruz and Manga discuss the devices used for digital images but not as far as to include the computer architecture in an ontology.[15] Instantiations of digitally interactive works are comprised of code, software, and hardware, all of which are important for interactivity to occur. For this reason, I will favour, within this chapter, the phrase 'digital systems' when discussing work instances and mean it to include the code, software, and the hardware, but I will make exceptions if and when clarification is needed.

Instead of utilising the terminology that Nelson and Paul ascribe to the digital media, I will address the digital system's potential for speed, capacity, precision, and its transmissibility, to draw out greater clarity of digital media's distinctive qualities. Importantly, these characteristics, which are all inter-connected because each one makes the other possible. Although each of these features might vary in how successful they are, an adeptness in each is usually standard of the computer. For example, a particular computer's speed might be relatively slow, but speed is still at work, at least on some level. Let us take a look at each.

---

[12] Ibid.
[13] Crowther (2008), p. 164.
[14] Lopes (2001) p. 77.
[15] D'Cruz and Magnus (2014).

Speed refers to the number of calculations the hardware can do every second. We usually recognise a computer's speediness by its responsiveness, i.e., the output in relationship to a user's input. The data in code format is one aspect of the system and the perceptual, instantiated effects of the medium are another aspect of the system; this means that the system has to processes the communications (within the system) at a rapid rate if the output is to be experienced by the user in a real-time manner. This is what Paul refers to when she characterises the digital medium as dynamic.[16] The interdependent relationship between the digital signal, software, and the hardware that instantiates the code is what determines the computer's execution speed. Although works with an analogue system potentially qualify under Lopes' definition of computer art, the interactivity would be experienced quite differently because analogue systems entail mechanical responses, which rarely compare to the degree of speed that a digital system is capable of.

To understand the differences between the interactivity that we are normally able to experience with analogue and digital systems, we must first understand the distinctions between their analogue and digital signal types.

As described by Kamaraju and Narasimham, an analogue signal is commonly understood in the following way:

> An analogue signal is a signal defined over a continuous range of time whose amplitude can assume a continuous range of values.[17]

Goodman phrases it in a slightly different manner.

> A symbol scheme is analogue if syntactically dense; a system is analogue if syntactically and semantically dense.[18]

We can understand Goodman's use of the word dense if we combine the two definitions above. Density refers to the infinite divisibility of the continuous signal mentioned in the first definition and so its density references the many values that can be packed into a given system. For instance, a mercury thermometer can read any degree of a given temperature, and the infinite degrees between if the conditions change. Goodman uses the phrases 'halfway between a and b', 'halfway between a and halfway between a and b', 'halfway between a and halfway between a and halfway between a and b', and so on.[19] This infinite system is in strict contrast to digital systems whose binary symbols or signals do not have an infinite range of values due to limited word length (or the number of binary digits used to represent a value, such as a 32-bit versus a 64-bit number).

Typically, a digital system is one in which the signals and operations are based solely on quantised binary information. Quantisation is the act of taking a sampled value and assigning it a numerical value limited by the available precision of the discrete system (i.e. number of bits). For example, a continuous voltage signal at time t is v=1.2345234655321... volts, which if quantised to 12-bits would have a value of

---

[16] Paul (2003), p. 68.
[17] Kamaraju, V., and R. L. Narasimham (2009), p. 242.
[18] Goodman (1976), p. 160.
[19] Ibid., p. 163.

1.0111110, which in base 10 is 1.234375. So, it is clear that quantisation of a continuous value leads to a loss of precision. Precision can be increased by adding bits but the same output speed necessitates larger computer memories, faster CPU, and more, to accommodate the larger values. The quantised number allows for, as Goodman puts it, *articulation* because it is possible to determine the exact number references in the system; an analogue system, however, is infinite in it numerical references.[20]

In Goodmanian terms, digital systems are not dense like analogue systems because digital ones are *differentiated*. Symbols are important for Goodman because they help us differentiate the notational system of a representation. Representations consists of symbols (or characters as Goodman calls them) that can be classified as either syntactic types or semantic types and, therefore, a digital system can be differentiated syntactically and semantically. Something is syntactically differentiated if the symbol used within a scheme has only one referent. To use Goodman's example, the symbol 'a', regardless of how it is written (e.g., A, **A**, a, *a*, etc.,) references only one symbol type and not, 'd', for example.[21] A scheme is semantically differentiated if the symbols within a scheme all clearly belong to a given class. For example, the symbols in the word 'animal' can be understood as belonging to the English alphabet. To summarise Goodman's example, imagine a coin bank that accepts up to fifty dimes and the bank is fitted with a counter on it that indicates the number and amount of coins that have been deposited inside.[22] The numbers (0-50) on the counter are the syntactic types. Assuming the counter works properly, we could syntactically differentiate each of these numbers, assuming each coin is represented by a different number, and at the same time, since this system is also semantically differentiated, we could determine the value of all the coins inside ($0.00-$5.00).

Let us return to the concept of a system's speed, and the ability of both digital and analogue systems to respond in an automatic and real-time manner. John Searle's famous Chinese Room Argument is a useful analogy, although my application of it here will be different.[23] The original argument goes (roughly) like this: Searle sits in a room by himself and receives Chinese symbols that someone else has passed to him from under the door. Searle, using a programme to string together a combination of Chinese symbols, sends out another card to convince the people outside the room that he understands the language. To better illustrate the digital computer, imagine now that, instead of Searle sitting in The Chinese Room, I take his place in what I will call The Apple Room. In front of me, I have a 10x10 square grid with boxes numbered 1 to 100, as shown in the figure below.

---

[20] For more see Ibid., throughout Chapter 4.
[21] Ibid, p. 133.
[22] Ibid., p. 158-59.
[23] Searle (2002) and (1990).
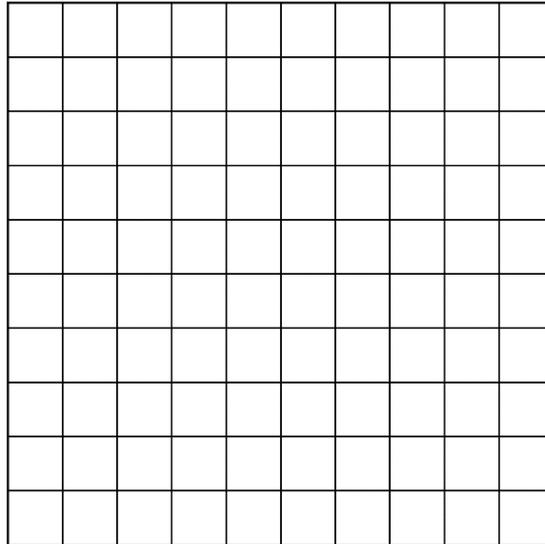
Figure 1: 10x10 grid.

With this grid in place in front of me, imagine, from under the door, I receive binary digit (bit) cards, where 0=black and 1=white. The grid has n=100 squares so when I receive the nth card, I place it in the nth slot. When all the cards have been placed in the grid, according to the above algorithm, I will have created a binary black and white image that looks something like this:
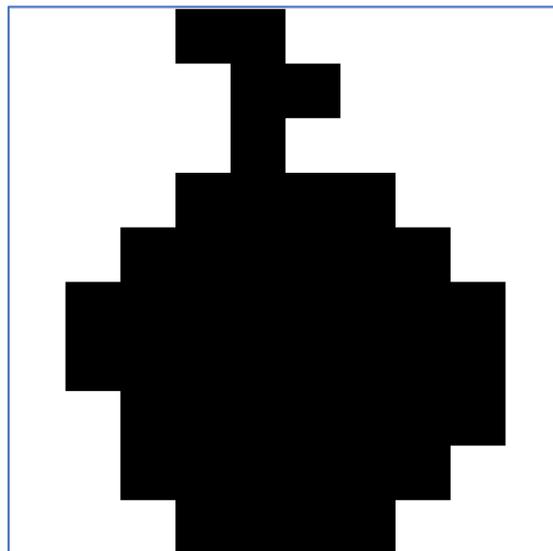
Figure 2: Binary Apple Image.[24]

Notice here how important the algorithm (ruleset) is for the image to be realised, yet the algorithm is not a salient feature of the image itself. This rather simplified notion of the algorithm and work will be fleshed out in the chapters to come, but suffice it to say, on a theoretical level, the 'Apple Room System' describes a kind of digital process. If we were to stop here, this would be enough to claim that, if Apple Image were art, then it would also be an example of computer art. Like Searle's production of Chinese characters, I could translate the bits and operate them in a similar way as a computer system would. Both analogue and digital systems can get the same job done and, if I were quick enough at

---

[24] Thank you to Julian Moser for helping me with this image.

placing the cards in their appropriate slots, then the image could be rendered in a relatively speedy process. In fact, if a viewer were on the other side of the door, they would not experience a long delay in receiving the completed image. That so, suppose that I were fast enough to pick up a card and place it in the correct spot within half of a second. A grid with 100 squares would then be finished in 50 seconds, meaning, although this would be a somewhat speedy response, it is so only in relative terms.

This point about relative speediness can be further illustrated in the representation of a single digital photograph. A single digital image consists of thousands of pixels. For example, an image with HD resolution 1920x1080 contains 2,073,600 pixels, or 6,220,800 distinct RGB values. To apply this to my Apple Room System, a simple digital message can be simulated by a human, but it would be impossible to represent the sets of numbers required by one digital photograph at the same speed (this is also due to the capacity limitation of non-digital systems, which will be described shortly). Suppose instead of 100 'pixels' I wanted to create a binary image with a standard photo resolution of 1024x768. This prescription would require a total of 788,736 pixels (cards) that I would be required to place in their proper spot. Assuming it still takes me half of a second to place each pixel, it would take me 394,368 seconds to create the entire image, or approximately 4.56 days of non-stop image building. The capability of a digital system, however, could render a digital image instantaneously.

Since a digital photograph is not in and of itself interactive, recall *Wooden Mirror* and *Wooden Mirror Unplugged,* which I introduced in the previous chapter. The human knob turner in *WMU* is theoretically analogous to the digital system of *WM* but because one is mechanical and the other is digital, our experience of each would differ. In other words, the human 'computer' and the digital one is not synonymous. Lopes articulates this point that, although *WM* and *WMU* are examples of computer art, only the former has the speed to be impressive.[25] The Apple Room System underscores Lopes' point and the importance of a computer's speed potential. As such, digital systems have the potential to out-perform non-digital systems.[26] Even with the simple Apple Image, in the time it would take me to lift a single bit card, the computer could have all the bits translated and the entire image rendered before I could process that bit. The above requires speed, but the kind of speediness required of works such as *WM* would not be possible without the digital system's *capacity*.

Capacity refers to the hardware's memory and the ability of the digital software to deal with multitudes of elements at once. If, for example, the knobs collectively represented the memory capacity of *WMU*, then the knob turner would have to, in some way, record the placement of each knob, and for each person that stands in front of the mirror. If the same viewer returned to *WMU* the following day, the knob turner would have to reset each knob to their designated position in order for the instance to be realised. Contrast this to the capacity of a digital system that can record, recall, and instantiate many elements at once, or nearly instantaneously. This is what Paul refers to when she discusses the customizability of the digital medium, and, similarly it is Lopes' meaning when he characterises the ability of these works to 'collect information on their

---

[25] Lopes (2010), p. 48.
[26] Speediness is important, but I wager that it would only be noteworthy if it didn't function properly or quickly, because a computer's responsiveness is standard to the category. This is related to issues discussed in Chapter 1.

audience.'[27] If, for Apple Image, I memorised whether each bit square was a 1 or a 0 then this would be, in a basic sense, a kind of memory system for that image. However, even if I were lucky enough to have a photographic memory, my brain's capacity would be incredibly limited compared to a digital system. Most digitally interactive artworks require a strong memory capacity because, in order to be responsive in an impressive way, the computational process would need to perform many functions at once. Without this, digital works would (arguably) not allow for a distinctive method of representation.

A digital system's responsiveness also requires precision. Let us suppose that each tile in both *Mirror* examples have tilt ranges of 0-10 degrees. The knob turner in *WMU* can attempt to get each tile in its exact position, but in order to render the individual in front of the mirror, the knob turner requires an ability to position each tile to exact and accurate degrees if the individual in front of *WM* is to be adequately recognised (even loosely). Knob turner can get as close as possible to tilting a given tile to, let us say, 1.0123 degrees, most likely achieving a degree of accuracy, but with a significant margin of error to around 1.00 or 1.25 degrees. A digital system, on the other hand, could accurately hit exactly 1.0123 degrees, while precisely (and simultaneously) hitting the other tile targets of the image.

Although the degree of difference in precision may seem insignificant for this analogy, each degree to the ten thousandths place could be the difference of the tiles functioning like a mirror or not (making the work display either successful or unsuccessful in its objective). Like the single digital photograph mentioned above, if such a thing as *Wooden Mirror High Definition* existed, then you could imagine the number of pixels each tile would have to represent. Although it is theoretically possible it is practically impossible for knob turner to render the 2,073,600 pixels; the degree of difference between *WMU* and *WMHD* in their speed, capacity, and precision is remarkable and makes all the difference for kind of experiential interactivity that is involved.

This still leaves the transmissible characteristic of the digital medium unaddressed. Lopes stipulates that one of the fundamental differences between a traditional display and a digital display is the transmissibility of the latter kinds.[28] This means that a digital work can be displayed, from the information stored in a file, on more than one device and it would still be appreciated as the artwork. This characteristic is the most distinctive to the digital medium and allows for many philosophical discussions on the ontology of digitally interactive artworks. The sections that follow will address some of these concepts.

3.3 Transmissibility and Reproduction

Traditional visual art exists as a particular display object that can be auctioned, owned, transported, exhibited, and so on; they are fixed to a single physical location at a given time. These objects can be reproduced into other concrete objects, such as a print of a painting or cast of a sculpture, but these copies are just as fixed to a physical location at time *t* as their originals. Digital media, on the other hand, are transmissible and, therefore, not fixed to any specific location. The data can be sent from one device to another, or

---

[27] Lopes (2010), p. 43.
[28] Ibid., p. 96.

rendered on many networked devices at once. This will be important to flesh out, if the transmissible nature of digital media is distinct from other art kinds.

To clarify, many instances of works can be transmissible if they are digitised, e.g., a radio program could broadcast a performance of Beethoven's *Fifth Symphony*, a performance of *Hamlet* might be digitally recorded, or a work of street art could be uploaded to social media. However, those digitised versions are copies of an instance, while the works I am concerned with are transmissible themselves (as a type).[29] While instances of performance are not necessarily less appreciable than the type, the digitised versions of those instances do lose some information. That means the instanced properties of a copied photograph are thinner than the properties of the original. The same is not as problematic for digital works because their media allows for duplication with little to no information loss because the instances contain properties that relate to the work in a 'thick' sense. The duplicate is identical, notwithstanding transmission errors, etc.

The above can be best illustrated with the information transfer process entailed in making a copy or duplication. Communication theory states that there is a feedback loop that consists of a sender, a message (with a medium) and a receiver.[30] This makes a helpful illustration that we can apply to the duplication processes of artworks. Like communication theory, when information is coded (e.g., in a binary format) a third-party is required to store and/or convert the coded information into an understandable signal. Any real signal will encounter 'noise' as it travels from the transmitter to receiver, which is an inevitable consequence of the communication process. This basic framework applies mainly to coded message information, of which, computer art could be considered a subset. The flow chart below helps to pinpoint the specific locations where, in traditional art, the original object encounters 'noise' and becomes less valuable, or at least, less like its original. As I proceed, I hope this also highlights the difference between the importance of 'the work' for an ontology and the individual realisations of instances for appreciation. This is true of any art form, but there are questions over what constitutes a digital work (especially when interactivity is included), and whether hardware matters or not. Therefore, it is worth emphasising.

A flow chart adapted from communication theory could be simplified like this for the arts:
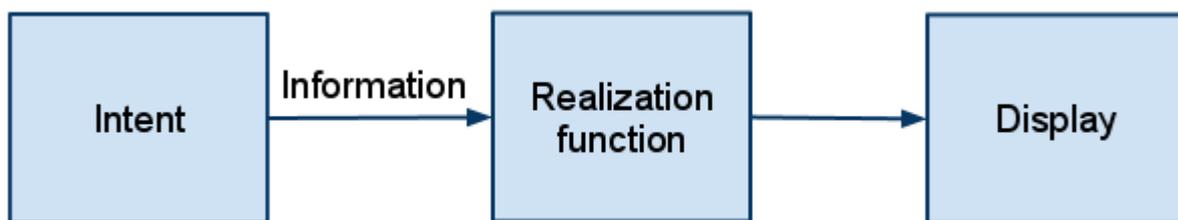
Figure 3: Flow of artistic communication.

The information of artistic communication flow is analogous to how a medium is applied in the production of a work. When we make a copy of a work, the process of copying

---

[29] This use of the term type is merely a place holder to make a point. I will elaborate on what, exactly, I consider the work/type to be with these kinds of works.
[30] Simply stated, Claude Shannon proposed that communication occurs when a speaker (encoder) transmits information (codes) to a listener (decoder). Shannon (1949).

functions similarly to the flow of communication like that above. The following sections will look at these different media and their communication flow, or copyability.

3.3.1 Display Object Realisations

Traditional

Within the traditional visual arts, a copy or print of a painting for example, will not have the same intrinsic purity as the work due to the introduction of noise, as illustrated in Figure 4 below.
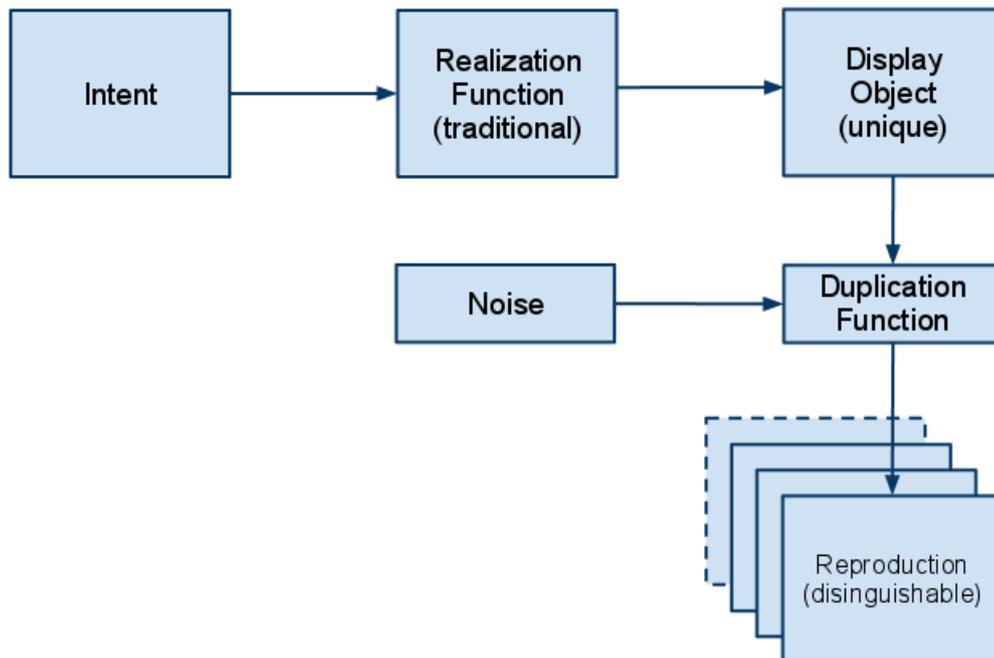
Figure 4: Traditional Distinguishable Reproductions

Each copy remains distinguishable from its original because the information will undergo loss of information during the reproduction process. The display object we start with (the painting) is distinctive of the copies we end with. We can also imagine in some cases, such as with line block prints, that each copy is somewhat distinctive from the other copies. As the plates degrade over time, the information that it entails will be slightly different. In this respect, even copyable particular works are vulnerable to information loss. These kinds of traditional works are, therefore, appreciated as singular works.

Digital-Distinguishable

If the object display is a physical manifestation of a digital source (e.g., paper print out from a JPG file) then, similar to the example above, the reproduction is also distinguishable from the original.
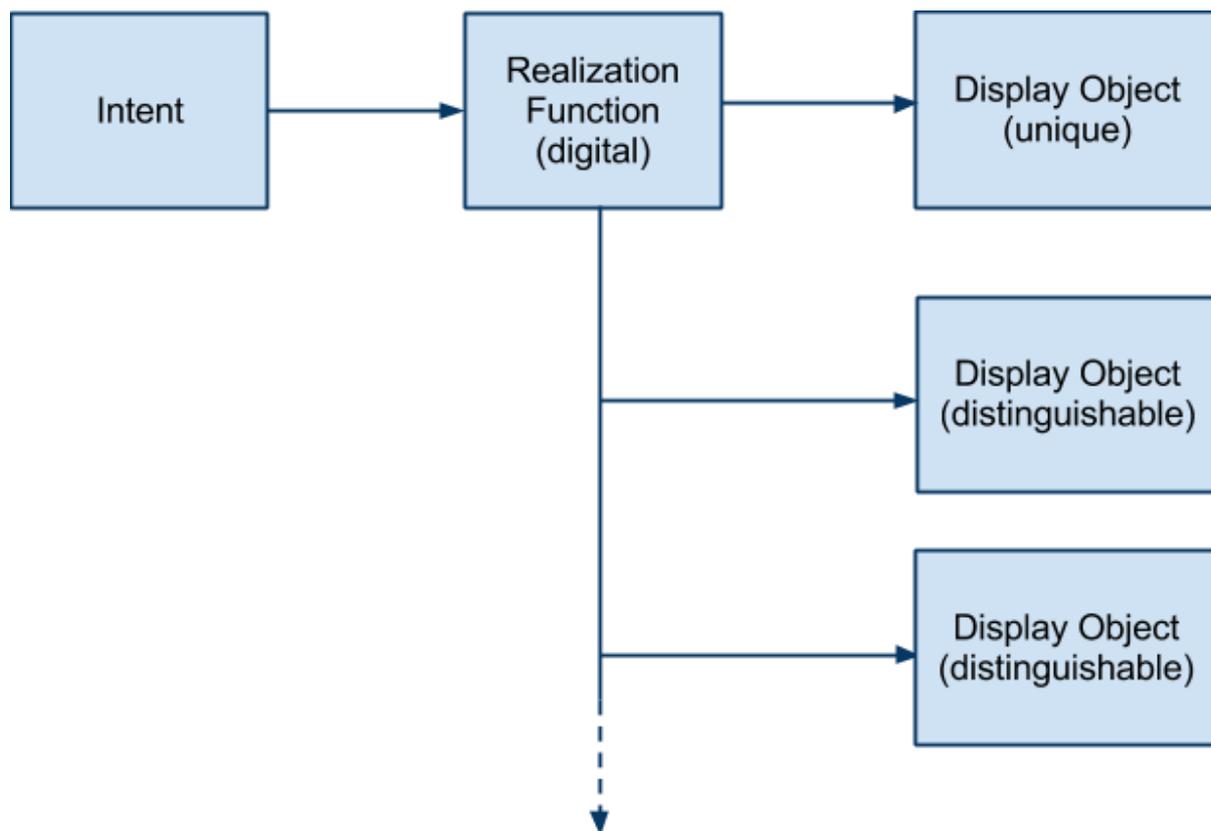
Figure 5: Digital-Distinguishable Reproduction.

For its transmissible character, the digital storage of information makes it easy to reproduce again (e.g., make another printout), but the reproduction is still distinguishable from the original, and subsequent copies are distinguishable from the first copy. This is like the digitisation of works described earlier, or we can think of printed photographs of digital files. Provenance issues aside, one could argue whether or not the file is valued as the work instead of the display photograph that a curator hangs on the gallery wall. In most cases such as this, the concrete instance is treated as the object of appreciation, given photography's close relationship to the traditional arts (albeit, a tradition with a bumpy start). Although the file of a digital photograph may or may not retain some value in the eyes of the artist and public, there should be little disagreement that the information in the first photographic print is purer, or more closely related to the work, compared to any copies of the first photographic print that encounter more noise. In other words, the properties of the first print out bear more properties of the work than do other copies. Digital photographs are produced with digital media, but this has little influence on the ontology if it is not a part of its display (i.e., the object of appreciation).

Digital-Indistinguishable

If an artwork is independent of a particular display object, it is transmissible, meaning, it can be instantiated on multiple devices at the same time. Now, the reproduction situation is quite different from those in Figures 3 and 4. In contrast to the fixed locations of traditional objects, Paul Crowther relates digital displays to having 'nonlocal' possibilities[31] (or what Lopes refers to as transmissible possibilities). What this means is,

---

[31] Crowther (2008), p. 134.

once created, digital information has the ability to exist in a stored state, independent of its perceivable, instantiated display.

The ability to store information has consequences for the ability to distinguish between the original instantiation and subsequent instantiations. With digital works, the information is not reproduced but duplicated to perfection, presuming all display specifications are met.
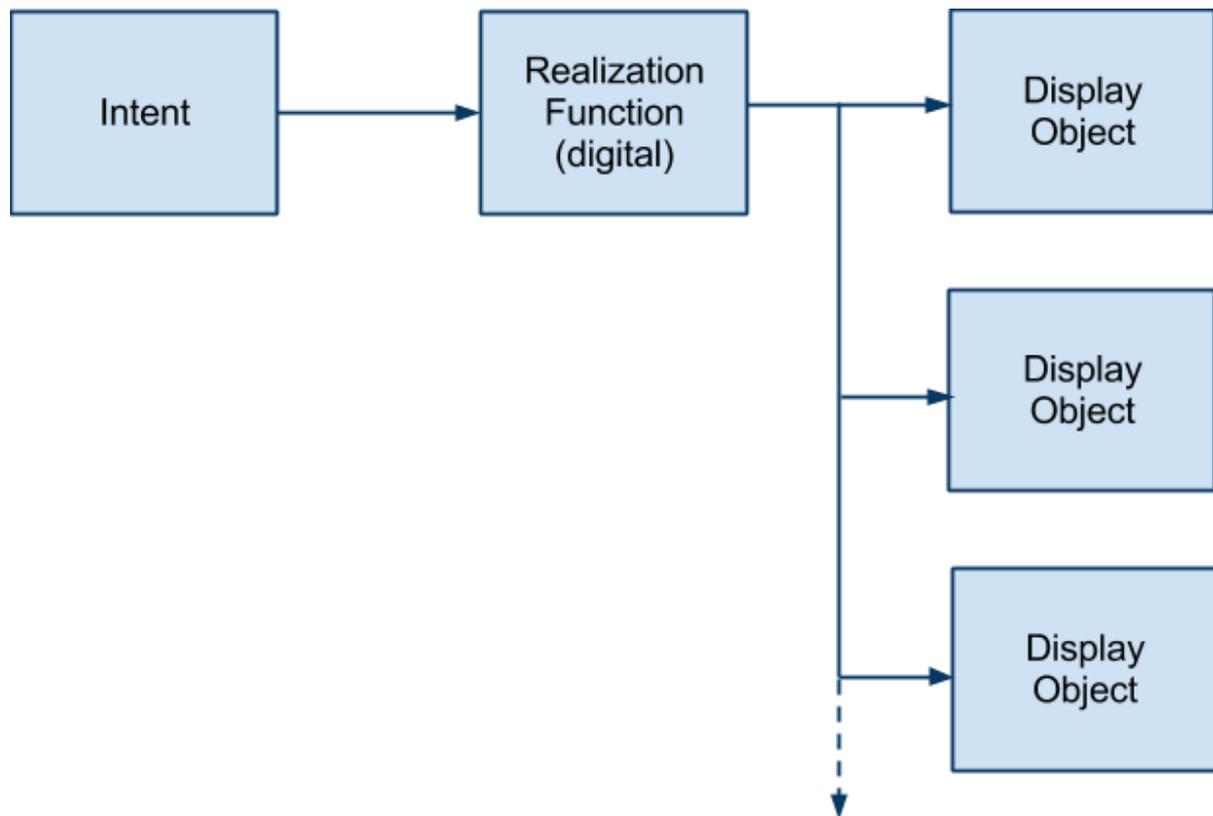
Figure 6: Digital-Indistinguishable Reproduction.

An interesting example of the above display kinds is David Hockney's 2010 exhibition, *Fresh Flowers*. This show consists of impressionistic digital paintings, individually displayed on iPhones and iPads on the gallery walls. Although Hockney's works are non-interactive, the digital medium emphasises their transmissibility, which could be emailed and changed remotely by Hockney at any time during the exhibit. The information instantiates on material devices but the iPhone and iPads are independent of the information, so *Fresh Flowers* can be duplicated with very different results than a Distinguishable Display (Figure 4), such as Rembrandt's *The Night Watch*. Unlike reproduction of more traditional works, the transmission of digital works will be (near) identical to the supposed 'original', as long as the information remains intact. *Fresh Flowers* shows us that digital media makes the ontology of digital works radically different, but it does not necessarily change the category in which we appreciate them. Although these paintings are digitally produced and displayed, they are, like traditional works, autographic paintings created in a manner that harkens back to works created since the modern era. The digital medium does make a difference in its ontology,

however. These paintings are not particular physical objects such as a painting where the display and work are identical.

To return to Goodman's distinction between differentiated (digital) versus dense (analogue) systems presented at the beginning of this chapter, we need to remember that the different representational systems are individuated in different ways. Digital systems such as *Fresh Flowers*, are, according to, Goodman, differentiated semantically and syntactically, the rules for which can be understood by a work's notational system. Just as a performance of a musical work must comply with the notations of a score, a digital image that is tokened must do the same. To name one notation, neither the 1s and 0s of a digital system must belong to any other mark or notation, lest the two classes collapse into one. Digital systems allow for the 1 and 0 values to be recognised and realised into a display in multiple locations (even when an analogue system is involved in certain works, the digitization process allows for the same realisation, similar to the analogue versus digital thermometer described earlier). The 1s and 0s of the digital system of *Fresh Flowers*, including other values involved such as the RGB, meet Goodman's requirement that a representational work should be finitely differentiated, opposed to the infinite numbers we find within an analogue system. The information contained in digital systems makes certain that a representation will be distinct from other representations that have different notations, and allows for multiple transmissions of the work.

Each illustration of the copying process diagrammed above points to distinctive characteristics of the digital medium. The copying processes for all works of art can be thought of as a form of communication between the original and its copy; digital media allow a distinctive kind of transcription in the reproduction process that will not encounter the same degree of 'noise' that traditional works encounter. The speed, capacity, precision, and transmissibility of digital systems reveal to us that, although Apple Image is the representation of a digital-like process, it is not digital in nature because it does not consist of these characteristics. While the above is relatively straightforward, it says nothing of interactivity's impact on displays (or visa versa), which is something that still needs to be addressed more fully.

3.4 Conclusion

Digital technologies have distinctive features that make the responsiveness of digitally interactive works possible. Although a digital process is possible without digital technology, the simulation bears on our experiences in a very different way. This makes electronic computers very important because the digital system's speed, capacity, precision, and transmission affect the responsiveness of a user's input and the features of the digital medium allow for a unique duplication process. As one final note, since writing this chapter, extensions of Goodman's digital-analogue distinction have been developed further, including significant publications by Katherine Thomson-Jones (2015), Jason D'Cruz, (2014), and P. D. Magnus (2014). Since I could not address, in any detail, many of their discussions on digital works here, I will do so in the following chapter.

Chapter 4: Ontological Bastards: The Problem of Digitally Interactive Works for Theories of Art

In a Goodmanian sense, works of art are thought to be either single, non-repeatable works such as paintings, or multiple, repeatable works such as music. These works exist within one distinct mode or another, which Goodman calls autographic or allographic (respectively). These latter works are usually copayable works, which means we can appreciate a work's instances due to the relationship between the properties of the type and its tokens.

Following Goodman, philosophers have placed significant attention on the digital image as it relates to the distinctions above, but less attention has been placed, in this respect, on digital works that are interactive. This chapter has two parts. In 4.1, I build from earlier chapters to discuss how digitally interactive works might have notational systems, but I propose that the notational systems function differently than the way notational systems function within other art categories. Ultimately, the algorithm is ontologically essential for digitally interactive works (and specifically for video game ontology), but algorithms make these works problem cases for Gooodman's autographic-allographic distinction. To defend this, I will discuss what digitally interactive works are, their notational components, and what counts as a copied work before it becomes a faked or forged instance.

In 4.2, I turn to a discussion on the type of class that digitally interactive works belong to. I briefly look at David Davies view of singular and multiple instances, which he applies to an ontology of performance. While there are useful connections between works like music and computer art, an ontology of the former does not pinpoint the distinctiveness of interactive art. From here, I shift to conceptions of the type-token relationship presented by philosophers who discuss interactive art more directly. I conclude with the view that, like autographic-autographic distinction, digitally interactive works are difficult cases for the type-token distinction, especially when we start to consider things like video games.

4.1 The Autographic-Allographic Distinction

4.1.1 What a Digitally Interactive Work is

In order to discuss a tension that I believe exists between digitally interactive works and Goodman's autographic-allographic distinction, note that I consider the essential feature of computer art to be the algorithm, which is implemented by the program. Importantly, the algorithm differs from the binary digits, or bits, that are associated with the code or file of a work. The compiled file contains all the information content, but the binary format merely allows for the programme to be run by the computer's hardware and instantiated into a display. The style of code is not necessarily arbitrary, because it determines which hardware a work can be played on, but it counts for very little when we consider the ontology of 'the work'; in other words, programmes pertain to a successful execution of a work, rather than the work. This characterisation of the algorithm and code is cursory, because I will address them in more detail in Chapter 7.

Before considering the implications of the above for a Goodmanian view of art, I will first review Goodman's autographic-allographic distinction.

4.1.2. Goodman's View

Works are autographic in a Goodmanian sense,

> if and only if the distinction between original and forgery of it is significant; or better, if and only if even the most exact duplication of it does not thereby count as genuine. If a work of art is autographic, we may also call that art autographic.[1]

Works are commonly considered autographic if 'even the most exact duplicate of it does not thereby count as genuine'.[2] Autographic works are ones where the object, at time *t*, usually occupies a single place. Paradigmatic art kinds such as paintings, hand-carved sculptures, various printmaking forms, and the like, are normally viewed as concrete autographic works. Usually, copying these works would result in an inauthentic version of the original because particular objects cannot be copied without some loss of information (i.e. the properties of the work are altered to a degree that would affect appreciation). I say 'usually' copies of autographic works are less genuine than the original, but there are exceptions. Printmaking is one such example, which means the autographic distinction is not exclusive to non-copyable works. For example, Aubrey Beardsley's line block prints from 19th century generated more than one print. Each print, if sanctioned by Beardsley, is genuine. Here, it is not my intention to begin a discussion on artist intention, I only wish to make the general point that provenance matters. Many autographic works can only be created once (even Beardsley's plates are only created once), and so they *tend* to be single-stage works, but even Goodman points out that for some works such as printmaking, there is a two-stage process involved (i.e., Beardsley's plate and the print).[3] For both cases of autographic works, Goodman states that the causal history of such works is directly relevant to our appreciation.

Copyable works can also exist as an allographic work, 'just insofar as it is amenable to notation...';[4] if it is notational, or has a score, then it is potentially repeatable and, therefore, allographic. While a work's notational identity is not a sufficient condition for it to be allographic, it is a necessary condition. Typical kinds of allographic artworks tend to be works of literature, theatre, music, and dance. Additionally, these works are generally viewed as two-stage art forms because the work can be achieved in two different stages. For example, Beethoven composes the *Fifth Symphony* at one stage, and any performer can generate the same piece at another stage. In these cases, the causal histories of the tokens do not factor into our appreciation of the instances as being genuine. Unlike paintings, we can appreciate any performance of the *Fifth Symphony* as genuine, regardless of how far removed the performance is from the nineteenth century.[5]

---

[1] Goodman (1976) p. 113.

[2] Ibid.

[3] Ibid., p. 114.

[4] Ibid, p. 121.

[5] This does not mean that a one performance could not be appreciated over another. Also, Levinson has argued that Goodman places too much emphasis on provenance for autographic works, and that all works, not just the autographic ones, rely on their causal history for appreciation Levinson (1993); Levinson (1990). I will offer Davies' account of this in the following section.

I will briefly add that, not all allographic works token another allographic one (for example, architectural designs are normally considered to be allographic, but there can only be one instance of the Eiffel Tower).

The above suggests that works of art are typically (and readily) perceived within one Goodmanian mode of existence or another. A Goodmanian view of the digital image would suggest an allographic existence because, as Goodman claims, the digital medium 'liberates' pictures from the autographic existence, in part, because the digital medium is notational.[6] Philosophers such as Zeimbekis, Magnus, D'Cruz, and Thomson-Jones have spent significant time discussing the notational aspects and the discernibility of either the binary digits (or bits) or the RGB value of the pixels within a digital image.[7] It is important to note that these are, by and large, considered to be the notational components of the digital image because these components operate in a similar way as the musical notes of a score or letters of the alphabet. For these reasons, digitally displayed works might be considered within an allographic category. Magnus and D'Cruz have suggested that digital images can fit in either one or the other, depending on the kind (e.g., photographs might be allographic, but a digital painting/picture might be autographic).[8]

That might be the case for digital images, but what does this mean for a digitally *interactive* work like computer art? As I see it, there is a critical difference to address between the notational components of digital images like a photograph and digitally interactive works like *Looking at a Horse*. That is to say, the particular features that make a digital image potentially notational do not necessarily factor in the same way for digitally interactive works with algorithms. Although Magnus and D'Cruz view the RGB values or the bits as the notational components of a digital image, these components *implement* the algorithm within digitally interactive works. The algorithm is connected to its provenance. [9]

To further this point, let's first consider music, an art form that is generally viewed as allographic. In a work such as Beethoven's *Fifth Symphony* the indicated structure, or the work, is comprised of musical notes. If a musician were to perform the *Fifth Symphony*, she would do so by playing the notes and instructional notations as indicated by the composer. In this case, the notational aspect of the notes allows for the performance to become an instance of the work. With digitally interactive works we could consider the ruleset, or the algorithm, to be notational. We must consider the differences between copying works like music versus copying computer art. When we transcribe music, we copy representations of the notes. Although we have not discussed video games yet, consider, for example, what happens when we copy a video game *like Mass Effect*. If a player were to copy a file of *Mass Effect* from computer A to computer B, we may be tempted to view the work as allographic because it is copyable. However, with the copy of the video game file, the *implementation* of the algorithm (i.e., the bits, etc.) is transcribed, but the algorithm itself is not. This means that the file on computer A (not to mention B) already exists as an *instance* of the work and, in a way, the bits function similarly to the properties of a musical performance, rather than the structure of the

---

[6] Goodman (1976).

[7] Zeimbekis, John. (2012); D'cruz, Jason, and P. D. Magnus. (2014); Thomson-Jones, Katherine, (Spring 2015 Edition).

[8] For more, see D'cruz, Jason, and P. D. Magnus (2014).

[9] See D'cruz, Jason, and P. D. Magnus (2014).

work; the bits, like the performance, are not the works but the representations belonging to the instances. To discuss the file of *Mass Effect* for an ontology of video games has, at least to my thinking, more to do with an ontology of copies, or the instances, rather than an ontology of 'the work'. Of course, this assumes a strict reading of Goodman.

Because the algorithm is not transcribed when a file is copied, digitally interactive works are seemingly not like other allographic works that consist of notational components. Prior to a programme, the algorithm is notational in the sense that it can be copied over and over; the copy would be identical to the original and, thus, still be associated with its provenance.[10] The copyability and transmissibility might motivate us to characterise these works as allographic. Furthermore, because works with variable displays are repeatable, digitally interactive works seem distinctive in comparison to singular, autobiographic works. While it is not my intention to say the distinctive nature of the digital medium absolutely prohibits digitally interactive works from belonging within an autographic or allographic existence, it is my aim to suggest that these are odd candidates for such classification rules.

If this is not convincing, then perhaps a discussion of how these works are faked or forged will be more convincing that digitally interactive works, when it comes to this distinction, are ontological misfits.

4.1.3. Faking a Digital Work

According to Levinson, there are two kinds of forgeries to consider: referential and inventive.[11]

Referential forgery is defined as follows,

> x is falsely presented as being a (or instance of a) 'particular actually existing work'.[12]

If, for example, an artist forged Vermeer's *The Little Street*, in size, colour, style, etc., then the artist is attempting to pass off the forged piece as the original artwork. Mark Landis has notoriety for forging well known works in this manner, tricking reputable museums into believing they are the originals. This kind of fake refers to works that already exist but by a different artist's creation and, therefore, is referential.

> In contrast, an inventive forgery is defined in this way,

> x is falsely presented as being a (or instance of a) work of art `that does not exist'.*[13]*

The above characterises forgeries whereby the artist paints or creates a work using a particular style or character of an artist's work, but not necessarily referencing a particular work that already exists. Han van Meegeren's fake Vermeer paintings are

---

[10] Though the algorithm is copyable, there is little reason for anyone to copy it once it is ready for programming. Furthermore, the algorithm, as discussed in another chapter, is often created with code.
[11] Levinson (1990).
[12] Ibid.
[13] Ibid.

infamous examples of this sort of invention, which convinced many that artists such as Vermeer had a larger collection of works than previously believed. The differences between the two forgeries can be characterised like this: referential forgeries attempt to replace a specific work in a collection, and inventive forgeries aim to add works to an existing collection by faking the artist's style.

For a discussion of digitally interactive works, both the referential and the inventive kinds of forgery are relevant. Pretend an artist-developer wanted to forge *Super Mario Bros*, to the best of her ability, by writing her own programme, and to upload it to the internet. No matter how perceptually alike a user might take the referential fake to be, the algorithm would be different than the original, and therefore would be a different work.[14] In this case, the structure and provenance of the work are important in proving authenticity and so on some level, exists similarly to autographic works.

Now, pretend that an artist-developer broke into the offices of Blizzard Entertainment[15], a well-known video game production company, and stole an algorithm (in whatever format) in order to program his own instance of the game (i.e., a referential fake). With the scenario I present here, the work is now a stolen one, and the subsequent programmed instances are unauthorized and, therefore, inauthentic. Although the program might implement *the* algorithm, this would be an example of a plagiarised instance because Blizzard did not authorize it at stage two. The provenance and structure of the work might be genuine, but the instance would not be, much like the inauthentic copy of Beardsley's line block plate. One could claim that, if the original artist-developer made a back-up file of the algorithm, then this exemplifies an allographic work. I would agree that at this stage it is a copyable work, but it would be an odd example since it is not yet playable.

One could also imagine a case where an artist-developer invents a fake to resemble a work that looks like it belongs to Blizzard, perhaps intending to pass the game off as a sequel or extension pack to *World of Warcraft,* for example.[16] This work, if the artist claims it to be an official game by Blizzard and it is not intended by Blizzard, would also be a faked work.

As already described earlier, where an artist-developer has access to an authorised file and then makes a copy of it, the copy is not necessarily inauthentic; what's at stake here is that the notational components involved during transcription of a playable game belong to the instance of the work, and not the work itself. Although this does not preclude works from being allographic they are markedly different than traditional allographic works (such as music) whose notations are actually transcribed.

One worry with digital works is, there might be fakes that are so well done, there is no way to distinguish them from the originals. While this poses a potential problem for the artwork, it does not negate my claim that these works are at odds with Goodman's distinction, and it also highlights the distinctiveness of these works. I am strongly inclined to say that interactive works do not necessarily share the same ontologies as performance works, and so the ontologies differ in some way. These characteristics make

---

[14] There are many examples of these kind of referential fakes online.
[15] http://us.blizzard.com/en-us/.
[16] Entertainment, Blizzard. "World of Warcraft." *United States, Blizzard Entertainment* (2004).

digitally interactive works misfit cases for Goodman's autographic-allographic distinction. There is a possibility that we can save this distinction for digitally interactive works with this: digitally interactive works are of a two-step order: at their creation, they are autographic works, but the instances they bear are allographic. For this to be true, we would have to accept that the copyable notations belong to a slightly different order than the way they do with music and literature. Either way, one thing that I hope to have shown here is one, the algorithm is significant for the ontology of video games and, two, the copyable features that we normally transcribe have more to do with the instance-bearing notations than the work's notations. In short, digitally interactive works fit into autographic *and* allographic categories.

4.2. The Type-Token Distinction

As seen in the Figures 4-6 from Chapter 3, and as stated in the autographic-allographic discussion above, many kinds of works are reproducible. This is especially true of abstract works such as music, which as we know can be repeatedly performed. To discuss the difference between a work and the performances of the work, it is helpful to think in terms of the type-token distinction where an original work or event would be considered a type and each repeated instance of the work would be called tokens of the type.[17] This is a useful distinction because, as Richard Wollheim states, works are not necessarily singular physical objects and sometimes works belong to a set of things, or types.[18] I have already suggested, although briefly, that I take digitally interactive works to (primarily) consist of abstract things, which allows me to discuss these works in terms of their type-token existence.

To back up, Wollheim claims that some works of art are type-only works, which are usually physical objects of appreciation and usually not repeatable works. We appreciate tokenless works, such as the *Mona Lisa,* for the properties that the single object brings to bear; these are shaped by the expressions of a particular object rather than the properties of subsequent events or tokens. For example, a painting like *Mona Lisa* currently hangs in the Louvre, and we can appreciate it adequately only if we visit this specific location and view the painting where it hangs. Although technology has established the ability reproduce many copies of works like the *Mona Lisa*, we appreciate these works differently in virtue of their specific properties. The provenance between the original and the reproductions (or copies) is different and their genesis helps us distinguish between the authentic work and its less genuine versions.

Other kinds of works are repeatable works and we appreciate them with a different discrimination than the above type-only works. Works such as the performances of plays or musical works are repeatable, and we appreciate the work in virtue of their tokens. Although the discussion that follows addresses how we might appreciate certain works in relation to their instances, this does not suggest the instances make something a work. David Davies makes this point with the following example,

---

[17] I acknowledge that my generalization extends to things like *occurrences*, but this section will only address types and tokens.

[18] Wollheim (1980), p. 4. Also, this is similar to Nicholas Wolsterstorff's concept that, in music, both the music and the performance of that piece is heard. See also Lopes (2010), p. 56.

> Imagine if we were to discover a score by Sibelius for what was announced on attached papers to be his Eight Symphony, something written late in his life, which, as we learn from the papers, would have been performed had not an untimely demise prevented him from making his wishes known to anyone. We have surely discovered a hitherto unknown and unperformed performable work, a work that might have never been discovered.[19]

Chapter 8 shows us that some metaphysicians disagree with the above, but I agree with Davies and others that works exist independently of their being instantiated. This is not to say that performance tokens are unimportant because, as the Davies quote above states, the experience of the work matters because that is how we can come to know and appreciate a work and, of course, there are sometimes specific properties of individual performances that are meritorious in their own right. If performance works can be appreciated without their being performed then this intuitively extends to interactive works.

Before continuing with the type-token distinction, there is another way in which we can think about works and their instances. Once again, Davies has a conception of works and instances that he says can either be singular or multiple, where both are directly related to the provenance.[20] For example, paintings are ontologically singular objects that we appreciate in a direct relationship to its genesis. Therefore, according to Davies, any multiple instance of a singular work can only be appreciated in its relationship to that original, but the properties they bear are not identical and are less genuine. Prints of a photograph are considered instances of the original photograph but the copies are not intrinsically the same as the original. Davies claims properties of works can be manifested according to their 'provential instances' (P-instances), whereby,

> [w]e can then draw a distinction between 'P-multiple' and 'P-singular' artworks in terms of the number of P-instances that they admit — the number of manifestations that can stand in this specific relation to provenance.[21]

While paintings and photographs are appreciated as P-singular instances, music, plays and other Wollheimian types can be appreciated as P-multiple instances because their multiple instances can be appreciated 'independently of how it came to have [their manifest] properties'.[22] So while a painting by Francis Bacon is P-singular because the provenance cannot be repeated, Beethoven's *Fifth Symphony* is P-multiple because the instances are intrinsically similar whether by performer X, Y, or Z.

Davies goes on to claim that works can also be experienced in certain ways for their, what he calls, 'purely epistemic instances' (E-instances).

> What may be termed a `purely epistemic instance' (`E-instance') of a work X, then, is anything that can fully play this role in the appreciation

---

[19] Davies, D. (2011), p. 25.
[20] Ibid. (2010).
[21] Ibid., p. 414.
[22] Ibid., p. 415.

of X in virtue of possessing those manifest properties required in any event or object that can provide the experiential engagement necessary for the proper appreciation of X.[23]

Instances of works that can only be experienced from a single object or event are E-singular, such as paintings, carved sculptures and photographs. Works that are repeatable instances are E-multiple works, such as music, plays and literature. Therefore, works like music and plays, which seem to have similar characteristics to digitally interactive works, are appreciated for their P-multiple and E-multiple properties. Although this does not imply that all instances are equally successful (since there can be failed attempts), it does allow for multiple, yet authentic, tokens of the type because the E-instances share the necessary properties of their P-instances.[24]

We can think about works as they relate to the type-token distinction or the provential-epistemic distinction. Performances are multiples because they are repeatable events and so we might think it plausible to extend these models to digitally interactive works. However, interactive works are not performances. *Looking at a Horse, Wooden Mirror*, and Video games (and other strongly interactive works) share similar characteristics with the above descriptions of performance works, but they do not seem to share the same ontological model as the kinds Davies and Levinson talk about. The ontology of digitally interactive works is not always as straightforward as it is with music because the former kinds can consist of display types that are distinctive from other art kinds. The following will survey various views on the type-token distinction as it relates to interactive works.

In discussing the ontology of digital art, Paul Crowther claims that duplications of digital works are tokens of a type, the type being the original programming code and algorithms where "[t]he type program is created before the tokens are...".[25] Crowther states that with autographic works, any conceivable type, such as Beardsley's plates mentioned earlier, will gradually degrade over time, which will also become noticeable in any tokens (e.g., the prints), with the plate and the prints belonging to different ontological orders. He goes on to say that a digital image allows for tokens,

> ...but in no other respect is [the type] distinct from them; neither is there any difference between the individual tokens (except externally - when the hardware that realizes them is in some way faulty, or there is a problem with the software program). We have a case of absolute type-token identity.[26]

Aside from his earlier reference to algorithms and interactive works, Crowther's discussion of digital works focuses more on digital images and not exclusively on interactive ones. David Saltz extends the type-token distinction to digitally interactive works (which was later to be categorised as computer art). To summarise his view, which

---

[23] Ibid.
[24] Ibid., p. 413.
[25] Crowther (2008), p. 164.
[26] Ibid.

I will give greater attention to in Chapter 6, Saltz says that, although these interactive works are protean and transitory, similar to the traditional performance arts, there is a distinct ontological difference in the type-token distinction.[27] Interactivity in the performable arts, he argues, requires the performer to perform the works of art (an actor performs the play, the musician performs music, all of which are the direct objects of appreciation), whereas with computer art the work may be an indirect object of the users actions.[28]

> The [performative] artists here do not define performance types, but create interactive performance environments. Plays, musical compositions and dances define a series of actions to be performed; interactive performance environments provide contexts within which actions are performed.[29]

There is something importantly different with interactive art, Satlz goes on to say, because,

> the artist cedes control over the sequence of events that any given spectator will encounter, allowing the piece to vary with each interaction.[30]

With this statement, he points to the importance of the interactivity itself, not just the outcomes that result from the interactivity, whereby the interactive technology involved with computer art 'complicates the idea of the author'.[31] He has this view because it is his belief that the interaction properties are derivative of the user, not the work. Additionally, since it is Saltz' view that authorship is different with digitally interactive works than with the traditional arts, he notes another difference that arises with the respective audiences. Interactive works are theoretically similar to works like music and plays but, Saltz claims, with a key distinction between interactive and performance works: the latter are performed for an audience, while the former are performed for themselves; users do not merely perform works but perform *with* the works.[32] With interactive art, audiences are also the users who help generate the perceptual features of the work, hence Saltz' view that our notion of authorship cannot be as straight forward with computer art. As stated in chapter 6, this leads him to argue the type-token relationship breaks down for these works.[33]

Pace Saltz, Lopes sees no reason why we cannot extend the type-token distinction for the category he defines as computer art. For Lopes, works of computer art are types and the interactivity generates their tokens, or what he calls 'interaction-instances'.[34] These instances are dependent on the interactivity, which, in agreement with Saltz, makes

---

[27] Satlz (1997), p. 117.
[28] Ibid., p. 123.
[29] Ibid.
[30] Ibid., p. 117.
[31] Ibid.
[32] Ibid., p. 123.
[33] It should be appreciated that Saltz wrote about computer art before Lopes defined it, and when these technologies and works were in their early phases.
[34] Lopes (2001) p. 65.

computer art distinctive of performance works. To precurse the discussion from chapter 6, Lopes says more specifically that,

> ...strong interaction is not a case of the performance of a work. Performance is an intentionally directed action in ways that strong interaction is not.[35]

Lopes does not view the role of users who generate the interaction-instances and the roles of performers audiences equally. To make this clearer, consider how Davies describes the framework of a performance by saying performers do not guide a musical score but instead, the performers are guided by the original composition.[36] Interactive works have something in common with performance works, but, while users do not *create* the properties of the game, they have the unique ability to direct which properties are instanced. If we agree with Lopes, this shows that Saltz was correct in recognizing, early on, a difference between interactive works and performance works.

Interactive works are distinctive because, for one, their types have variable displays and secondly, they token their types in a much different way than a performance, or any other work. If a work fits within the type-token distinction then, as Davies says, we can identify the instances as being correct (or not) in virtue of the properties they both bear. We identify a work as consisting of a 'correct' kind of display(s) it should token, but we know that some kinds of interactivity are more distinctive than this. With digitally interactive works, each instance will not always bear the same properties in the way a performance of music will (relatively speaking). However, pace Saltz, interactivity should not complicate our notion of authorship because, while these works have variable displays, and users can customize the outcomes, all potential outcomes are made possible by the algorithm. Importantly, a new work or feature of that work is not created when a user interacts with a variable work, those features are merely instanced.

Before discussing the distinctive nature of some interactive works as just characterise above, let us consider works like *Looking at a Horse* introduced in Chapter 1. Users generate its display but the display will vary depending on the number of users (among other variables). The progression of this work will vary in a different way than performance works. For example, the sequences within the framework for Beethoven's *Fifth Symphony* is more or less fixed (or constrained) in that the audience, assuming they are familiar with the piece, can anticipate how the performance will play out. On the other hand, the user has control to change the pattern or sequence of displays of the interactive artwork and, are not as certain about the potential outcomes.

The interaction between the fixed and variable features of a work are comparable to jazz music and improvisations. *Looking at a Horse,* for example, is more closely related to the musical score of John Coltrane's *Giant Steps* instead of Beethoven's works given the variable improv. The jazz performance of *Giant Steps* will token a specific work of Coltrane's, and although it consists of improvisations, an authentic performance is one that is in agreement with the work and the rules of improv.[37] Similarly, some video games and digitally interactive gallery works also consist of variations, which are dependent on

---

[35] Ibid., p. 80.
[36] Davies (2010), p. 413.
[37] Lopes (2010), p. 59.

the user's inputs. Works like *Giant Steps, Looking at a Horse,* and *Dear Esther* have a chronological sequence that consist of variable displays, meaning there is a start, a finish and a variable progression of instances in-between that are characteristic of both examples.[38]

Lopes analogises computer art with jazz works because like the latter, the former will not token the properties of the work in an identical way each time. This view characterises interactive works, and not only those by the computer, but it does not characterise all interactive works. Some video games, for example, do not have a fixed start and finish but instead have variable starts, finishes, and instances in-between. As will become clearer in Section 2, there are special kinds of interactive works with unique display variability that belong to a different ontological order than other strongly interactive works. In brief, there are some interactive works that are not just variable in the progression, but will also have variable starts and finishes. This is largely to do with narrative.

Digitally interactive works are tricky cases for an ontology of art. Although digital works are not the only strongly interactive works, their unique medium allows for the potentiality of transmissible and repeatable works, and for works to consist of variable displays. *Looking at a Horse*, for example, will not always token the work in a similar way such as those like Beethoven's *Fifth Symphony*. This chapter highlights some of those complications, which will be addressed in greater detail in the Section that follows.

Between the autographic-allographic and the type-token distinctions, there are plenty of challenges that arise for the works in question. It is not my intention to say these distinctions fall apart once digital media have been introduced to a work, as Goodman originally thought. It is my aim, rather, to show that computer art requires a different kind of ontology than other artworks. It is also important to point out that, Lopes defined computer art for works that are more characteristic of *Looking at a Horse* than for works like video games; it could be the case that these former kinds are more likely to fit within the above ontological distinctions more easily than the game kinds. In fact, while Lopes makes a case that video games should not necessarily be excluded from the category of computer art, he does not make any claim that games can be art. His point is merely that, if a video game is art, then it qualifies as computer art. In the chapters that follow, I will direct my focus more specifically to video games.

---

[38] Other works like the life-simulating sandbox game, *The Sims*, are more open-ended and do not necessarily have any end because they are meant to be continually developed over time. We can have a similar discussion regarding most video games where the displays do not just vary, but they might bear different sets of properties.

SECTION 2: VIDEO GAMES

Chapter 5: Video Games, Art Games, and Players

The preceding chapters broadly concern digitally interactive art in a general sense; this chapter begins a new section with a narrowed focus on video games. I do not take it for granted that the reader will be familiar with video games, therefore, this introductory chapter will highlight some key features and philosophical accounts of them. Currently, there are several different views about what video games are and how we should engage with them as games, their art status notwithstanding. Game theorists often discuss video games in terms of the productive or creative activities, which pertain to their rules or art assets (or features pertaining to the 'look' and sound of the game). For example, video games can be viewed as complex mathematical structures that allow for a feedback loop between player and the programme, which generally turns to a discussion about the rulesets that games consist of. Other scholars take it for granted that video games consist of these input/output systems and prefer to discuss them as representational systems, whereby we experience imagery, narratives, or sounds that are shaped by specific contexts. The latter accounts appeal to artistic and aesthetic conversations, but it should be noted that a concept of video games as art is more strongly recognised in the gameworld, not necessarily in an 'artworld' sense.

In a similar vein, we can put aside the debate about games as objects to discuss the kind of engagement, free play or structured play, that is constituted by the rules and aesthetic features. Still, other scholars prefer to think about games as awarding certain achievements to their players and so the debate is diverted to cover the attitudes that are required in order to best appreciate a game. All of this is a lot of ground to cover and, unfortunately, I cannot do justice to all the above topics in this space. However, I will give a broad overview of video games and touch on the relevant arguments that are currently important to the philosophy of games. This should give an adequate survey on video games and gameplay for the chapters to follow.

This chapter has three objectives. Firstly, I take a general stock of the predominant (and various) views within game theory regarding the important features of a game. This will at least provide an idea of where the literature stands today. Secondly, I survey works that are usually considered to have 'art' status. Although this status relates to a folk notion of both art and video games, it has bearing on aesthetic discussions where the distinction between art and non-art video games is perhaps not so clear. Thirdly, I draw on some parallels between the participants of performance works and interactive works to highlight the differences between performers and players. Also in this section, I discuss four types of players, as presented by Bartle, and I offer a fifth type of player that I feel should be added to the current literature. An understanding of the above will clarify certain concepts that will benefit the reader in the proceeding chapters that focus more carefully on the aesthetics and ontology of video games.

5.1 What (Video) Games Are

First, it should be noted that theories of games and theories of gameplay, while different, will often converge, especially as it relates to appreciation. There are those philosophers who focus on the features that constitute a game (e.g., rules, narrative, obstacles) and others who focus more on how we should engage with games and what the correct attitude should be in order to constitute gameplay (e.g., constaints, free-play). Crossover

occurs because one usually bears on the other. For example, some would claim that ideal attitudes towards games involves a form of free-play such as using your imagination in a game of make-believe; others would disagree and claim we are not actually playing a game if there are no rules that we attend to (among other constraints); still, others would claim that we must engage with a game by trying our hardest to win, where others highlight sportspersonship instead. In what follows, because the proceeding philosophers discuss both the identity of games and the attitudes involved in gameplay, I will collapse the two separate concepts for a broad survey on the topic of games, and highlight differences when needed.

The impetus for today's emerging literature on games harkens to a few early philosophical authors who wrote about, what we would now consider to be, modern games and gameplay. Let us take a very brief look at three of these influential scholars before shifting our attention to more recent scholarship.

The first is a work by Johan 'John' Huizinga entitled *Homo Ludens* (originally 1938), in which he characterises modern play (in the broadest sense) as it relates to everyday activities within society.[1] He characterises the state of play as voluntarily entering the 'magic circle', where the player is detached from real life and all it entails, and takes up a different set of roles, rules, and relationships than those from ordinary life.[2] As his work was originally written in Dutch, English translators have struggled to make full sense of Huizinga's terminology (e.g., he intended his writing to be about play 'of' society rather than 'in' society;[3] also, the term *Ludens* is derived from Latin, which references many more things than gameplay, hence an inclusion of religious practices). As it stands, Huizinga's text focuses on the social aspects of gameplay.

The second influential piece comes from French Sociologist, Roger Callois, who expounds on Huizinga's work and claims (or clarifies) that there are four forms of play: games that involve competition (chess), role-playing (*D&D*), chance (Bingo), and what he terms 'whirlwind' play (drugs or adrenaline inducing activities like riding a rollercoaster).[4] It is my view that these different forms of play will bear on the kind of interactivity one engages in and, in turn, affect whether we can appreciate the work as a game or art. My characterisation of Callois is a bit simple, however. For example, dance combines several of the above characteristics because it involves vertigo (whirlwind), mimesis (role-play), and competition. Chess, on the other hand, is mostly a game of competition. I would argue there are video games that could, conceivably, entail all four forms of play. This combination of engagement makes video games tricky cases for a category of art and games.

---

[1] Huizinga, Johan (1938). Original Dutch edition.

[2] In his view practices like religious rituals would also count.

[3] This is made clear within the forward of the first English translation: Huizinga, Johan (1955).

[4] Perhaps this latter category gives us a better way of explaining experimental games like *Mountain*, presented in chapter 1 of this dissertation. Given the psychological implications of this game (and philosophical ones as the game makers claim), it may have greater connection to hallucinogenic experiences than game-like ones. For more on these categories of play, see: Caillois, Roger, and Meyer Barash (1961).

The third influential game theory text comes from Bernard Suits, who defines gameplay in the more normative sense. Instead of focusing on why we play games, he states that games essentially involve rules and obstacles. His definition will be covered in more detail in Chapter 7, but suffice it to say, he viewed gameplay as the voluntary taking up of tasks and overcoming of obstacles by less efficient means (any efficient means would make the task too easy and thus not a game).[5] This makes gameplay more about the process of experiencing games, which are made possible by the game's ruleset, than about the outcomes of them.

The above, to name just three, represent the differing conceptions of games that led to a broadening division of study between those we call narratologists and those we call ludologists. Narratologists, as we can infer from the name, focus on the game's stories. They derive their view from Aristotle's *Poetics*, which, very roughly, addresses how stories should be constructed (with a much broader application today for theatre, films, or novels, and video games). These scholars emphasise a game's rich narrative component, which, like other story-telling works, help us make sense of the world around us. Given their rules, prescriptions, and their representations, games are viewed as predominantly story-based things, which is especially true of many video games. However, some scholars worry narratology aligns games too closely with literature[6] and film[7] while ignoring the features and mechanics that are distinctive of gaming. For example, Espen Aarseth says 'Games are not a kind of cinema, or literature, but colonizing attempts from both these fields have already happened, and no doubt will happen again and again, until computer game studies emerge as a clearly self-sustained academic field'.[8]

The kind of sentiment put forward by those such as Aarseth prompts a different group of game theorists known as ludologists who focus on games as unique in and of themselves, which consist of rules and states of play. The study of ludology is largely influenced by Suits and his conception of games as a collection of obstacles and goals rather than representations. Contemporary game designer Chris Crawford defines video games in a way that characterises a ludological appreciation (whether or not he views himself as a ludoglogist). He conceptualises video games as "conflicts in which the players directly interact in such a way as to foil each other's goals".[9] Another game designer, Greg Costikyan, says video games are "a form of art in which participants, termed players, make decisions in order to manage resources through game tokens in the pursuit of a goal."[10] Both definitions bring goals to the forefront, which began a direct reaction against the narratological approach. An historical account of the rivalry between the narratologists and ludologists takes me too far afield, but the dividing line has lessened more recently with scholars who consider both aspects.

Grant Tavinor is one such person who views some video games as works that consist of a rich narrative, but where narrative is only partly what we appreciate of the work.[11]

---

[5] Suits (1978).
[6] Janet Murray is one such theorist.
[7] Lev Manovich is one such theorist.
[8] Aarseth (2001).
[9] Crawford (2003).
[10] Ibid., p. 8 (Both this and the above quote were found in Sicart, Miguel, (2011), p. 38.
[11] Tavinor (2008).

Although ludologists usually view a narratological approach to be a weak account of games, others who hybridize the concept of video games have noted that there are games that lack narrative altogether, such as *Tetris*, and yet we still consider those works to be more than a set of rules and attitudes. Steven Poole, for example, suggests we can conceive of games like *Tetris* as a kinetic narrative, but this concept worries those like Tavinor because it overly stretches the meaning of narrative in order to accommodate too many non-narrative games. [12] Instead, Tavinor synthesizes the two perspectives by emphasizing the imaginative component of video games, which is made possible by the interactivity and ruleset of games. Even with games like *Tetris*, it is possible that we view the shapes (or tetriminos) of colour as props for make-believe (this invokes Kendall Walton's idea of mimesis), even if it is not prescribed by the work.

To bridge the narrative and ludic divide Tavinor proposes this disjunctive definition of video games:

> X is a videogame iff it is an artefact in a digital visual medium, is intended primarily 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-bound gameplay or interactive fiction.[13]

Tavinor admits there will be varying degrees of fictive elements in video games, but this notion of interactive fiction is a more inclusive concept than narratology or ludology is on their own. In a similar vein as Tavinor, Jesper Juul hybridizes the two views because he views video games as capable of consisting of both the rules, the narrative, and the fictional components. Even the games that consist of minimal fictive elements allow us to imaginatively enter the gameworld, even if the rules of the game do not match the fictional world.[14] Both Tavinor and Juul admit that there may be ludonarrative dissonance between what actions are possible within the ruleset and what seems possible with the fiction. More on dissonance in Chapter 6.

More recently, game theory as a disciplinary study has grown to further include conceptions of video games as designed artefacts, moral objects (or ethical systems), and artworks. The latter view returns us to Lopes who, like Tavinor, makes room for the inclusion of video games within an art category. Although Lopes hesitates to include all video games as art, his definition of computer art allows that video games can be aesthetic objects.[15] He makes no claims on the game status of these works, only that they are potential art candidates. On this point, there is some disagreement. Even for those who acknowledge a possibility that video games can be art, there is a worry that it cannot also be a game. How might a video game *not* be a game? There are those who regard art and games as incompatible since each require different kinds of prescribed attitudes. Brock Rough is one such sceptic who says the criteria of games and art lack compatibility because games require an inefficient means toward a goal while aesthetic attention does not.[16] This is not a psychological incompatibility, or one about ontology, but a logical incompatibility between attitudes. Rough makes this conclusion because, when it comes

---

[12] Poole (2013), p. 108.

[13] Tavinor, (2008).

[14] Juul (2004). Here, gameworld refers to the Waltonian fictional world.

[15] There is no argument here that artworks are games and games are artworks. Lopes' view is more to do with what constitutes a work of computer art.

[16] He is agnostic as to whether video games are games and whether they can be art.

to gameplay, he considers himself a 'Suitsian'. Although a thorough discussion of this requires a greater critique of Suits' account of games, I will briefly paraphrase that, art prescribes an appreciation attitude, but this prescription would change Suits' sufficiency claim for gameplay. I will elaborate on this in the following chapter. For the time being, this should make it clear that not all video games can be classified as art, but also, if it is art, not all philosophers would classify it as a game.

Another explanation on the game-art compatibility issue is that we have simply miscategorised some works (as either a game or not a game, such as *Mountain* or *Florence*[17]) or, perhaps we should give an account that stipulates it is merely *standard* to the category that video games are games.

All this to say, the select theories above provide a broad survey of how we might view games and gameplay. Many games consist of narratives, but as others have pointed out, their stories are not the only thing we laud about them. So too, many players will often remark on a game's ludic rather than narrative features, particularly as it relates to the degree of interactivity a game has (this is usually the case when a game is *not* interactive enough in the player's mind to qualify as a game such as *Mountain*). Ludologists seem right in that games should be appreciated on their own and they should be distinguished from other works like literature, but video games more specifically are more than their sets of rules.

I should also point out a difference between mere games and video games as it pertains to rule following and has to do with the requisite knowledge each requires of players. Steven Johnson says:

> Many of the rules - the identity of your ultimate goal - become apparent only through exploring the world. You literally learn by playing. This is one reason video games can be frustrating to the non-initiated. You sit down at the computer and say, 'What am I supposed to do?' The regular gamers in the room have to explain: ' You're supposed to figure out what you're supposed to do.'[18]

Chess requires knowledge of the full set of rules in order to play it properly. However, video games offer minimal rules to their players up front and any instruction that a player is aware of ahead of time usually pertains to manoeuvring mechanics involved in playing the game and a summary of the overall theme; details on how to achieve the goals or outcomes would render the game boring. In order to understand the video game, you must play and explore it. So, while rules are essential for all gameplay, the ruleset is not always at the forefront when playing a video game.

Each of these components are relevant to game theory and, for my part, I view video games as works that permit either a narratological, or ludological appreciation, or a hybrid of both. I should make it clear, however, that my view of video games is not necessarily in disagreement with Rough, but my view is perhaps less sharp in the boundary between art appreciation and gameplay. In other words, I differ from Rough

---

[17] *Florence* (2018) Annapurna Interactive.
[18] Johnson (2005), p. 42.

because I see no reason a work cannot be two kinds of things if it has prescriptions for gameplay and art appreciation; I agree with him that those prescriptions might require two different attitudes that are not possible at exactly the same time.

Perhaps for the hybrid works discussed above, it is in the fluctuation of the two attitudes that real appreciation occurs. Indeed, it seems that some traditional works of art prescribe attention to at least two sets of properties – properties that belong to the 'art' and properties that belong to the 'other'. In some cases, the 'other' set of properties will belong to its utilitarian features, such as those found with Duchamp's, *Fountain.* In my view, it is crucial that we appreciate that this work as both a urinal and a conceptual sculpture. In other cases, the 'other' set of properties might belong to its propagandistic or political features, like David's *Death of Marat.*[19] Likewise, video games can have both art and game properties. This Wollheimian two-fold account seems logical for the properties involved with video games, but what about prescriptions?

If one agrees with Huizinga's account of play (that there are four different forms) and if something like dance prescribes at least two 'play' attitudes, then it might also be believed that a video game can be a game and an art. This, of course is an ontological claim, not one about prescriptions. If Suits' sufficiency claims are for *gameplay*, then I agree that, to be a Suitsian about games, you cannot engage in both attitudes at once. But, importantly, what I want to suggest is that video games often prescribe many things and interactivity allows for the exchange of different attitudes that, perhaps, generate the interesting properties. For example, consider the video game *The Walking Dead* where the player-character can have many different encounters depending the options the player selects, but where each option leads to the player-character's death. This can occur at different times and for different reasons, but the collection of outcomes makes the player aware of the game's overall point, which is that death is inevitable. I would claim that appreciation in this scenario is one of art appreciation. Although this engagement is different than the gameplay prescriptions, both are prescribed (at whatever time) by the single work. If both are prescribed by the game, then we have not lost Suits' sufficiency claim.

As I see it, the structure of video games can, therefore, be viewed as hybrid works and not necessarily appreciated as singularly ludic, narrative, or fictive. This makes formulating a non-disjunctive definition of video games a difficult, if not impossible task. However, I do not think video games need be for entertainment only, as Tavinor's definition suggests. I think it better to stipulate that video games, if they are games, will prescribe lusory attitudes, and may include a prescription for aesthetic attitudes as well.

I will now shift my focus to address what it generally means to say video games are art works, or artistic at the very least.

5.2 Game Art and Art Games

Video games amalgamate numerous art forms, combining processes and styles from cinema, painting, music, and literature. This being the case, the topic of video games is a revolving door of study for philosophers of art, law, sport, games, and more. Although the

---

[19] Hans Maes discusses a similar compatibility between art and pornography. See Maes, Hans (2011) and Maes, and Jerrold Levinson (2015).

history of video games is a relatively short one it already consists of changing definitions, gaming platforms (including different consoles and devices), associated media, and genres, not to mention the expanding target audiences of video games. The manner and locations in which the video games are consumed have also changed over the decades, from arcades, to local area network (LAN) parties, to virtual reality environments.

Another evolving difference within video game history has to do with a game's authorship and licencing. These histories vary from games created by single designers such as Toru Iwatani (e.g. *Pac-Man*) to team-produced video games (e.g., *World of Warcraft*). There are also distinctions between what we should call arcade games, computer games, mobile games, video games, or even videogames (no space), which typically have to do with how the signal is transmitted and rendered within specific kinds of devices.[20] Here, I will adopt the generic 'video game' nomenclature, which has come to broadly encompass a variety of games regardless of their technology and hardware.

Interestingly, precursors to video games as we view them now emerged as a means for early computer scientists to demonstrate the remarkable capabilities of computational devices, not to mention the ingenuity of the programmers. In fact, some of the early games were so obtuse that they only appealed to the hard-core tech nerds who built them. Since then, they have become a primary form of entertainment, which are discussed in a number of ways. Video games are denigrated for their violent and debase content (usually by those who do not play them), praised for their instrumental value, and, more recently, are taken more seriously in virtue of their artistic merit. That said, a video game's art status does not come without complications because, aside from the sceptical arguments brought forward by Rough and others, some games are created with artistic elements but without the intention of their being art, and others are purposefully created to be viewed as art. All the above presents a difficulty for philosophical discussions of video games, but also makes for an equally invigorating debate platform.

I will take for granted that video games can be art, so rather than defending their art status here I will offer a brief clarification of the kinds of games people generally refer to when classifying video games and art. Although this will be a broad and general overview, it will distinguish the following games from exogenous game designs, or those games whose primary aim is to teach a skill (e.g., math, reading comprehension, memory, history, etc.). I believe this will be helpful in moving forward because up until now, I have been vague about any distinction between the two kinds of digitally interactive works referenced in this dissertation. In the previous chapters, I discuss works of one kind such as gallery works like *Looking at a Horse* and *Rain Room* and works of another kind like the video games *Dear Esther*, *Mass Effect, Amnesia*, or *Undertale*.

When addressing video game art, authors will refer to them in the art sense if they are either (1) derived from or inspired by video games (game art) or (2) video games themselves that have been intended for artistic appreciation (art games).[21] While specific distinctions remain to be made clearer between these categories the general differences relate to works that are either intended for the gallery (game art) versus works that are aimed for a wider and general commercial consumption (art games). This latter category

---

[20] For more on these distinctions, see: Wolf, (2007) p. 4.
[21] Ibid., p. 14.

is the more complicated one to distinguish. In the former category, works might include traditional art kinds where iconographies from video games are appropriated for a painting, or a screenshot of a video game is used as a portrait, or for a sculpture, etc. Mario Ceolin, for example, appropriates recognizable icons and landscapes from specific video games and creates paintings and video installations that his audience may or may not recognise and identify.[22] Although they generally are recognized for their video game references, they are intended for the artworld's appreciation, to be displayed in gallery environments at places such as at Art Basel and the Venice Biennale.[23] In line with this sub-category, there is an emerging kind of exhibition that focuses on the curation of the actual video and arcade games, sometimes alongside video game nostalgia, which are also examples of game art.

Although not the first to exhibit video games, well-established museums like Museum of Modern Art (MoMA), New York, made headlines when they announced their ongoing video games acquisitions for their permanent collection and for their exhibition entitled, *From Pong to Minecraft*. Curator Paola Antonelli based her collections on the idea that video games themselves can be art, and also with the approach that they are examples of design elegance.[24] MoMA continues to add to their collection and has subsequently inspired similar exhibitions at other museums. While this has helped video games gain greater attention within the art world, it also re-establishes the idea that they should be artistically and aesthetically appreciated as curated objects, or things to view like a painting rather than things to play (although, unlike other museums' video game collections, MoMA does allow visitors to play certain video games at certain times). I should also point out that MoMA does not keep these video games with the rest of their permanent art collection; these games are housed in their applied design spaces, which comprises objects such as furniture, a mine detonator, and vacuum cleaners.

Although game art may include works like an arcade game in the gallery space, the sub-category is normally associated with artistic elements of video games that are extrapolated from the game itself and used as its own singular display. For that reason, game art may share characteristics with art games, but unlike video games *qua* games, game art invites viewers to appreciate them as particular art objects.

Alternatively, we can appreciate video games the way they were intended – by playing them. While the game art described above is not usually interactive or game-like (although they can be as we can see exemplified with the MoMA exhibit's actual game consoles), art games are interactive to varying degrees. The interactive nature of video games causes suspicion for some within art history and art criticism to view them as art. Instead, they stipulate that we cannot appreciate video games like we appreciate a

---

[22] Ibid., p. 10.
[23] Vernissage TV. http://vernissage.tv/archive/artists/. Accessed June 2016.
[24] Antonelli's ambition was to acquire 40 games in the original console types as well as in their original source code. The growing list of acquired games reads, *Legend of Zelda, Pong, Eve online, Drawf Fortress*, and *Portal*. http://www.wired.com/2012/11/moma-videogames/, accessed December 2015.

painting due to the speediness of the interaction instances and our own cognitive speed. Some critics go further and doubt the immersive aspect of video games can afford appreciation like other interactive works (e.g., installations) because video games do not allow the necessary critical distance we need to experience them as art. Instead, video games distract, immerse us, or overwhelm our senses to such a high degree that we cannot appreciate a work's aesthetic features.[25]

Perhaps most widely known are the damning words of Roger Ebert, who simply yet provocatively declared that 'video games can never be art'.[26] Much of this has to do, I feel, with his folk definition of art, which Ebert adopts in making this statement. His simple reasoning for such a claim is that video games can't make us cry like other narratives (or artworks) can. I will elaborate on this idea a bit more in the following sections of this chapter and in the conclusion of this dissertation. Crying is not necessarily the objective of games, and yet, games can make you feel things. For the moment, I will state that it is my view that some video games can definitely be appreciated for their aesthetic properties and, perhaps, as an art. It is art games, rather than game art, that will be the focus in the remaining discussions that follow.

5.3 Art Games

There are many different genres of play within the category of video games and players will often gravitate toward certain ones rather than all of them (e.g., I enjoy puzzle video games but massively multiplayer online (MMO) games stress me out). Typically, there are four genres of play, which include: target, adventure, action, and tactics games. Simply put, *target* games are those that prescribe efficiency and precision in its players such as pinball, *Super Mario*, *Space Invaders*, etc. *Adventure* games include more fast paced and detailed contexts, usually with the inclusion of storytelling. Some of these are highly text based (e.g. *Might and Magic*) and others can be highly graphical (e.g., *Sword and Sorcery*). *Action* games combine other genres but require timing, speed, and skill from their players. While these are often fighting games, this genre includes puzzle and chapter-based games that require completion before advancing to the next level. A game like *Street Fighter* would be considered an action game. *Tactics* is the fourth genre that consists in strategic planning and logic, such as *Bos Wars*. These games can range from fantasy-like games to historical ones, but, like chess they require strategical actions against a direct opponent (even if it is the computer), rather than independent and isolated puzzles.[27]

The above games might be platformer games like *Super Mario, Hollow Knight,* or *Trine*, where the player can move their character in linear directions only. There are also

---

[25] Following those such as: Theodore Adorno, Walter Benjamin, and more recently Oliver Grau (2003).
[26] Ebert originally stated the quote above on air, but here is a more interesting and in depth rational for his previous statement: http://www.rogerebert.com/rogers-journal/video-games-can-never-be-art. Accessed January 2016.
[27] For more on these genres, see Melissinos, Chris, and Patrick O'Rourke (2012).

sandbox games where the player has more freedom to explore the game world in what seems like three-dimensions. This means that players can deviate from certain paths in the gameworld to, for example, explore the forests, or various rooms at an inn, or speak with minor non-player characters, etc. There are also first-person shooters (fps) where you take the perspective of your character, while other games are played using an avatar, the player-character represented on the screen in front of you. These game styles and mechanics are different from each other and will often determine the kind of play or engagement of a player, but they do not determine the art status of video games. In fact, you will find both art and non-art games in the above genres.

Within the category of video games, there are two sub-categories: 'entertainment' games and 'serious' games. These sub-categories get us closer to distinguishing between non-art and art games. Typically, entertainment-based video games have a longer tradition and they are not normally considered art because they are created with the intention that players will direct their attention entirely (or predominantly) on the lusory and competitive (or other game related) elements. In general terms, they are appreciated more widely as mere video games that are intended to entertain. This category would include everything from works like *Angry Birds, Tetris, World of Warcraft, Diablo,* and, arguably, *Undertale*. These games would not normally be considered art because they were not intended for an art category by their developers. That so, I will explain shortly that there is crossover and ambiguity regarding the non-art status of some of some video games.

Alternatively, to the entertainment games, a work might fit into a category referred to as serious video games. The adjective 'serious' is intended to reference video games that do not solely aim at entertainment (or pure gameplay) like the ones just listed, but instead have some other primary intent, e.g., educational, therapeutic, aesthetic, etc. Art games such as *Apothen*, *Braid[28], Trine, Limbo* and *Kathy Rain* are considered serious video games because they intentionally direct players to attend to the game's artistic and aesthetic features. The artistic features of serious games widely range in style and there are many ways in which developers include mechanisms to direct the player's attention to the visual style, the quality of the narrative or music, or sometimes notable aspects of the platform design. Unlike the perceptual features found within mere entertainment games, the features of art games will often borrow stylistic features from established art categories to reference a style or genre, and from art forms such as painting, film, and/or literature.

For example, in contrast to entertainment games, a serious action role-playing game might be like *Apothen*. Your character is a young warrior, whom you must help fight the Greek gods who have been punishing humans. Although it has noteworthy gameplay features, it consists of aesthetically beautiful representations of Classical Greek-like

---

[28] Game theorists, particularly Ludologists could argue that *Braid* is not a bona fide game for the reason that your character cannot die.

murals. *Braid* is a puzzle-platformer game that requires you to save the character's girlfriend. At face value, the gaming mechanics make the game seem somewhat simple (you move your character backwards, forwards, and up and down), but it is more complex than this. For one, its artwork is notable and reminiscent of both Post Impressionism and Surrealism. For another, the interactivity helps to drive the story, which is told in a somewhat postmodern, non-linear manner. The literary format is noteworthy because it differs from the story-telling of most puzzle-platformers that are told more straightforwardly. *Limbo* is visually unique compared to many video games because it is created entirely with a black, white, and grey pallet, which conveys a strong film noir aesthetic as you navigate a little boy through various obstacles to find his sister. The dark tones add to the aesthetic of the gruesome imagery, and the character will often die while trying to overcome certain obstacles. This has led to its review as being a 'trial and death' game.[29] Games like *Kathy Rain* focus more on character development and narrative, and in that respect functions similarly to a mystery novel. This latter example also shows that an art status does not entirely rely on the complexity of the visual artwork; *Kathy Rain* is not painterly or cinematic but is instead a throwback to retro games with its pixelated and rudimentary appearance. This too becomes an artistic feature of the game and, conversely, motivates us to view older 'entertainment' games with aesthetic interest (hence another ambiguity between the sub-categories).[30]

An emphasis on narrative as an *artistic* means is a relatively recent feature for art games.[31] A narrative feature will be distinctive of the non-art narrative games because, while the narrative in non-art games work to propel the game features, the narrative in art games encourages the player to contemplate things like the cultural, social, moral, or purely aesthetic aspects.[32]

Each of the above examples has artistic content that becomes significant if not primary to the player's interest. Although art games place a significant emphasis on the particular art feature or features that should be recognised, the art does not necessarily preclude these games from being highly competitive or obstacle driven, in the same way that pure entertainment video games are goal oriented. This, of course, is debatable. Although it is assumed that art games are created with artistic intent, the art games genre has extended to non-art games that are later modified by their players, i.e., 'modded' games. If modifications are made to an entertainment video game to produce or enhance the artistic and aesthetic elements of the game, the industry (or general public) will sometimes recognise this in retrospect.[33]

---

[29] Hatfield (2010).

[30] Perhaps an interesting way to look at this trend is through the value of antique properties. For more on this, see: Curtis and Baines. (2016).

[31] I emphasis the word since we are aware from narratologists that even mere games not aiming to be art games consist of narrative.

[32] Devine, Theresa Claire, William Andrew Presnell, and Samuel Miller (2014).

[33] This would not necessarily include modded gaming or patches where the story or some other structure of the game is changed.

Following the above, it is clear that more needs to be done to further disambiguate this category because as the technology for consoles and PCs become more complex and sophisticated, so too will the graphic (and other) results of purely entertainment video games.[34] *Fallout 3* and *Undertale* are two popular and relatively recent video games that serve as borderline examples because they have artistic merit even though they were not necessarily intended for the art game genre. *Fallout 3* is a FPS game, but in addition to the normal interactive and competitive features, the game offers players choices that create both moral and emotional contemplation, or what game theorist Carlos Díaz calls a 'reflection experience'.[35] *Undertale* is also a popular role-playing game that requires the player to make ethical choices, ones that have lasting effects and consequences throughout the game. This feature of entertainment games combined with the nostalgia that we now view older non-art games (like with *Kathy Rain*) has led to ambiguities when video games are labelled as art or non-art.

Earlier I said that the focus of the chapters to follow is on art games opposed to game art. However, I do not care much about making sharp distinctions between entertainment games and serious games given that many in the former category have artistic elements. Whether these are just art assets of the game, or the game is art, is a question for another time.

5.4 Stages of Video Game Development

Within the philosophy of art, a player of a video game is often compared to a musician who performs a musical work. Aaron Smuts says,

> The video game player can plausibly be considered a performer in a larger video game performance.[36]

That so, we should recognise that there is a divergence in how performative works like music and interactive works like video games exist and how they are experienced. An ontology of performance seems a close candidate for video games, but it remains unconvincing because it fails to draw out the distinctive features of interactive works, as will be shown in the following chapters. In this section, I discuss a few parallels between video games and musical works for the relevant subjects involved, i.e., composer, performer, and audience. This will begin a differentiation between performance works and interactive works, which will prepare us for a more in-depth analysis between the two in Chapter 6.

---

[34] This is not to say that all art games will be aesthetically complex, beautiful, or the like in a visual sense, as mentioned with a popular resurgence of retro-like video games that are pixelated and visually simple. Still, there are pixilated video games that are visually complex and painterly, such as *Kingdom*. For more on disambiguation of art games and game art, see: McElroy, Justin. Video Game Blogs. (2008); Chen, Jenova, (2008); Young, Nora & Misener, Dan.

[35] Díaz, Carlos Mauricio Castaño, and Worawach Tungtjitcharoen (2015).

[36] Smuts (2005). URL: https://quod.lib.umich.edu/c/ca/7523862.0003.006/--are-video-games-art?rgn=main;view=fulltext. Accessed February 2017.

The development stage. While composers of music might collaborate on a work, the concept of authorship of a musical work is usually a straightforward one. Video games present a challenge when we try to identify a specific individual who is artistically responsible for the work, due to the many collaborative levels involved in video game production. Production houses, those such as Blizzard Entertainment, employ both individual and team-based developers, artists, composers, designers, programmers, and more. While most video games (there are exceptions) involve the collaboration of many, I will bracket a discussion of collaborative authorship here as it is a topic dealt with in detail in the philosophy of other art forms like film and comics. That so, identifying what occurs at the developmental stage of video games is helpful to highlight where the property bearing features of the work originate, which will be necessary for the following ontology chapters.

We can pinpoint the genesis of a musical work (broadly speaking) when a composer creates a complete indicated structure, to borrow Jerrold Levinson's terminology. If the structure is complete a musician will be able to interpret the work from the notations because, according to Levinson, the indicated structure of a musical work "encompasses all of what the work signifies".[37] In some ways, when a complete algorithm is created, the algorithmic structure contains a parallel degree of information similar to the indicated structure. Instead of a pattern of notes, key and time signatures, dynamics and other such instructions that become relevant to the score, an algorithm for a video game will typically include the features relevant for the background textures and colours, the characters, narrative, tones, and other important elements of the game and gameplay. However, there is a significant difference between music and video games, which bears upon an ontology of video games, because as already mentioned, the complete structure of a video game, or algorithm, once it is created, is not in an interactive state. As such, a player cannot play a game with only the algorithm, whereas a musician could perform a musical work from the composed indicated structure.

The algorithm contains the essential content information, which often requires the collaboration of many. In addition to platform designers, musicians, artists and the like, programmers will often participate in the development stage as well. So, while an algorithm consists of the relevant properties of the game with or without the code, this by no means suggests programmers are not involved at this stage or responsible for important features. For example, a programmer might discover, after or during development, that a certain action or movement is not possible in the way the algorithm prescribes and so they might offer feedback on the specific physics of the design. In other cases, a programmer may create something new and unexpected for the developers that later becomes a welcomed feature of the work. This is similar to authors who make edits to their own works after reviewers provide feedback and suggestions. Here, I am not interested in a chronology to pinpoint exactly when the game is considered a complete game, but rather to point out that the developmental stage is crucial for the algorithm, which contains the work's structure. Once the algorithm is considered complete, it is ready for the next sage. In the next chapter, I will elaborate on what form the algorithm takes before it is programmed, how it exists, etc.

---

[37] Levinson, Jerrold, (2013).

The programming stage. The performer of a musical work instantiates a piece by playing the correct pattern of notes along with any other components that belong to the structure that has been indicated by the composer. Differently than music, the algorithm requires an additional step before it is ready for gameplay, namely the programming language. Pace Smuts, under my view of video game works the player is not analogous to the performer as one might think, rather, the programmer is.[38] As stated, this conception of programmer-as-performer is in opposition to Smuts, who says,

> …we should not ignore the aesthetic experience of the performers of art works. The video game player can plausibly be considered a performer in a larger video game performance. Since the primary goal of most game design is to enhance such aesthetic experiences, it would seem that we have good reason to evaluate games as art works. Unfortunately, the philosophy of art and aestheticians appear oblivious to the aesthetic experience of performers of art works. However, we must ask, does not even the amateur musician have aesthetic or artistic experiences?[39]

To be fair, Smuts makes the above claim to argue a case that video games are art, and not necessarily to parse the specific roles. Without a doubt, there are strong similarities between music and video games, or performers and players. However, works in the former category are performative, while works in the latter are interactive, and they each invite us to do different things. Within an ontology of performance, Smuts is correct in characterising the player like a performer, but given the significant differences between performance and interactivity, it seems a stretch to force such a parallel when players do not fully attend to video games in the same way musicians attend to a musical score. A significant difference between the performer and programmer lies in reference to the impact each respective person has on the work at different times. While performers have an external relationship to the work (i.e., typically, a performer performs a piece after it is already a work), programmers are internal to the creation of a work, much like a film producer or director. Although there is not an exact parallel between performer and programmer, not to mention a performance ontology ignores the distinctiveness of video games, what I hope to show is a correlation between the music performer and the video game programmer is more closely related than the performer and the player, as it is typically understood.

However, it may be the case that the algorithm and code are normally viewed *dependently* when considering the appreciation of a video game, but the processes and attitudes undertaken for development (algorithm) versus production (programme) are two different things. An art game developer will, collaboratively or independently, work on creating a concept, style, audio assets, narrative, and everything else belonging to the identity of the game's formal and aesthetic properties. Bearing in mind the intent to create a work within the genre of art game, the developer will potentially use each of these features as a means toward some artistic end. There is no question that developers, whose role we discussed in the above section, might enlist programmers (and designers, audio engineers, etc.) in the process of creating all the relevant features of the work. In fact, the algorithm in and of itself is an abstract thing in that it may be created simultaneously as it is programmed. That so, the code is distinctive of the algorithm, the

---

[38] This is regardless of the programmer's contribution to the development of the algorithm.
[39] Smuts (2005).

code of which implements the developer's work. However, programmers are not merely technicians because, like performers, they interpret the work into a compliant and appreciable state. Given the programmer's significant role, it is the stages of game development I wish to highlight, rather than specific individuals.

The differences between the stages of development and programming may not be overtly clear, but perhaps it is easier to emphasise them when we consider independent game makers rather than the developers from big production houses. For independent game makers, the programming process might be devastatingly expensive and incredibly time consuming because, coders come with a high cost and so will sponsorship. As a result, algorithms often remain in an un-coded state for considerable lengths of time and some never go into production at all (an interesting question then arises, are these existing works or incomplete works?). Developers who do not have the resources and means to contract programmers do have an option to cut costs and time by purchasing existing code and source code software to implement the game themselves, but this will have consequences on the final product's perceptual features.[40] In the same way that *Photoshop* produces similar or standard looking effects for different photographic images, the stock code in a software format makes the code inaccessible and, therefore, tends to produce games that restrict certain creative choices, e.g., lighting effects, background textures, etc.

Indie game developer Julian Oliver bemoans the struggles that developers such as himself deal with versus large production companies and says, 'A developer's community for the little guys definitely involves a segregation, purely on the level of production…'[41] Oliver is one such art game developer who often has to choose between a few million dollars budget and a significantly larger team to outsource his algorithm for programming, or instead, give up partial ownership of his project to the sponsors using the stock source code. Oliver explains in his interview that he is usually left with the latter choice as the only viable option. The intuition that follows from this is that programming is essential for a video game to be in a playable state and enter the marketplace, but the algorithm is the significant asset and does the heavy lifting as far as the creative framework goes. Importantly, the programming turns that creation into a particular instance and allows for gameplay. That so, we can also look at the elegance of a certain code, much like a beautiful mathematical equation or philosophical idea. The programming language is what makes the implementation of the algorithm possible and so the attitude of the programmer is concentrated with a similar attitude of a musician who reads and interprets the musical notes on a page.

This leaves one remaining stage (broadly speaking) in the video game process.

The playable stage. Music does not require an audience but it is typically performed for one. Video games do not require an audience as such, although we can equate the player and the audience as one and the same. Works like video games emphasise the role of the player because he or she is responsible for the displays of the work via interactivity. Gameplay has similarities with the experience of listening to a musical performance because each play through of a video game avails us to variations and different

---

[40] Clarke (2007), p. 298.
[41] Ibid.

experiences. However, we should not regard performance works and interactive works as parallel examples. While the audience of a musical work will attend to certain features in order to enjoy the work, a player will attend to those features in order to *achieve* certain features of that work. Generally speaking, the uniqueness of the interactivity afforded by video games leads many within the general community to view the player as responsible for creating different features of the work, like when game creator James Portnow says:

> Videogames are unique...Because of their inherently interactive nature we, as developers, ship products that are by necessity incomplete. A painting on a wall is a finished work, a movie on a reel is whole and complete, a novel on a shelf is what it will always be, but a game without a player is nothing.[42]

Although I do not share this view, it is easy to appreciate how Portnow's statement is a commonly shared one within a folk concept of video games. Gameplay is important because it is within this (figurative) space that aesthetic experiences are possible. Players are given the opportunity to curate their choices into a game that feels unique to themselves, be it how their avatar looks or what kind of role they adopt. In other words, many video games are largely customizable by the player. However, although the players (and the programmers) use their skills to enhance the aesthetic experiences of the work they are by no means responsible for creating those features or outcomes.[43] While many games allow for a strong degree of user control, especially with narrative sandbox games, each choice that a player makes is limited to the possibilities detailed within the structure of the algorithm. I will note in the next chapter that those such as Berys Gaut and Grant Tavinor discuss this in terms of a game's compliancy and interpretation.

Gameplay can bring about subsequent artefacts that also have artistic merit, such as the game art described earlier, or those found on *Youtube*'s *LetsPlay* or the broadcasts on *Twitch.tv.* These latter platforms are important communities for gamers and are, at times, just as important if not more popular for players than actually playing a game itself. In fact, video game fandom is another emerging and interesting area of study, but while there might be something of an artistic activity that players participate in, that activity is distinct from the creation of the work. This is also true of 'metagaming', a term used to define a strategic action or actions a player makes that go beyond the limits of the game rules in order to enhance the experience. Here, a player would certainly exhibit a kind of creativity, but those creative decisions do not alter the work, only the experiences. Any invitation to appreciate the artistic playing of games would be an appreciation of a different kind, not of authorship.

For some, creativity occurs if it exceeds the everyday in originality which, according to Margaret Boden, 'we value because it is interesting – illuminating, thought-provoking,

---

[42] Portnow, J et al. (2011) "Extra Credits: The Role of the Player" Extra Credits Youtube Channel, Retrieved May 2013 (https://www.youtube.com/watch?v=1XlfeXpiSuQ). Sourced from the following doctoral dissertation: Graham-Baker, Alex. Feeling Like Stories: Empathy and the Narrative Perspective, The University of Sheffield, May 2016.

[43] Glitches and a gamer's hack that enables her or him to access areas or aspects of the game that are otherwise inaccessible is an interesting point that challenges this, but the glitches are, nonetheless, not intended by the creators and are not necessarily authorial moments of 'the work'.

humorous – in some way'.[44] According to Margaret Boden, novel ideas or artefacts can be so in one of two ways: psychological or historical. Boden says more precisely,

> A psychological novelty, or P-creative idea, is one that's new to the person who generated it. It doesn't matter how many times, if any, other people have had that idea before. A historical novelty, or H-creative idea, is one that is P-creative and has never occurred in history before.[45]

We can envision a scenario where players meet one or both of these criteria during gameplay. These creative instances would be recognised as unique accomplishments of the player, but these creative instances are in virtue of and separate from the creativity value of the game's creation because the game creates the opportunities. This in mind, it is understandable that open-source games could press harder on this issue of authorship and provenance because in these sorts of games players are allowed to artistically modify some of the game's content. These video games contain stronger aleatory elements because players manipulate code directly in order to control certain features of the game in a customizable manner.[46] Although this example challenges our traditional notions of authorship, we can turn to the Fluxus, Dada, and performance art movements as precedents for works that grant their audiences greater control.

Manipulating code would be a kind of authorship for a particular mod, but not necessarily for the work (something I address in more detail in Chapter 7). It is expected that a player will have a significant role in gameplay, especially with open-source games, but only because the creator(s) have allowed as much. Unlike most audiences of performance works 'audiences' of video games interact with the work to unfold and shape it.

5.5 Art or Aesthetic

A conversation about whether video games might be artworks or merely aesthetic works follows nicely from the above account of designers and programmers. Are we to appreciate video games as art? If so, then the theory we employ will need to encompass video games, or artefacts that consist of, among other things, algorithms and code. First off, formalist theories create immediate issues for video games because using form to base our aesthetic judgements renders the works too closely to other art forms, such as film, music, and literature. For most artworks, an institutional theory of art is a logical place to start. Following Arthur Danto, according to George Dickie,

> A work of art in the classificatory sense is (1) an artifact (2) a set of aspects of which has had conferred upon it the status of candidate for appreciation by some person or persons acting on behalf of a certain social institution (the artworld).[47]

---

[44] Boden (2004).
[45] Boden (2009), p. 24.
[46] Hackers and hobbyists will also reverse-engineer video games for a completely different outcome than the one(s) prescribed in the game, such as JODI's *Untitled Game* series (1996-2001). See Clarke and Mitchell (2013) p. 13. Though this is an interesting aspect of accessing the code, these examples better suit other arguments than the one I present here.
[47] Dickie (1974).

In a similar manner as Dickie, Derek Matravers reformulates the definition and says, for an institutional theory, "all there is to being a work of art is to be an artifact of a kind created to be presented to an artworld public."[48]

If video games are artifacts, and I take them to be, then the first condition is met in both definitions. The second one is more worrisome because, although video games are now exhibited in museums (e.g., MoMA), it is not clear that they are displayed (or appreciated) in the way they were created to be for the players. Moreover, the inclusion of video games is a rare occurrence in museums and even those who have dared to add them to their acquisition list have not fully embraced the idea that they should be displayed next to established works as those by Degas, Beuys, or even the vacuum cleaners by Koons. In response to Matravers' definition, it is not clear that video games are presented to the artworld public in the usual way because, even if a video game was intended for an 'art category' (i.e., art game), that categorisation does not straightforwardly show that the artworld are the intended appreciators of the work.

Following Jerrold Levinson's definition of art, Rough views an Intentional-Historical account to be more tolerant of video games.[49] Levinsion's definition reads,

> is something that has been intended by someone for regard or treatment in some overall way that some earlier or pre-existing artwork or artworks are or were correctly regarded or treated".[50]

Rough prefers Levinson's Intentional-Historical account for two reasons. First, it provides a persuasive definition of art as a whole while, he claims, other definitions fall short. Second, it seems to tolerate video games, if we agree that video games can be intended as an art. In other words, other definitions of art look for functional properties of the work or attempt to solve the art question for a category as a whole, but Levinson's definition works on an individual basis for works. But do video games share any features with previously regarded art forms? Or, even if no prior work comes to mind when regarding video games, can we at least *regard* them in a similar vein as our normal art-viewing practices? Or do video games merely entail aesthetic experiences without possessing any art status?

To answer the above questions, it should first be made clear what the distinctive features of video games are so that we can determine what kind of artefact it is. For this, turning to the philosophy of technology might prove beneficial given the longer tradition video games have had in the field of technology. Although a technological account, as its title suggests, is predominantly about technology rather than art there are subtle distinctions within this theory that make room for, at the very least, aesthetic appreciation.

A is the case with art, a technological artifact does not have a singular account. To begin with an early concept, Aristotle considered technological artifacts to be objects that are human made, not natural (but aimed at imitating nature), and intended for some

---

[48] Matravers (2000).
[49] Rough (2016), p. 106.
[50] Levinson (2007), p. 74.

purpose.[51] Others have claimed our interpretation of Aristotle need not be as strict and perhaps his meaning has more to do with a commentary on nature than technology.[52] Aristotle includes *human intention* in his definition, which is similar to the concepts we have for artworks that require authorship and an intent that the object be an artwork. Moreover, his stipulation that the artifact be intended for a *purpose* prevents byproducts of human activity from qualifying as a technological artifact (e.g., sawdust and food trimmings). Following Aristotle's characterisation, Risto Hilpinen refines the definition and says: "[a]n object is an artifact made by an author only if the author accepts it as satisfying some sortal description included in his productive intention".[53] This definition is relevant to art as well but in order for a definition to target technological artifacts more specifically, Hilpine stipulates the process requires a "material means to achieve practical end x."[54]

As a practice, a condition of achieving a practical end promotes the normative view that technology consists in instrumental rationality more than anything that pertains to the creative. Technology concerns rational attitudes because it requires the individual to question which options of the ones made available to her are the best ones that will achieve the desired goal during the technological process. More recent philosophies recognise that this view misses the creative aspect entailed by technology because, after all, technological options must first be created if they are to be made available as design possibilities. More and more, programming is written on the fly from networked computers either for software building or for what has become known as 'live-coding'. Although code in and of itself is aesthetically interesting, it is often a component of a larger work (artifact), making it an unusual feature to discuss in terms of *art* artifacts.

When we start to consider the creative and aesthetic aspects of reading, writing, and interpreting algorithms and code, a strict view of technology, or the view that it is merely about instrumental rationality, seems inadequate and, in fact, seems more closely related to a philosophy of science than a philosophy of technology. According to Maarten Franssen et al., a descriptive difference between the philosophies of science and technology is that, very broadly, science is concerned with understanding the world; technology is concerned with changing the world.[55] This leads to a standard distinction between the two, which can be expressed like so:

> Science (nature): 'If X is to be achieved, Y needs to be done'
> Technology: 'If one wants to achieve X, one should do Y'[56]

Randall Dipert shares a similar view with the above characterisation of technological artifacts but extends it to say that these objects are distinctive kinds of instruments whereby something is modified (for the better) to achieve some end.[57] This notion places *function* as a key feature of technological artifacts and the reason that governs why we

---

[51] Those such as Hans Blumenberg hold a strict interpretation of Aristotle's focus on the imitation of nature, which prohibits technology from being innovated, nor creative. See. Blumenberg (2010).
[52] See Schummer, (2001), p.105-20.
[53] Hilpinen (2004), see also Hilpinen (1992).
[54] Verbeek, Peter-Paul, and Pieter E. Vermaas, (2009), p. 165.
[55] Franssen et al. (2015).
[56] Ibid. This 'technological norm' is derived from Georg Henrik von Wright's *Norm and action* (1963).
[57] Dipert, (1993), Chapter 2.

appreciate them (this raises a concern: what if the artifact malfunctions - is it no longer a technological artifact?). Of course, function is not a sufficient condition because biological kinds also have functions such as stomachs that digest food, soil that provides nutrients to plants, and so on. Natural functions serve a purpose toward some end, but those functions do not necessarily require human intention. Although making distinctions between natural and technological functions require deeper philosophical attention than is possible here, the intuition is that functions of the latter kinds stem from the artifact being human-made (returning to Aristotle's characterisation). Nonetheless, we can conceive of the algorithm and code as purposeful and possessing function(s).

If the above is true within engineering, then it is consistent to view video game creation as consisting in both rational and creative and processes. Of course, creative processes do not necessarily entail art. If video games are created 'for' something, to serve some instrumental purpose and to 'achieve practical end x', then one might worry that artistic appreciation is not central to player engagement. As will be revealed in the following chapters, I consider video games, which are both technological and digital artifacts, to be aesthetic objects that often allow for *aesthetic* appreciation. Viewing video games as *aesthetic* objects is not so controversial but it is debated whether video games can be *art* objects. We should not forget that video games are the result of human design, and for some theorists, design suggests a culmination of technology *and* art.[58]

Philosophies of technology highlight important constituent features of video games. It seems, in light of their being purposeful, functional, and objects of design, we could regard video games as we have regarded prior works of art. Although I am more convinced that video games can be aesthetic objects, I think there is room to consider some games as art objects under the Intentional-Historical account of art. At the very least, the Art Game seems to indicate that those who create and play video games are open to their art status.

5.6 Player Types

The previous sections in this chapter address creativity as it relates to video game players and creators. Although players engage in a creative process when they play games, they are not necessarily responsible for the work. That being so, we should appreciate the different kinds of attitudes a player might have toward video games. Relevant to this discussion of player attitude and creativity is Richard Bartle's categorization of four player types, or players who he describes as *achievers*, *explores*, *socializers*, or *killers*.[59] I will briefly describe each and then follow-up with an additional sort of player that I believe is missing from this list, players I categorise as *entertainers*.

Achievers are players who "regard points-gathering and rising in levels as their main goal, and all is ultimately subservient to this".[60] One task achievers are known to do is participate in 'grinding', or engaging in repetitive tasks to level up (e.g., repetitively picking mushrooms or mining metal in *World of Warcraft*). Explorers are players who

---

[58] Flusser and Cullars. (1995).
[59] Bartle (1996), p. 5 (pages are associated with the PDF version online at: http://www.arcadetheory.org/wp-content/uploads/2014/03/1996bartle.pdf. Accessed April 2017).
[60] Ibid.

"delight in having the game expose its internal mechanisms to them".[61] These players are not merely playing the game in order to finish it because they prefer to experience as many potential aspects of the game as possible (e.g., taking on additional quests beyond the necessary ones to level up). Socializers are "interested in people, and what they have to say".[62] Many games will allow you to enable chat windows or to broadcast your conversations to other players. Among other things, socializers enjoy the game for the community it builds and they might exchange information regarding strategies or events in the game, or share personal real-life information with each other.[63] Finally, Bartle suggests players can be types who are killers, or those who "get their kicks from imposing themselves on others".[64] These players will usually lead ahead of other players and use their powerful offensive and competitive abilities for their own or the group's benefit while also acting as the 'meat shields' and fighters for the group. Although their name perhaps presents them with a less than desirable identity, these player types are essential to the success of the group at large, especially during boss fights.

The type of player who does not seem to be represented in Bartle's taxonomy is a relatively newer type, whom I will call *entertainers*, or:

Those who play a video game primarily for the amusement of others.

One of the best-known examples of an entertainer type is Swedish based video producer, comedian, and video game commentator, Felix Arvid Ulf Kjellberg, who, within the gaming community around the world he is better known as PewDiePie.[65] Like other video game commentators, PewDiePie records himself via a webcam while he plays through and narrates the progression of various video games, which is called a Let's Play (mentioned above). These are sometimes viewed in real-time, but they are often streamed after they have been uploaded to sites like *YouTube* or *Twitch*. PewDiePie and other successful *YouTube* personas create a cult following in part by playing certain video games, but more importantly, by curating their personalities for the community they build around them. At the time of writing this chapter, PewDiePie's subscriber numbers hover around 53 million, which makes him a very wealthy video gamer. Game entertainers can also characterise the sorts of players who compete in e-Sports (electronic sports) championships, where players play video games and challenge each other in a tournament-style format in front of live and online audiences in an attempt to make it to the final round.

The other four player types characterised by Bartle might play within a large group (or guild) in order to play with the game and participate with the group members, but this occurrence is different than the entertainers' playings. Instead, entertainers are governed by the desire to reach large audiences, whether they successfully do so or not, by playing a video game in a stylish way. They may bring to bear a sense of style in their playing with their personalities as well as with their gameplay. This need not necessarily require the player to be excellent at all the plays or any of them for that matter as there are popular

---

[61] Ibid.
[62] Ibid.
[63] e.g., I do not consider myself a social player, but one such example is when my husband and I met a fellow guild member for a beer, meeting face-to-face for the first time after years of playing *WoW*.
[64] Bartle (1996), p. 6.
[65] URL https://www.youtube.com/user/PewDiePie. Accessed January 2016.

YouTube channels where players boast of incredible fails. At any rate, the entertainer's behaviour and attitude is for an audience at large rather than themselves or strictly for the game. The *YouTube* sensation and e-sport champion both represent a very different kind of player than the four that Bartle defines and, in my mind, better characterise Smuts' broader view of players as a type of performer.[66]

To conclude, all of the above shows that video games as narratives, games, and artworks have incredible range in their histories. We also see the important role that the player has for the appreciation of games. Players collectively create their own microcosm in a broader society, a point that I will return to in the final chapter of this dissertation.

Although players are important to the instantiation of video games and to the communities, in no way are they necessary for the creation of the game (perhaps they do have part in shaping the video game art status). Apropos of this, David Davies and others have said that, for a work of performance, it is not necessary that it be performed in order for it to exist, and I would say the same is similarly true of video games; they need not be interacted with to exist. Although a player exhibits performative-like tasks, it will be made clearer in the following chapters that my view reports different roles for the participants involved in performance works and interactive works. I consider the differences between them great enough to challenge a performance ontology that is sometimes applied to video games. This point of difference will be tackled in the next chapter.

---

[66] We could also characterize the people who would rather watch Let's Plays than play the game itself, who often times can offer input into the chat box to suggest specific plays they want the Let's Play commentator to make. Although this is interesting, it takes us in another direction (or at least one similar to Dadaist, Happenings and other such works).

Chapter 6: The Ontology of Interactivity and Player Engagement

We now understand that within the arts there are various ways that we apply and understand the term interactivity. Philosophers of art have developed considerable scholarship toward our ontological understanding of interactivity. Interests in interactivity predominantly reside with the exponential growth and ongoing inclusion of the computer and digital media within well-established art forms. Although interactive art is nothing new, the recent (albeit tentative) addition of video games to the art canon has renewed a curiosity about the ontology of the artworks themselves, the properties that are generated in the interactive-instances of the work, and the user's role in the relationship between interactivity, engagement, and aesthetic appreciation. Given the appeal of interactivity within the arts, a review of the literature within aesthetics provides a useful framework for understanding the ontology behind such works.

This chapter has three sections that explore several influential accounts of interactivity by philosophers working within the analytic tradition. The first section introduces a number of definitions of interactive art that have arisen in recent literature in an attempt to solve some initial ontological problems. Although there is no consensus, the scholarship creates a clearer picture of the kinds of works in question and identifies distinctive features of interactive works for plausible ontologies. The second section lays some groundwork for the final section and discusses the relationship between interactivity and our engagement of relevant works, since interactivity guides the kind of attitude we might have, be it lusory or aesthetic. This section largely concerns works consisting of features that are interactive and narratological. Drawing from the previous sections, the third section, although brief, addresses a relatively newer question to emerge, which is, are interactive works another kind of performance work? Once again, the answer to this question is not singular, nor is it a straightforward one.

6.1 On the Ontologies of Interactivity

A good place to begin a survey on the philosophy of interactivity is with David Saltz who, in 1997, stated very simply that "[i]nteractive technology is one of the hot concepts of the 1990s".[67] He was right, of course, and his interest in the proliferation of digital technologies formed his view that the computer entails a distinctive kind of *performance*. Satlz sates that works such as computer art are performative in a similar manner to theatre works because they "provide contexts in which actions are performed".[68] However, interactivity creates an important difference in certain works whereby *interactivity* becomes the object of our appreciation rather than what is generated by the actions.

If the interactivity is an aesthetic action then the user becomes responsible for certain properties that are not necessarily inherent of the work. For Saltz, this not only

---

[67] Saltz (1997), p. 117.
[68] Ibid., p. 123.

complicates the issue of authorship, it challenges the traditional type-token distinction that we normally apply to abstract works because computer art does not prescribe one kind of correct instance in the way other performative works do. Consider two examples of art. A work like Shakespeare's *Hamlet* will vary by degree depending on the production and specific performance, but we judge the performance tokens against what we know of the work. If, for example, Hamlet and Ophelia survive through the final scene and the play ends with the characters living 'happily ever after', then we know this instance is not a correct instance of *Hamlet* because Shakespeare's type (the work) did not allow for this kind of variability. Alternatively, consider *The Telegarden*, a work of computer art that is comprised of a table top garden with an attached mechanical arm.[69] Users can access this work from a networked computer to control the arm and remotely dispense food to the garden on an ongoing basis. This example shows us that interactivity generates instances of the work that, unlike *Hamlet,* can vary to a considerable degree and still be authentic. Saltz recognises this variability and views the work's new properties, created by the interactivity, as evidence that the instances can no longer be considered tokens in the traditional usage of the word

Saltz recognizes that there are non-computer works of art that give us a sense of interactive-like features, such as improvisations found within theatre and music, but, for Saltz, these features provide a weak picture interactivity compared to works on a computer because the latter consists in a different relationship between the work and its audience. More specifically, computer art requires an audience, now the user, to interact directly with a system in order to instance the work, where the input is recognized and translated into data that the user perceives as output. In short, the user's interactivity generates properties that the work did not originally possess.

Dominic Lopes' view of interactivity extends from Saltz' and suggests that computer art is distinctive of works that are merely interactive in a weak sense. According to Lopes' early monograph on interactivity, which predates his work on computer art, strongly interactive works,

> are those whose structural properties are partly determined by the interactor's actions. By a work's "structural properties" or (more briefly) "structure" I mean whatever intrinsic or representational properties it has the apprehension of which are necessary for aesthetic engagement with it—sound sequences in the case of music and narrative content in the case of stories.[70]

Lopes states this more concisely when he defines a work to be strongly interactive if, "like a game: users' inputs help determine the subsequent state of play. Structural properties are partially determined by interactor's choices."[71] The algorithm, or the ruleset and structure of the computer artwork or game, allows for the input-output feedback system that Lopes describes.

Although Lopes' account of interactivity is influenced by Satlz' view, it differs in two paramount ways. First, Saltz' theory of interactivity is restricted by medium since his

---

[69] Ken Goldberg and Joseph Santarromana, Ars Electronica Museum (1995-2004).
[70] Lopes (2001), p. 68.
[71] Ibid., p. 69.

account aims only at explaining interactivity on a computer. Therefore, his account prevents us from considering non-computer interactive artworks while it is simultaneously overly inclusive of anything that runs on a computer, such as online shopping or DVD chapter selection.[72] Although computer artworks are paradigmatic interactive works, games, interactive literature, and interactive theatre are just a few examples that should not be excluded from an ontology of strong interactivity.

Second, Lopes' account differs from Saltz' view in regard to the properties that arise from the interactivity. Recall that Saltz questions the consistency of the type-token distinction when it comes to computer art because the user's interactions will create properties that the work does not bear. However, Lopes reminds us of a key point about the type-token distinction wherein appreciation of properties is a two-fold affair.[73] In other words, it is possible for an appreciator of art to simultaneously appreciate certain properties generated by the work as well as those properties generated by the instance (or the interactivity). For example, it is possible to appreciate the properties of a song written by Thelonious Monk while also appreciating the properties of a particular performance of it by, say, Ella Fitzgerald. If this is true, then the properties that come from a user's interactivity should not be troublesome where the type-token distinction is concerned because, in theory, it is possible to distinguish between properties of the work and its instances. However, it will be revealed in the following section that, while this view is suitable for some interactive works, it might not fully explain the variability with certain interactive works.

Lopes' initial definition of strong interactivity is useful because it focuses on the structure of a work instead of the technology, but Berys Gaut makes two important clarifications regarding (1) the audience and (2) authorization. First, in order to pinpoint the distinctiveness of interactivity, Gaut says that a useful definition should sharpen the distinction between users and audiences, lest it include characterizations of a live performance of a musical work just as it does interactivity on a computer. Second, Gaut points out that a useful definition of interactivity should stipulate that a user's actions be an *authorized* condition of the work. Prescribed interactivity is essential in order to prevent certain non-authorized behaviours from constituting any work as interactive, such as changing the structural and aesthetic properties of Donatello's *David* by knocking it over. Therefore, Gaut extends Lopes' initial definition to read, "a work is interactive just in case it authorizes that its *audience's* actions partly determine its instances and their features".[74] The reader may be aware that Lopes has since refined his earlier definition of interactive art to, "A work of *art* is *interactive* just in case it prescribes that the *actions* of its *users* help *generate* its display",[75] which importantly distinguishes users from audiences and stipulates that interactive-instances need be authorized. As it currently stands, the definitions proposed by Gaut and Lopes are two of the most widely discussed definitions of interactivity within analytic aesthetics.

The evolving definitions of interactive art continue to disambiguate works that are either interactive or passive. How then do the definitions presented above help us to make better sense of the ontology? In Lopes' definition, we see the word 'display' instead of

[72] Smuts (2009) also recognizes this, p. 59.
[73] Lopes (2001), p. 79.
[74] Gaut (2010), p. 143.
[75] Lopes (2010).

'instances' as it appears in Gaut's definition. This term is important for our ontological understanding of works because the kind of display a work consists of will, in part, indicate if it is interactive. A display is defined by Lopes as "a pattern or structure that results from the artist's creativity and that we attend to as we appreciate it."[76] He is clear that 'display' does not only refer to digital works, therefore, a painting is a display of one kind and a novel is a display of another kind. Works like paintings and sculptures are comprised of single displays meaning the work and the display are one and the same. On the other hand, for works of music, literature, and computer art, the display and work are not identical and are not tied to any one object *per se*. Instead, the display could be a set of sounds or images. Interactive works, unlike paintings, consist of more than one display that will change depending on the user's input, or, in other words, the interactivity. A display's changeability means that it is variable and, according to Lopes, variability occurs in one of two ways: if the display is (1) repeatable or if it has a (2) succession of states.[77] Works like most videogames would be examples of repeatable works because we can interact with them in many places given that they can be multiply instantiated at any given time. *The Telegarden* is an example of a work that consists of displays that vary with a succession of states, which is different than most video games because the "display variation doesn't come through repeating multiple versions. It comes instead through variation in the succession of states that make up the one event."[78]

It is clear that variable displays are remarkable features of strongly interactive works, but the above does not satisfactorily deal with differences *between* the two kinds of display variability. Dominic Preston picks up on this ambiguity and says, "Lopes never introduces terminology to discuss different displays in terms of their structural or aesthetic differences".[79] Preston's clarifications are astute and important because they preserve Lopes' account and are, therefore, worth some attention here.

6.2 Clarifying Display Variability

The definition for works that change over time in a succession of states is a relatively straightforward one. However, the theory for repeatable works gives rise to further questions because it is unclear whether the interactivity creates the variable properties or, if not, how the properties change. More specifically, Preston says,

> Lopes' wording could simply mean that there is one display whose properties change every time someone accesses it. This would seem to be no different from the non-repeatable case, however, so this cannot be what Lopes means. The emphasis on repeatability and the multiple displays of digital art might instead suggest that for repeatable interactive artworks each visit creates a new display. Assuming that this is what he meant still leaves uncertainty, however, as he does not

---

[76] Ibid., p. 37.
[77] Ibid.
[78] Ibid., p. 38.
[79] Preston, p. 271.

address the question of whether the properties of each display vary over time thanks to user action or not.[80]

After all, musical works will have a different display each time it is performed; if interactivity means that we merely change a repeatable display each time we access the work, then we are back to the same kind of variability like a variable succession of sates. Preston's concerns do not end there. Returning to multiple displays, Lopes' states that,

> an item is a work with multiple displays when and only when our appreciation of it is implicated in our appreciation of its displays as belonging among its other displays.[81]

But what constitutes different displays? A work with multiple displays could refer to displays that each consist of different structural and aesthetic properties, or it could refer to a display that is transmissible and so will have different properties because of its different locations (but then this, again, seems no different than all works that seemingly take on different properties due to their environment). Preston clarifies that Lopes' definition for multiple displays would present a clearer position if it were to stipulate that some interactive works have multiple, *differing* displays (like many video games).[82] Preston's proposal is that,

> for any given artwork, each possible set of structural and aesthetic properties F is a display type of that artwork.[83]

This inspires the following: a painting will have one display type and one display because the object and the display are identical; a digital image or play may have one display type and multiple displays (given that, like a repeatable performance work there is a correct interpretation of the work with some token variations); some interactive works are not repeatable but have multiple display types with one display, where the properties of that display alter over time (e.g., *Telegarden*); other interactive works, such as applicable video games, consist of multiple display types, *and* multiple displays, which accounts for there not being any *single* correct instance of the work, but many.

The above account of display types and displays resolves how repeatable works can have differing displays and belong to the same work, but what is still needed is a clear account of the properties that the work and the displays bear. One reason for this uncertainty hinges on the theory of differing displays. For example, one could play a video game and in one playthrough the player-character dies, and in other playing the player-character lives. Neither of these displays contain the same properties as the other, so each display cannot bear all the properties that the work does.

Preston considers two possible accounts that might clarify Lopes' intended meaning of structural and aesthetic properties, which he calls a 'single set properties' account and a 'shared properties' account. A single set properties account supposes that an artwork contains a single set of properties and each display of the work will 'diverge' from these

---

[80] Ibid.
[81] Lopes (2010) p. 59. Also found in Preston (2014), p. 271.
[82] Preston, p. 271 (emphasis my own).
[83] Ibid, original emphasis.

properties to some degree.[84] In short, Preston rejects this possibility because, while it might be suitable for some musical works (such as most Western classical music whose performance properties remain relatively thick), it will not suffice for works that do not have a single official or correct display type. For example, unlike reading a (non-interactive) novel, some games might entail two different outcomes depending on the playing of it, but neither outcome is the single correct display of the work, no matter how largely the displays vary. In other words, an account for a single set of properties does not explain how in one playthrough of campaign from *Dungeons & Dragons (D&D)*, a player's character survives a gelatinous cube, but in another playing of the same campaign, she is consumed and dies. The player-character's death or survival bears on the rest of the storyline and shapes the game's outcome. This is different than a tragic novel that consists of happy moments (e.g., tragicomedies) because a *D&D* display can be wholly tragic and wholly not-tragic and still be of the same work. A single set of properties does not explain this.

Alternatively, works might have shared properties, where the work "possesses only those properties shared in common by all the displays."[85] Under this view, each display may contain different properties from each other, but each display will contain the properties that belong to the work. This account still fails to explain why works with a vast number of display types contain sufficient properties in each of their displays to allow them anything in common. In other words, if a display consists of properties in such a thin sense, there is less potential for aesthetic appreciation of the work.[86] In non-aesthetic terms, we can imagine a scenario where a game like soccer can no longer be identified as such if all but one rule of the game is thrown out. A greater concern is the worry that under this view, if the shared interactive properties of the displays are spread so thin between the displays then we are left with a stronger set of *non*-interactive features to appreciate. Clearly, that will not do for works whose distinctive feature is interactivity. Preston says,

> What is needed is an account that explains how multiple displays can have entirely different properties simultaneously, while all still displaying the same artwork, and the potential properties account fails to explain this.[87]

Preston concludes that a work will consist of all the possible properties that its display types and displays might bear. He extends this to games that not only consist of differing displays, but also require multiple playthroughs to adequately appreciate the work. The video game, *The Walking Dead*, where several playthroughs reveal an overall meaning to the game is that 'death is inevitable', shows us that some properties of a work can never be experienced from the individual displays, but are somehow understood from the collective displays.[88]

---

[84] Ibid., p. 272.
[85] Ibid.
[86] This concern arises because Lopes borrows Stephen Davies' argument regarding thinner and thicker performances of musical works. See Davies (2001).
[87] Preston, p. 273.
[88] Some of these display types may never be realized. *No Man's Sky* is one such example where it is claimed that players may never see or explore 99% of the planets in the game. https://nowloading.co/posts/3876868. Accessed August 2016.

The above accounts of interactive works and display properties reveal the distinctive nature of such works and, although the definitions and ontologies of interactive art presented above are not all in accord, together they inch us closer toward a better understanding of these kinds of works, including their prescriptions, display variability, and work properties. Equipped with these accounts, we now have the necessary ground work in place to turn our attention to interactivity and engagement.

6.3 Interactivity and Player Engagement

Gaut addresses video games directly, so let us return to his account of interactivity for a discussion of player engagement. While Saltz compares the performative nature of interactive art to theatre, Gaut considers video games to be a kind of interactive cinema.[89] As such, he analogises video game players to film audiences, but where the interactivity allows a video game audience (the player) to shape the work in the way that film audiences cannot. In this respect, relevant kinds of games entail two features of an 'artistic performance': performance features that are compliant and those that are interpretive.[90] A performance will be compliant to token an authentic instance of the work with certain notations that are prescribed. Compliance actions are necessary for fixed or 'automated' features of games that must be actioned in order to progress (or even play) it. That being the case, performances will also have aspects that propose interpretation. This kind of interactivity prescribes players to 'interpret' parts of video games with interpretative actions and choose what sorts of actions to make. By Gaut's account, any playing, regardless of the interpretation actions, constitutes a token of the work type, much like a film screening tokens a film type.[91]   Grant Tavinor shares a similar view with Gaut and has done a good deal to expound on the kind of aesthetic engagement that interactivity and video games can entail. For Tavinor, applicable video games have features that are interactive and/or narratological.[92] Drawing from the accounts of Lopes and Gaut, Tavinor stipulates that audience participation (or player's actions) produce instances of interactive works, including the narrative content. He says,

> Thus, the ontology of a video game such as Skyrim is of a work type with number of tokens in the form of different playings. It is because video game works are instantiated through this audience participation that they are fruitfully considered as interactive works.[93]

Tavinor extends Gaut's view of interpretive *performance* to consider the notion that some kinds of narrative games allow players to act as interpretive *performers.[94]* As Gaut suggests, players can act in a manner like a performer and an audience, which leads Tavinor to discuss the significant role that the players will have in shaping the narrative while they interpret the player-character and framework of the story.

---

[89] Gaut (2010).
[90] Ibid., p. 145-146.
[91] Gaut (2010). Tavinor also discusses this (2014).
[92] Tavinor (2011).
[93] Tavinor (2014).
[94] Tavinor (2017).

Novels encourage readers to interpret stories, but there is more at stake for those who play games because a player's interpretive performances will, at times, bear on the story. Narrative outcomes, in turn, influence the player's subsequent choices, which create what Tavinor characterises as feedback loops between player and narrative.[95] A game like *Tetris* shows us that not all video games (or games in general) allow for interactive performances, but games like *Until Dawn*, *Undertale*, and tabletop roleplaying games like *D&D* and *Microscope* are highly interpretative and so players can determine things like who to kill, who to spare, which routes to take, and so on. For example, with the video game *The Wolf Among Us*, players select actions and dialogue that (collectively) make the player-character either curt, a jokester, kind, or rude. Players curate the player-character by deciding on features such as how Bigby Wolf, the player-character, responds to other non-player-character's (NPCs), which character he chooses to save versus leave behind, how he reacts to certain events, etc. With each interaction, the player can interpret the player-character with actions that are as consistent with the character type. It is in this respect that players become interpretive performers because, like musicians, they are responsible for performing (interacting) with the work, but they can appreciate that their decisions shape the kind of story that unfolds. It is not only that players interpret an individual story with these kinds of applicable games, they can also replay a specific game and make different choices than they had made previously in order to shape (interpret) a different story. A player might choose a different personality profile for the player-character, save or kill different NPCs, and so on. The degree of interpretation is, of course, made possible by the multiple differing display types that Preston discusses.

What then does performance interactivity say about player engagement? If a player is not as artistically engaged, she might adopt a lusory attitude and play for reasons other than interpretation, such as to win the game. If a player adopts an aesthetic attitude, then perhaps she plays to interpret the story and use the player-character to shape the outcomes in a way that befits an interpretation of the character (i.e., it might be better for the overall story if the player-character suffers some consequences even if certain actions prohibit the player from 'winning'). According to Tavinor, both attitudes depend on the normative modes of gameplay, which will, consequently, shape the player's appreciation (e.g., ludologial or narratologial). Games that carry lusory and aesthetic prescriptions can create what Tavinor describes as, following Clint Hocking, a 'ludonarrative dissonance' where the two appreciative modes potentially conflict. [96] For example, if a player interprets a player-character to be a passivist when the lusory attitude requires actions such as aggressive stealing and killing in order to win, this creates a ludonarrative impasse. This example represents an appreciative (interpretation) problem on the side of the viewer from the difficulties that arise from there being both gaming and narrative features of (applicable) games. Consequences arise when there are different prescribed attitudes and the two clash.

The above discussion on lusory versus aesthetic interest might make one wonder if video games can be both an artwork *and* a game. Video games with game and narrative components do not always create a dissonance, of course. I will eschew a discussion of art and game compatibility and simply say that different modes of interactivity will have bearing on how we engage with a work, be it an artwork or a game.[97] While interactivity

---

[95] Ibid.

[96] Tavinor (2017), p.31; Hocking (2007).

[97] For a discussion on art and game compatibility, see Rough (2017).

and engagement are two different kinds of activities, interactivity does bear on a player's engagement with a work. This should not suggest that all works prescribe more than one kind of interactivity, however. Returning to the puzzle game *Tetris,* while there might be reasons for a player to view the tetriminos as props for make-believe, there is no prescription of the work to do so. Additionally, games like *Tetris* do not necessarily prescribe aesthetic appreciation. Overall, *Tetris* may require a good deal of player concentration, or prescribe certain kinds of interactivity that allow little room for imagination *or* aesthetic appreciation.

Some games may involve a straightforward prescription for the kind of engagement a player should enlist, but there are games that allow for separate modes of interactivity and attitudes at different times. _Asteroids_ (2002) is one such example of games that specifically target different modes of interactivity, engagement, and appreciation. This online game was developed as an adaptation from the space shooter arcade game, *Asteroids* (1979).[98] In the original game, the player directs a rocket to try and hit the rocks and satellites as they appear on screen. _Asteroids_ has a similar platform, but where the player takes aim at various words that appear on screen. If the words are hit, the words explode, sending the letters all over the screen to mix and settle into new words. To make gameplay interesting, the player can choose between two different modes: *game* or *play*. Game mode requires the player to have faster speed and accuracy in order to hit the words and avoid colliding with the other words that appear. In this mode, the player survives the game by creating enough new words that string into a kind of random poem; the object is to win by creating enough words without getting hit. In play mode, the goal is quite different. The action is slowed to a pace that allows players to be more particular about the words they choose from to form more deliberate poems. Players can also prevent other words from colliding with their own, if they so choose to further minimise the obstacles they would otherwise encounter. In play mode, the object of appreciation is the poetry, not the 'win'. _Asteroids_ illustrates the point that different modes consist in different norms of interactivity and, therefore, a different motivation and engagement with the work.[99]

From the above example, the reader may be reminded of Lopes' similar Frigidaire poetry example from his book, *A Philosophy of Computer Art* (2010). He describes the variability of the rearranged magnetic letters on the refrigerator similarly to the displays of a work type. The variable displays function similarly to works of jazz where the score allows for improvisations, which means the variable portions still belong to the work. The Frigidaire poetry allows for a kind of interactivity that is conducive to aesthetic appreciation. However, imagine if, like _Asteroids_, we were to add a time limit on arranging the Frigidaire poetry and that two people compete for the best string of words in under thirty seconds. Does this activity belong to a game now, or art? Like chess, the timed Frigidaire poetry requires knowledge of the game rules and significant decision making by the player. Play mode, on the other hand, allows for exploration and a form of artistic interpretive performance that Gaut and Tavinor discuss. In sum, I will remain agnostic on the compatibility question for the sake of this chapter on interactivity, but while certain kinds of interactivity may or may not preclude a work from being art altogether, it usually will impact the kind (or degree) of lusory or aesthetic experience we get from the work.

---

[98] Atari, November 1979.

[99] This view supposes that the two modes belong to one work.

Another kind of player engagement is offered by Jonathan Robson and Aaron Meskin, who claim that many video games are 'self-involving' by nature.[100] Their account centres around the fictive and interactive components of video games, which allow players to imaginatively make fictional things true of themselves and their player-characters. This, according to Robson and Meskin, is what they call a class of 'self-involving interactive fictions' (SIIFs). They do not claim that all video games are SIIFs, nor that other interactive works cannot be SIIFs (e.g., *Sleep No More, The Mystery of Edwin Drood*, etc.), but they do claim "the class of SIIFs is closer to being coextensive with the class of video games than is, say, interactive fictions".[101]

SIIFs normally entail first-person communications where players will use language like, "I just killed that goblin!", "I need a health potion", or "I'm going to rob that guy". In other words, SIIFs are (fictionally) about the players who are (fictionally) the characters in the gameworld. Self-involving interactivity then has moral implications because, if we identify with (or as?) the player-character, we should feel wrong about the actions we make in the gameworld (e.g., when your player-character/you commit mass murder on airport civilians in *Call of Duty: Modern Warfare 2,* there should be at least some feeling of reprehension or guilt).[102]

However, Stephanie Patridge holds a different view about SIIFs.[103] According to her view, Robson and Meskin's account is not fully compatible with what Patridge calls our normal linguistic practice nor is well-suited with current theories of moral criticism. Firstly, she says this about ludic practice and video games: although we can and often do use first-person language with games, we often use it interchangeably with game language. So, instead of, "I just killed that goblin!", players sometimes say, "let's go kill that goblin because he has low HP (health points)". In ordinary life, we do not talk about people's HP, and so while there are some self-involving components to video games, the ludic aspect reminds us we are playing a game and that we are not (fictionally) the player-characters.

Secondly, Patridge claims that Robson and Meskin's account 'weakens the argument from moral criticism.'[104] Although she does not disagree with their account, and she says their account most likely does explain why even seasoned players feel a sense of moral guilt when playing *Modern Warfare 2*, it does not answer why players normally do *not* feel any guilt when killing a single guard, for example, in order to proceed in the gameworld. If self-involving interactivity means it is fictionally true that players fictionally perform the acts their characters do, then we should also be affected by 'lesser degree' immoral actions in the gameworld. Here, Jesper Juul might offer a reply. Juul believes interactivity in video games keeps players from experiencing things like tragedy the same way we do with other narratives. More specifically, interactive fictions require players to strive to achieve something and so even in killing a character, the player can, at the very least, distance herself from any moral responsibility because she can feel skilled and a sense of accomplishment.[105]

---

[100] Robson & Meskin (2016).
[101] Ibid., p. 174.
[102] Infinity Ward, Aspyr (2009).
[103] Patridge (2017).
[104] Ibid., p. 182.
[105] See Juul (2013).

I suspect there is something right about each of these claims. In agreement with Robson and Meskin, interactivity connects players to their player-characters as well as to the gameworld and, in a manner of speaking, entangles the roles of the player and player-character. In *A Wolf Among Us*, when Bigby Wolf finds one of the central NPCs dead, a player might feel personally responsible for the character's death if they worry it resulted from Bigby's actions, which result directly from how the player interprets the character and by the choices made. The same is true in *D&D* when, for example, one player-character accidentally injures another player-character; this has the potential to actually and fictionally make the player feel bad. That being the case, while a player knows that rolling double ones means she personally contributes to the accident, the player is simultaneously aware that she rolls plastic dice and does not throw daggers. When a player actually rolls dice and the player-character fictionally throws daggers, does that mean the player fictionally throws the daggers? This is something that Patridge is not so sure about.

That we are talking about games is important here. When players fictionally act immorally in the gameworld, achievement alone is not enough to stave off imaginative resistance (or we would need another explanation for why most of us show restraint in the ordinary world). The lusory attitude that suits frames for his account of gameplay offers some explanation for our willingness to engage our *characters* in immoral behaviour. It is clear from the above accounts of player engagement that some games are complicated hybrids of gaming mechanics and artistic features, and so they do not straightforwardly enlist one type of activity or another.

6.4 Performances Versus Performance Works

We have just read how *performers* and *performances* factor significantly in each of the accounts presented above, which, to those like Saltz, may suggest that things like video games are special kinds of performance works. Tavinor disagrees and, although I adopt his view, that interactive works are not performance works, more needs to be said about the reasons for the distinctions between the two categories. [106]

First, one might contend that it is simply easier to include video games in a category of performance, especially given the above accounts where terms like performance, performer, and behaviour factor as significant virtues of such works. What, specifically, is a performance and is interactivity so different? According to David Davies, "performances in the full sense not only involve actions aimed at achieving some result, but are also open, at least in principle, to public scrutiny and assessment."[107] Video games do not normally engage audiences, but Davies is careful to stipulate that performances do not require a *present* audience, albeit they require an *intended* audience. In other words, says Davies, "[t]o characterize an agent as performing is to place her actions within a particular kind of *explanatory space*", meaning, one might be performing if there are ways

---

[106] Tavinor (2017), p. 27.
[107] Davies (2011), p. 5-6.

to explain certain actions in references to an audience's expectations (even if the audience is oneself). [108]

Although there is a degree of performance in the actions of some interactive works, not all performance-actions entail a performance work. Arthur Danto says we should distinguish between actions that are *like* performances (such as a riot) and things that *are* performances (like a ballet).[109] Similarly, Davies makes the point that we can distinguish the performance of dancers, for example, from the actions of mattress movers because, while both are following directions, only the dancer tries to fulfil the artistic expectation of the choreographer or director who instructs her, as well as attempts to provide the appropriate behaviour to meet the expectation and appreciation of the intended audience. The position held by Davies, that performances have an intended audience, allows us to explain a specific type of player, those I call entertainment-players, such as those who stream Let's Plays on Twitch and Youtube. However, if we are to adapt Davies' conceived notion of performances to performers, then players in the general sense do not seem to stand up to such expectations. While players certainly judge their actions based on the constraints and norms of playing a game (or on the personal expectations of what they hope to achieve), it seems video game playings fail to meet Davies' condition of an intended audience.

I propose that, generally, players are a bit like dancers and rioters (or mere mattress movers if you prefer). While there are artistic elements of video games and in the interactivity, a player's actions are not always taken with the intention that they will be scrutinised as artistic; interactive instances of video games can also pertain to the tactical, strategic, or, simply played for the purpose of winning. Therefore, if performance works consist of actions that are taken to fulfil the artistic expectations of an audience, as Davies suggests, then some video games come very close to performance works, but not close enough for classification. Not all interactive works prescribe artistic behaviour, nor do they normally involve audiences with expectations of artistry.

Intended audiences aside, some video games prescribe a lusory attitude at certain times, which is a prescription for players to scrutinise actions that are instrumental, not artistic. On the other hand, some video games prescribe an aesthetic attitude, which is a prescription for players to scrutinise actions that are artistic; perhaps, there are those video games that prescribe both lusory and aesthetic attitudes (or, for the sake of argument, prescribe one or the other at different times). Although the interpretive performance, compliancy features, and instrumental aspects are, in principle, potentially open to scrutiny, they are not necessarily intended for artistic analysis.

The above examples show us an important distinction between audience actions, interpretations, and the work. To the extent that a work (such as video game) entails performance-like actions makes interactivity similar to performances, but those actions in and of themselves do not make it a performance-work. In short, most interactive works

---

[108] Ibid, p. 176.
[109] Found in Davies, p. 174.

do not have to be 'performed' in order to be appreciated because, all things being equal, it is normally sufficient that users or players appreciate these works when actioned.

6.5 Conclusion

The ontology of interactivity provides us with an interesting but challenging terrain to cover. Together, the above philosophers offer provocative ontological accounts of interactivity and how that feature affects player engagement.

The accounts presented in this chapter are by no means unified theories of interactivity, but each makes important explications on a relatively new art category. If there is any connection between these philosophical accounts for video games, it is in the ontological importance of the algorithm. Although, going backwards from the summation of displays will not get you to the rule set of the algorithm, nor reveal all the potential properties of the display types, interactivity is how we can appreciate the features of an algorithm. The algorithm is also what makes different kinds of player engagement possible and the variety of player decisions that will have a whole range of prospects between actions that are artistic, compliant, and purely instrumental. The following chapter takes a closer look at the significant role of the algorithm for video game ontology.

Chapter 7: An Algorithmic Ontology: Video Games and Rules[1]

The study of games has generated a number of theoretical approaches, both within analytic aesthetics and games studies. These theories often converge on the same explanandum, but it is not always clear how or if these approaches might fit together and be mutually informative to create a unified theory. One such case is the relationship between Bernard Suit's theory of the constitutive rules of games, and the theory that video games ontologically depend on algorithms, a view found in several different accounts within the philosophy of art.[2] Both theories connect on the issue of game identity and individuation, but there are reasons to think there might be inconsistencies between these accounts.

One principle problem is Suits' account of constitutive rules and game identity, an account which might not accept the wide variance that algorithms allow video games. For example, a game of basketball ends with a win or a loss, but neither outcome has any real bearing on the identity of the game (i.e., losing a game does not change it from basketball to football). However, when I play *Undertale* my choosing to kill or spare another character will have lasting consequences and shape the kind of game I play. More specifically, I can choose to play this game in a violent or pacifist manner. If I do the former, then I will attack the monsters as aggressively as I can; if the latter, then I must try and convince the monsters not to attack me. Although we can play a game of basketball aggressively or not, the rules do not change, whereas, the different modes of *Undertale* each consists of different constraints and, therefore, different constitutive rules. The problem then is that different playings of a single videogame, unlike basketball, may entail different game identities; and one may then wonder whether Suits' theory of games is applicable in such cases (particularly for philosophers of art).

Here I will argue that an algorithmic view of videogame ontology has the resources to solve this issue of video game identity. I will explain that, although the game rules of different videogame displays may vary (and these might have their own identity conditions) the identity of the work that allows for these varied displays remains the same because they are generated from what I will call a 'complete game algorithm' (henceforth, a CGA). The CGA specifies this degree of variance of the rules, the perceptual properties, and potentially the artistic properties of a videogame, and is an ontological idea that I aim to make more intelligible within this chapter.

Both games studies and analytic aesthetics have important contributions to make to the study of video game ontology. My task here is to present a detailed account of the CGA and describe how it individuates one video game from another. To this end, I begin by presenting Suits' account of rules and how it contributes to game identity; in section two, I discuss the algorithmic ontology that I adopt in this chapter and the role it plays in video game identity; in the third section, I outline a few problems between games and artworks, which is followed by some solutions to those worries in the fourth section; finally, the

---

[2] Lopes (2010), Tavinor (2011), Juul (2005).

fifth section addresses the GCA in more detail as it relates to the properties it bears and the games they entail.

7.1 Games and Rules

What, exactly, is a game? According to Wittgenstein defining a game is an impossible task because disparate things like dice games, card games, board games, or those played on a field lack any single common feature. However, Bernard Suits in his seminal book, *The Grasshopper: Games, Life and Utopia* came very close to a defining that which Wittgenstein deemed impossible.[3] Although Suits' account stops short of providing a definition for a *game*, it defines the conditions for the act of playing a game, or *gameplay*, from which we can extend to games as objects. Initially, Suits summarises gameplay as 'the voluntary attempt to overcome unnecessary obstacles'.[4] Such a definition is appealing to philosophers because it captures something important about those who enjoy playing games: players do not take up games for the sole purpose of winning, but for experiencing the process (even the failures) of the game.[5] Thus far, Suits' notion of gameplay seems to accommodate video games since they encourage a similar attitude. Suits provides a more detailed account of gameplay, which he defines in this manner,

> To play a game is to attempt to achieve a specific state of affairs [prelusory goal], using only means permitted by rules [lusory means], where the rules prohibit use of more efficient in favor of less efficient means [constitutive rules], and where the rules are accepted just because they make possible such activity [lusory attitude].[6]

Let us briefly take each component in turn. The prelusory goal is the overall goal of any game and it separates gameplay from other things like make-believe and pure play, which do not normally have explicit goals. For example, the prelusory goal of tic-tac-toe is to get three Xs (or Os) in a row before your opponent does; in running a race, the prelusory goal is to cross the finish line first. Of course, one cannot achieve these goals by using any means necessary and so to race properly, you must run in your designated lane or path. This is what Suits calls the *lusory means*, which are determined by the *constitutive rules*. The constitutive rules require less efficient actions toward the overall goal, thus creating the obstacles mentioned in his general characterisation of gameplay. More efficient means would, for example, allow me to drive a car to the finish line, but the constitutive rules make further constraints that prohibit me from using a car. Instead, the rules of the game define the exact place where I must begin, when the race will start, what designates the finish line, and so on. All kinds of rules are important components of a game (e.g., including strategic rules), but for Suits' concept of gameplay it is important that they be a specific kind of rules. Incidentally, the lusory means is the sufficiency condition that Rough worries will become undone when there is a prescription to appreciate an artwork (see Chapter 5).

---

[3] Original: Suits (1978).
[4] Suits (2014).
[5] Jesper Juul has a similar concept (though he differs from Suits) that we play video games because there is a paradoxical enjoyment of gameplay though they entail failure. See Juul (2013).
[6] Suits (2014).

That gameplay lacks a more efficient means of achieving a goal is a significant factor for something to be a game for two reasons. Firstly, the constitutive rules are what individuate one game from another. If, for example, runners jump and clear hurdles as they run toward a finish line, we now have an example of hurdling (assuming this extra constraint is a shared decision). Differences in style or technique do not individuate games, however. For example, when I play a game of chess I might choose to 'castle', a play I make by moving my king two squares and my rook to the square the king crossed, but whether I castle or not has no bearing on my playing a game of chess. Similarly, for hurdling, as long as I clear my hip and other such rules, it makes no difference which leg I lead with because this technique is not part of the constitutive rules.

Secondly, the constituent rules are important because the inefficient means of games prevent (most) non-game activities from counting as gameplay. For this reason, a financial analyst who creates a spreadsheet according to her employer's rules is not playing a game since the set of rules she follows will be, in principle, the most efficient set possible. Finally, ignoring the lusory means would make it impossible to adopt the lusory attitude that Suits describes at the end of his gameplay definition. A consenting attitude prevents unwanted behaviour by others from constituting gameplay (e.g., bullying, torture, etc.), and excludes any motivations other than willingness to play the game from qualifying as such. To that point, Suits goes so far as to say that a professional athlete who is paid to play is unable to adopt the lusory attitude and, therefore, might engage with the institution of a game without playing a game.[7] For Suits, it is important to distinguish gameplay with the act of pure play because, though there are many things we do in the spirit of play, those things in and of themselves do not constitute a game if there are no rules. An animal chasing its tail, a child jumping off a step, and the person who twiddles their thumbs might be participating in a kind of play, but these do not represent Suitsian gameplay if there are no rules to follow.[8] This places rules at the forefront.

Suits' conception leaves room for counter examples, but it captures an important consistency across a broad range of games. Instead of looking at similarities (or dissimilarities) like Wittgenstein did Suits focuses on the endeavours and challenges entailed by all games. That being the case, it is important to note that the above describes gameplay as an activity and not games as objects. When considering the ontology of video games, rather than gameplay, a definition of games needs to be more precise. I will borrow a definition from Brock Rough, who extends Suits' definition of gameplay for a definition of games.

> To change the definition from that of an activity to that of an object requires only that the lusory attitude requirement be turned into a prescription. The game as an object contains inter alia a prescription to engage with it with the lusory attitude. This frees it from necessitating any actual correct response—namely game-playing—for the activity to

---

[7] In addition to Suits (1978), see Suits (2006).

[8] Suits (1978), p. 155. This also differentiates gameplay a different activity from Waltonian make-believe, or concepts of pure free play as Miguel Sicart espouses. See Sicart (2014).

exist. The game itself is then an abstract collection of rules, ends, means, and prescriptions.[9]

We now have a concept of game individuation in place, but this still leaves us wondering about the nature and compatibility of video games more specifically.

7.2 An Algorithmic Ontology

In addition to theories within game studies, we should care about game identity within the arts since recent literature allows for the possibility that video games can be art. Here, I will defend an algorithmic ontology, or the claim that algorithms of video games are ontologically essential. Defending the algorithm's ontological import is not a radical move, and, in fact, this puts me in good company, following Dominic Lopes, Grant Tavinor, and Jesper Juul.[10] For his account of computer art (of which video games might be a subset), Lopes defines an algorithm as the work's set of rules.[11] Further on he clarifies that 'the algorithm just is the function that maps any one state of an interaction-instance onto the next state, given an interactor's gesture and the sequence of previous states.'[12] According to Lopes, the algorithm relates to an ontology in a direct way because, like the constitutive rules, it helps us to individuate one work from another.[13] Lopes stipulates, however, that the algorithm is not sufficient for an ontology of computer art because the provenance of a work matters, too.[14] For example, imagine a scenario in which one game developer in New Zealand coincidentally creates an algorithm at the same time that a developer in Ireland creates an identical algorithm. Although the works consisting of identical algorithms may be perceptually indiscernible from each other, their provenances are different and so they are different works.

For a video game to function properly, both the code and algorithm (among other things) are required, but the algorithm is not the code and so we need some initial clarification.

With the many features of video games to consider, it is important to understand why the properties of the program are integral for display realization but do not necessarily factor for an ontological discussion. Imagine for a moment that you want to play a video game. Whether you access it in disc format, download it from sites like *Steam*, or via a web browser, you access the game via a compiled file. The file is compiled from the program and exists in a machine readable, binary format, which allows the computer's hardware to run it. The program consists of human readable code, which can be written in a number of coding languages (e.g., C#, C++, etc.) depending on the type of device the work is intended for. To make a finer point, with a game like *Amnesia*, the code used to create the program might look different if played on a PC vs. on a Mac, and the file will certainly be different if accessed from different operating systems.[15]

---

[9] Rough (2016), p. 144.
[10] Lopes (2001); (2010); Tavinor (2011).
[11] For more on computer art, see Lopes (2010); regarding the algorithm, see Lopes (2001), p.76
[12] Lopes (2001), p. 76.
[13] Ibid.
[14] Ibid.
[15] I qualify that it 'may' be different because there are some engines (e.g. *Unity*) that can compile a single program for various hardware platforms.

For instance, when using the game engine *Unity* on a PC, here is what a simple code might look like to check if the space bar is pressed:

```
using UnityEngine;
using System.Collections;

public class ExampleClass : MonoBehaviour {
   void Update() {
     if (Input.GetKeyDown("space"))
       print("space key was pressed");

   }
}
```

Compare the above with code implementing the same function (checking if the space bar is pressed) using *Swift,* Apple's programming language:[16]

```
import Cocoa
import SpriteKit

class ExampleClass: SKScene  {

        override func keyDown(with event: NSEvent) {
                if event.keyCode == 49 {
                        print("space key was pressed")
                }
        }
        |
}
```

The two codes look different, but the different programs entail the same work if they implement the same algorithm. Prescriptions for relevant operating systems and computer architecture are important for adequate appreciation of a video game, but we can see parallel cases in the arts where appreciative features are important for experiencing the work, but have little bearing on the ontology of it. With music, the type of instrument (e.g., an oboe) might be prescribed but the particular instrument (e.g., that particular oboe) is not necessary for an authentic performance. Likewise, the programming code of a video game is necessary for gameplay because it translates the algorithm into a format that is readable and executable by hardware, but the program's changeability from one device to another complicates the individuation of works if we require the code to contribute towards our ontology of video games. To echo Lopes, the properties of the program (the code) 'have no more aesthetic relevance than properties of a videotape have to watching a movie recorded on videotape.'[17] Instead, we can relate the algorithm to works like fashion designs, for example, where the design is conceived

---

[16] Thanks to Harrison Ferrone for writing the Swift code.
[17] Lopes (2001), p. 77.

as the work and the garment is the realization of that work. Thus, we must carve out the program from having any ontological import.

Although the code is not relevant for an algorithmic account, this should by no means suggest that the code is altogether unimportant. Not only is a functioning string of code potentially elegant, there is something creative about the coding process itself (not to mention the programmer will often contribute to the creative elements of the work).[18] While we should view the algorithm independently of the code, we would also do well to note the value of source code since it often times is the only implementation of the algorithm before it is programmed into a playable video game. The value of source code and programs for gameplay aside, the significance of the algorithm supplants that of the programs in an ontological framework and, as Lopes says, 'the programs are the work's templates; the algorithm they implement is the work.'[19] Therefore, let us return our focus to the algorithm.

Tavinor shares a similar view to Lopes'. He points out that an algorithm can be extensively characterised as a 'game loop'. He says a

> broadly functional use of the term 'algorithm' does not seem to be typical of the use of the term in game design. Games designers might speak of an algorithm involved in a graphical shader, for example, but in this use they would be referring quite specifically to the transformations that allow the shader to perform its particular task in rendering the graphics, such as adding volumetric detail to a texture. Thus conceived, algorithms solve computational problems. Furthermore, algorithms are typically defined as having terminations, but the objects being invoked here can often be run indefinitely because there is no set problem that they are meant to solve. Rather their function is to generate an ongoing display drawing on the inputs of an interactor (or even without the player's input).[20]

If a shader is used for the graphics of a video game, the assets needed to implement the shader can be accommodated by the CGA. Shaders require algorithms to perform their prescriptions, but these algorithms are separate from (or in addition to) the CGA so more needs to be said about the distinction of an algorithm's merit. However, there is a problem with relating the term game mechanic to the algorithm, as Tavinor aptly notes, because a single game is comprised of many game mechanics and so the phrase minimises the real scope of a videogame algorithm; partly, the notion of a CGA—which is the collection of algorithms or game mechanics—is designed to acknowledge the real scope of algorithms involved in videogame ontology.

Nevertheless, even given this acknowledgement of the scope or complexity of videogame algorithms, the idea might still seem too insubstantial to really explain the ontology of videogames, especially when we acknowledge their inherent artistic qualities or their

---

[18] The player is also involved in something creative, but this kind of creativity generates the displays of an existing work.

[19] Lopes (2001), p. 77.

[20] Tavinor (2011).

potential to be art. This is something that worries Marcus Rossberg who, to the contrary, claims that if algorithms relate to the ontology of artworks, they do so only in an indirect way. He says,

> [r]ules or instructions do not appear to be the right ontological category for artworks. Pretending for a moment we have even the slightest idea what the ontology of rules might be, it just seems wrong, or even incomprehensible, to describe, say, Plessas's Towers and Powers as a rule, akin to modus ponens, or to an instruction, such as, 'Pick up the red ball.'[21]

Rossberg's words highlight how minimally the algorithm is characterised. Indeed, he is partially sceptical of the algorithm (or any rules for that matter) as having any direct relationship to the ontology of computer art because the current literature on computer art offers only vague accounts of what the algorithm consists of.[22] Before we can understand the CGA in more detail, I first acknowledge that if all games and sports consist of rules, one could be sympathetic to the argument that algorithms are too simple (or vague) to count toward an ontology of video games. It is true that mere game rules rarely factor as the object of appreciation. For example, we can note the banality of rules when we consider a relatively simple game like tic-tac-toe:

> The object of Tic Tac Toe is to get three in a row. You play on a three by three game board. The first player is known as X and the second is O. Players alternate placing Xs and Os on the game board until either opponent has three in a row or all nine squares are filled.[23]
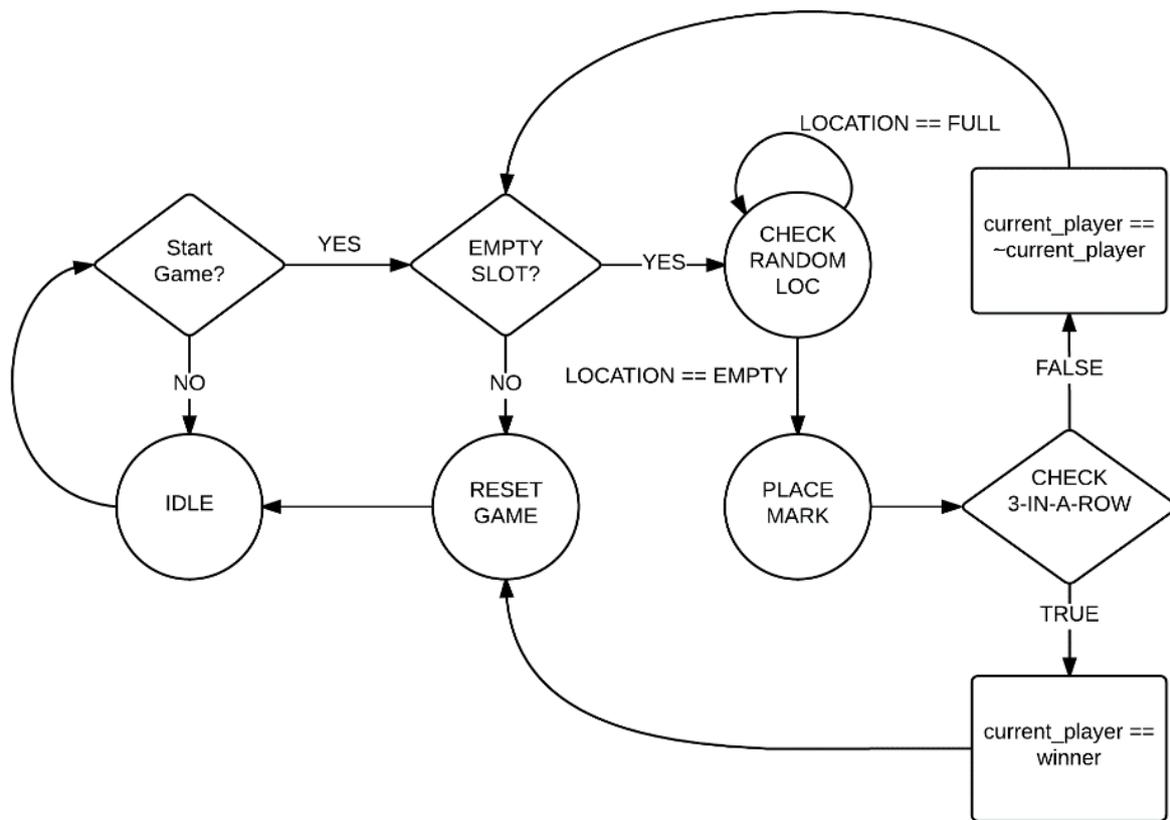
Similarly, a basic algorithm operates like a set of instructions. The following illustrates what an algorithm might look like for the rules presented above:

[21] Rossberg, in Mag Uidhir, (2012), p. 71.
[22] Ibid., see his footnote p. 71.
[23] http://web.cecs.pdx.edu/~bart/cs541-fall2001/homework/tictactoe-rules.html. Accessed 2 September 2016.

Tic-Tac-Toe algorithm for the computer.

The above illustrates that an algorithm, unlike game rules, includes commands a computer will respond to, the rules of the game, and it specifies the states of a game related to a given input. That said, the ontological structure of an algorithm for video games is more comprehensive than what the above illustrates. If we leave an algorithmic concept only to mean a video game's ruleset then, at best, we are left with a notion that recapitulates Rossberg's worry - that an algorithm is understood as nothing more than 'pick up the red ball.' My main goal here is to sharpen the meaning of the CGA and describe how it is relevant to video game ontology.

One should keep in mind that an algorithm is an abstract (and somewhat theoretical) entity in the sense that it will often be instanced simultaneously with programming language, especially as the algorithm becomes more developed. That being the case, it is not so much about the individual roles of the developers or the stages of creation that should concern us here; rather, the crucial thing to emphasise is the algorithm as the specific property-bearing component of a video game. That means the CGA will contain information that extends the mere rules and states of play that the tic-tac-toe algorithm shows above to detail prescriptions for things such as features of the sprites and characters, colors, background textures, music, text, animations, lighting, narrative, and other art assets. For example, consider a game like *Amnesia: The Dark Descent*, a horror survival game where I search through a monster-ridden castle to regain my avatar's

memories.[24] The perceptual features of this game add to any aesthetic experiences I might have during gameplay, features including dark, dingy rooms, eerie lighting, shadows, and sinister noises, all of which build to the monster's reveal. This game is, at least for me, intense, scary, and evokes an overall a feeling of creepiness. *Amnesia* is able to do this because the CGA encompasses everything about the specifications of the video game such as representational and expressive features of the characters, narrative and the tones, expressions, the formal features of characters and background, the brightness, and other artistic assets.[25] Therefore, if we adopt Lopes' definition of an algorithm (from above) then I propose we can assume an algorithm satisfies a video game's ontological concerns when a complete game algorithm defines the relevant properties that are required for all the possible display types (and their displays) for a video game to be realized.

'Display types' is not a common phrase within the philosophy of traditional arts so, following discussions from Chapter 6, I will return to these features in the final section. Of course, the above definition says nothing of a successful algorithm in any evaluative sense, nor does it make a work like *Amnesia* playable. CGAs define what particular tasks a shader should perform, to return to Tavinor's game loop example, but CGAs do not render those specific tasks; that is the job of the program. In this respect, the algorithm serves as the entire structure of the video game, which will in turn help the video game's programmer realize the perceptual features into an instance.

7.3 Some Initial Problems

At this point, the above should make us wonder what results from combing Suits' view of games with an algorithmic ontology of art. Are video games necessarily art? Are they necessarily games? If for a moment we only consider the rules, this may sound odd for an art ontology at first blush. However, there are similar examples outside of computer art and video game categories that serve as preceding examples. Sherri Irvin proposes that installation art, conceptual art, and in fact many contemporary works rely on the 'expression of parameters for the constitution of a display'.[26] *Work No. 200: Half the air in a given space* (1998) by Martin Creed is one such work. This installation requires an enclosed room filled with air contained in balloons half its cubic space. Another example is Félix González-Torres' *Portrait of Ross*, which consists of 175 pounds of candies piled high in a corner, the exact weight of his late partner who died from AIDS. Both examples require the curator to follow the rules to generate an authentic display, without which, no such display can be realized. If these sorts of parameters do not exclude works from an art category then there should be little reason to exclude video games solely for the algorithms. Neither does Lopes see any reason to exclude video games as art candidates because he views video games as potential works of computer art.[27] Following Berys Gaut's Cluster Theory[28], Tavinor also allows for the possibility that video games can be

---

[24] "Amnesia: The Dark Descent." (2010).
[25] Shaders (software separate from the algorithm programmed from the GPU) can also be used to determine these features. This is not in discord with an algorithmic ontology because algorithms accommodate the specifications of the shader.
[26] Irvin makes the point that the degree of a work's parameters will vary. Irvin (2012), p. 243.
[27] Lopes (2010).
[28] Gaut (2005).

art because he views video games as consisting of gaming mechanisms *and* imaginative components made possible by the interactivity. As such, recall his proposed disjunctive definition of video games:

> X is a videogame iff it is an artefact in a digital visual medium, is intended primarily 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-bound gameplay or interactive fiction.[29]

Both the rule-bound gameplay and interactive fiction that Tavinor mentions in his definition point to the underlying algorithm at work in the video game. Neither is possible without the implementation of the algorithm and the algorithm creates the identity of the rules and fictions. Like Tavinor, Juul says video games are comprised of rules and fictions and that our view of art (and games) should not be so limited as to exclude things like video games.[30] Juul goes on to say, "it turns out that the fiction in video games plays an important role in making the player understand the rules of a game."[31] Juul discusses a video game's art status like this:

> While games are regularly considered lowbrow, this is often due to some very naive notions of what is highbrow or what is art. In a very simple view of art, art is what is ambiguous, whereas most games tend to have clear rules and goals. As Immanuel Kant would have it, art is without interest, whereas game players clearly play with much interest and probably send the wrong signals simply because they look completely unlike visitors to an art gallery. We cannot reasonably use such claims as checklists, and we should avoid thinking about art, and games, in a limited and unimaginative way.[32]

If we are amenable to the fact that video games can be art then one might wonder if they can be games. Not everyone agrees that games can be art or that games can be art. For example, Rough, following Suits' analysis, argues that

> games cannot be intended to be works of art because games are goal-directed activities that require a voluntary selection of inefficient means that is incompatible with the proper manner of regarding that is necessary for artworks.[33]

Rough defends three points of incompatibility. First, there is no prelusory goal for artworks; second, artworks do not prescribe inefficient means; third, there is a logical incompatibility between the prescriptions of the attitudes (because art adds a condition of appreciation, whereas the lusory attitude is sufficient for games). This incompatibility means, for Rough, that a videogame can be a work of art, or it might be a game, but it cannot be both.

---

[29] Tavinor, (2008).
[30] Juul (2005).
[31] Ibid., p. 163 (also see his introduction and Chapter 5).
[32] Ibid., p. 20-21.
[33] Rough (2017) (as found in the abstract).

If one adopts Rough's viewpoint, then using Lopes' definition that includes an art condition is problematic for an account of games, but not necessarily for video games (given they may not be an art and a game). For the sake of the argument at hand, I do not commit myself to the idea that all video games can be art (or that all video games are games). For those who see video games and art as incompatible, then what follows is not all lost if you relate a Suitsian view to only those video games you *do* view as games. The above stipulation is important because I do not want to suggest to the reader that when I use the term 'video game' that I imply they are all games *de facto*.

Let us assume that the rule-bound gameplay and or interactive fictions we are talking about fit within a similar framework as games, given, if nothing else, their algorithms. The question remains, are these ontological theories compatible?

7.4 In Search of a Unified Theory

So far, algorithmic rules do not seem in contest with Suitsian rules and, although this is the view I ultimately take, we would be too hasty to leave it here without considering, as Rough says, the 'collection of rules' of games in more detail. Unlike games, video games do not seem to have determinate sets of constitutive rules known by the player prior to playing a video game. It should now also be clear that algorithms are more expansive than Suitsian constitutive rules when we consider things like art assets and expressive elements video games entail. As with all games, the rules of video games are signature features, but remember that for Suits a change in the constitutive rules means a change in game identity. Video games have several mechanics that allow players to change the constitutive rules of a particular game, which would mean some video game works do not always present players with a single game, but with many.

Let us consider at least two ways in which a single video game might constitute different games before I elaborate on how this Suitsian view is consistent with an algorithmic ontology. The first example in mind is video game mods (modified games) where a player can change certain features of a game by changing the code. For example, pretend I wrote the code to mod the video game *Civilization,* a mod that allows me to add new military units that were not previous options of the game. Mods are likely to consist of varying constitutive rules from one mod to another, and so each mod would constitute a different Suitsian game, although the modded games bear the same title. Before taking this example further, I want to consider a second way that a player might change the constitutive rules, which is by changing the difficultly settings of a game. If, for example, I wanted to make a playthrough more challenging then I can change the play mode from easy mode to difficult, meaning instead of doing abc, I must xyz. *Terraria* is one such example that offers players either a normal world or expert mode. The latter is more challenging and entails different consequences and rewards than the normal (default) world can. Additionally, various fighting games allow players to determine the number of rounds it takes to win, the size of the ring, the time limits, and so on. In these cases, the constitutive rules change between the settings and, like the mod, present us with different Suitsian games.

An algorithmic ontology states that a work's identification is determined by its algorithm and provenance so let us take a more thorough look at the above examples to tease out a

clearer picture. My position is this: the CGA comprises a single video game work, which can afford many different potential games (appreciated from the displays). I will first discuss how the two examples above are examples of single works before explaining how a single work might consist of different games.

Two things are happening with modified games that might make it seem the identity of the work changes: (i) the modded game will appear different from the original game (e.g., the properties that the extra military units bear versus the properties before the game is modded), and (ii) hypothetically, this mod was created by me, not by the developers of *Civ*.

First, we should take a clearer look at how a mod works. Imagine the CGA is like a sealed black box with inputs and outputs that look like holes. These ports, which are designated by the creators, are what allow for certain modifications; a mod can only interact with the algorithm through the designated inputs and outputs. In other words, the mod will not affect the identity of a game if it is permitted by the CGA. Let us return to point (i) from the paragraph above. The modded game appears different than the pre-modded game because code has been added, via the hypothetical ports. For clarity, let's call the pre-modded game *Civ* and my modded version *Civ**. Under an algorithmic ontology, the mod does not constitute a different work because, although the code changes when I add a new military unit, the set of rules allow for this change and accepts the given modification. Many more mods might be permitted by the game, but this does not mean a CGA would allow all modifications. Imagine instead that I wanted to play the same game, but rather than playing with the built-in civilizations of *Civ*, I wanted the ability to colonize the moon (let's call this *Civ***). The mod for *Civ** works because the developers made certain provisions for modifying the default civilizations, whereas they did not make such accommodations for the algorithm to tolerate *Civ***. If I forced the implementation of code so that I can play *Civ*** then I have hacked the game similarly to breaking the black box to access the inside. Although this occurrence is an interesting one for other discussions, the forced mod is not a genuine instance of the work. Also, recall from earlier that code is not necessary for a work's identity because code changes all the time between different operating systems. That means, sanctioned mods should be of little consequence to the *work* identity.

Regarding point (ii), the change from *Civ to Civ** might tempt some to say the work identity changes, not because of the code, but because the additions are made after the video game's publication and by those other than the developers.[34] A sceptic could argue something like this: works like paintings, plays, and films are assessed as complete works at some given time *t*. After all, an artist like Picasso does not create *incomplete-Guernica* just in case he wanted to add to it later! A relevant example from the history of art is the surrealist use of 'exquisite corpse', which was a method used by visual and literary artists to create a work in an ongoing collaborative manner. It works like this -- an artist contributes a partial drawing or string of words (e.g., following a rule set such as 'adjective-noun-advert-verb') and then sends it to a different artist who contributes to

---

[34] There are some cases in which players can download about different 70 mods at a time for a single video game, which is different than what we normally expect for traditional works.

the work, and so on. Although each collaboration represents a modification to the work, none of the additions, if sanctioned, change the identity of the work. Additionally, consider works from the Dadaists who also allowed their audiences to progress their works on an ongoing basis. Similarly, the CGA can allow for certain mods, but this does not make the released videogames unfinished works.[35] Having said all this, given the force of an algorithmic ontology for video games, a game like *Civilization 5* is individuated from *Civilization 6* because each implements a different algorithm.

Let us return to the example of a video games' difficulty settings. With the following pseudo-code, consider what a difficulty setting might look like within a work if an enemy has an initial hit point value of n hit points (HP):

```
if mode == easy then
{
        enemyHitPoints=n;
}
elseif mode == hard then
{
        enemyHitPoints = n+10;
}
```

Hard mode assigns the character additional HP so the character becomes stronger and, therefore, harder to beat. As I understand it, Suitsian rules cannot survive the change from 'n' to '$n+10$' without becoming a different game, in the same way Suits might view the modded games as distinct.[36] This would be detrimental to my ontology of a video game work if I continue to consider myself a Suitsian. In order for these theories to be unified, an algorithmic account of video games must show that the algorithm can preserve the identity of the work even when various playings of the work constitute different games. Before moving forward, in recognition that an account that subscribes to the idea that a switch from one level of difficulty to another level constitutes a different game may be at odds with our folk notion of game identity, but remember that this level of individuation is compatible with Suits' conditions of gameplay. As such, individuating the difficulty levels, if there are different constitutive rules in operation, need not affect our notion of games (especially considering that one might alter the settings mid-playthrough) in any popular sense of how we play games. However, for a Suitsian, a change in constitutive rules represents a change in game identity.

7.5 Work and Game Individuation

I have a solution that fits both an algorithmic ontology and a Suitsian account of games, but first it is worth bringing in a (perhaps) less-strict viewpoint regarding game identity. According to Lopes,

> The rules of a game may change from one time period to another or from
> one context to another…It is fair to say that this changes the game, but

[35] When we consider the ontology of the mods their provenance would be different than the work's provenance. The point I make here is not to ignore authorship of the mods, but to show the algorithms can allow for them.
[36] Thanks to Brock Rough for pushing me on this point.

playings of the game under new rules remain playings of the same game.[37]

One could say Lopes' view of games disagrees with Suits'. Perhaps a more flexible interpretation of this view does not absolutely individuate games just in case their rules change over time. For example, if we have a case where *game* evolves into *game** then only one set of rules exists at one time opposed to the two sets of rules that exist for *game a* and *game b*. Further to this point, we can refer to Suits' notion of the *institution* of a game versus a *playing* of a game.[38] Although these distinctions take me too far afield, with the longstanding game like chess, for example, 'castling' did not take its present form within the rules of the game until the seventeenth century, yet, we do not typically consider it a different game from its predecessor (and I presume neither would Suits).

It is my view that both the mod examples and the difficulty modes presented above are of the same work *and* different games*.* Notice with the above '*n*' and '*n+10*' difficulty settings that we are looking at two different conditional statements, but each statement is merely a component of the same CGA; the CGA allows for both conditions. Therefore, the switch from easy mode to hard mode does not change the algorithm or identity of the work, but the switch does say something about constituting different rules and, therefore, different games. The algorithm consists of all the potential constitutive rules that a work can have, but when we change the game settings, the constitutive rules of that particular display will differ from the other display(s). This is not so different from accepting that different playings of the same game might drastically differ from others; as Tavinor and others have stated, video games are best appreciated if played multiple times so that we can appreciate the scope of the rulesets.[39]

Let us return to the example of playing *Kingdom* two times; in the first playthrough the queen (my character) spends her coins wisely, fights off the monsters, and successfully expands the kingdom, but in the second playing, she fails and loses everything including her kingdom. One might say that all games allow for the same variability because, when I play a game of chess it will sometimes end with me winning and at other times with me losing. Video game variability is more complex than this implies, however. Following Lopes and Dominic Preston we know that some interactive works have multiple *differing* displays.[40] This means, certain video games works might consist in a tragic display (if, for example, my character dies) *and* a not-tragic display (if my character lives), which is fundamentally different from the win or lose scenario when we play chess. When I lose a chess match it might be tragic to me, but any feelings I have in regard to the loss are external to the game; when my character dies in a video game the genre of the work changes due to the different set of properties it bears compared to the display with the protagonist who succeeds. Although a piece of music might have sombre parts and joyous parts, it cannot be both fully sombre *or* fully joyous. This requires explanation because

---

[37] Lopes clarifies that this is due to a genetic component of games. See Lopes (2001). I would say the same is true for video games.
[38] In addition to Suits (1978), see Suits (2006).
[39] Tavinor (2017).
[40] Preston (2014).

we normally do not view works as capable of being either a tragedy or a comedy (in Shakespearean terms) depending on user input.

There are, of course, works whose performances vary from the work. The many retellings of *Romeo and Juliet*, for example, can differ depending on the particular adaptation we attend to in the same way we can appreciate different performances of Vivaldi's *The Four Seasons*. With these cases, when we watch a play or hear a piece of music it is possible to appreciate the properties belonging to the work, transcriptions, adaptations, and performances. Furthermore, it is Stephen Davies' view that some edits to a musical score do not necessarily constitute a new musical work, even if it constitutes a different version.[41] Songs, especially non-classical, with constitutively 'thin' musical structures will vary to sometimes a significant degree (e.g., *All Along the Watchtower* by Hendrix v. Dylan), but versions of performance works do not usually vary in the manner that interactive works do.[42] *Spring* can be performed faster or slower, but those variations are not incompatible with Vivaldi's score. A piece of music performed atonally when it is supposed to be tonal is, however, incompatible; two such drastic displays must be accounted for within the work, or we must individuate them as two different works. Non-interactive works should not vary to the degree of incompatibility, but there are many video games that seemingly can, a point that Preston raises.

We know from Preston's account, presented in the previous chapter, that video games might consist of many display types (e.g., tragic and not-tragic) which consist of many displays. If this is true, and I take it to be, we can be sure that the CGA allows for all the differing display types (and displays) without it becoming a new work. Each possible display is part of the work (algorithm) and the work holds all the properties of the variable displays (different games).[43] Here, it would seem video games are more closely related to constitutively *thin* work structures due to the variability we can expect from the displays. However, setting aside differing displays and types, video games are perhaps not so different from classical music's constitutively *thick* properties, because the algorithm specifies in detail what the player can do; there are just many more differing properties to be shared among the displays within video games than with (non-interactive) performance works. The thick-thin relationship of applicable video games is noteworthy.

To briefly conclude, if we can play many different games from a single work then, by the above account of video game works, I am happy to agree with Suits that any change in the constitutive rules constitutes different games while at the same time preserving an algorithmic ontology. Since each display derives from the work, a video game will consist of all properties of those varying displays. Therefore, if the display types and displays contain properties of the work, then I view each type as belonging to the same work even if the constitutive rules allow for varying possibilities, and different games within that work. It would seem then, in this particular case, game studies and aesthetics can function in concert to individuate works and games. For video games, this is the strength of an algorithmic ontology.

---

[41] See Davies (2007), p. 86.

[42] For a discussion on thick and thin properties, see Kania (2006), Gracyk (1996), Davies (2001)

[43] For more, see Ibid., p. 267.

Chapter 8: Some Ontology of How to Destroy a Video Game

8.1 Abstract or Concrete?

Video game designer Mike Mika reflects on the evolution of video games with a sense of regret that in the early days of video game development, digital preservation practices were not commonplace. He says,

> There are gaps in the evolution [of video games]. Unlike paintings or sculptures, digital art isn't tangible. It's stored as ones and zeroes, which were often erased to make room for another game. Much of our early work is now gone forever. I learned the hard lesson that magnetic media has a shelf life of about five years. Likewise, a lot of the old game systems I had as a kid were showing signs of failure. The work my friends and I put into creating games over the eras was now in jeopardy of disappearing forever, as was an entire generation of games by creators all over the world.[1]

Such a fate almost befell the early computer game *The Oregon Trail (T.O.T* henceforth*)*. For those who grew up in the U.S. during the 80s and 90s, this title will be a familiar one. First produced in 1974 for the computer desktop, *T.O.T* is a game simulator that teaches kids about American pioneer life in the 19th century. [2] Prior to the 1974 iteration, *T.O.T* was created and programmed by college graduate-teachers, Don Rawitsch, Bill Heinemann, and Paul Dillenberger, but instead of a desktop programme, it was run on a teletype, or an electromechanical typewriter with an interface system that connected to a computer mainframe. In this format, all the game elements were text based, which were printed at a rate of ten characters per second. Although rudimentary, *T.O.T* was, at the time, a novel idea and largely popular among the students. However, the teaching tenure was up for the three creators of *T.O.T* just a few months after they created the game so they decided to print the source code onto paper and delete the file from the mainframe in an effort to preserve their authorship. The title of an article describing this story reads, 'For three years, the only copy of the Oregon Trail source code was printed on a stack of paper'.[3] Rawitsch later referred to the 800 lines of code as the 'Sacred Scrolls' because, as the author writes, "for that brief period The Oregon Trail existed in a form very few videogames can claim. Entirely, singularly analog".[4]

Stories like this make Mika's sentiment about lost games a relatable one but the phrases 'gone' and 'disappearing forever' belong to folk notions of existence rather than philosophical ones. Any agreement, if there is to be any, on whether video games can be lost forever, or whether they linger on, is hinged on the kind of ontological order that we ascribe to video game works. In principle, abstract art kinds, such as music, poetry, and plays exist as repeatable types, rather than singular, particular objects. The ontology of abstract works suggests works like music exist in a less vulnerable state than concrete

---

[1] Melissinos, Chris, and Patrick O'Rourke (2012), p. 11.

[2] By the Minnesota Educational Computer Consortium (MECC).

[3] Wes Fenlon, PC Gamer. URL: http://www.pcgamer.com/for-three-years-the-only-copy-of-the-oregon-trail-source-code-was-printed-on-a-stack-of-paper/. Accessed March 2017.

[4] Ibid.

works like paintings do because abstract kinds do not exist in one physical place nor do they (typically) degrade over time.

The nature of abstract works has been widely discussed amongst philosophers of art, starting with those such as Wollheim, Goodman, and Wolterstorff. Still, there remains disagreement as to how we should think about them. By some accounts, these works cannot be both purely abstract *and* creatable, which would leave us with two options: if they are creatable works then they are concrete; if they are abstract then they are discoverable works, not created ones. Still, others suggest a third option. Since works such as music are not purely abstract, they are creatable, but since their properties are not concrete in the standard way they are abstract-like. Here, I will focus on the metaphysics of video games to determine if they, like paintings, can be destroyed, or if, like pure abstracta, last forever.

In a metaphysical sense, a non-creatable entity that does not take up space and time is considered to belong to the category of abstracta. Abstract entities like numerals and gravity are not created, but there is a problem because theories of art require (in part) a work to have a causal event in order for us to regard it as art. Generally, we intuit that if an artwork can be destroyed then it was, at some point in time, created. This is certainly true of the plastic arts (as art conservationists will attest), but if works like music and video games are abstract, then what we need is a greater understanding of what makes them similar to abstracta, rather than to concrete objects. For comparison of video games and abstract things, consider the number pi. It is abstract because it is not created, it is unaffected by human interaction, it does not occupy a particular space, nor does pi solely exist in the mind (as an idea). Non-physical entities like pi do not have any causal effect on other entities or objects because they exist independently of everything else, although they may contain specific features or properties that we can understand and discuss. For example, we consider pi an *irrational number*, and to have *infinite and specific numbers after the decimal*, but those are all intrinsic features of pi, independent of intentional or natural causation.

Video games require physical objects for their instantiations, and, although they require some kind of causation, they are not particular objects that occupy singular locations like paintings. However, the question of whether video games are abstract collapses into a broader question of whether any artworks can fit within a category of abstracta at all. In short, I consider video games to be abstract-like, but given the complicated terrain of metaphysics, I will tread lightly on committing to any specific abstract account for video games, although I will make my preference known by the end of this chapter. The more specific goal here is to focus on the abstract nature of the CGA and underscore its importance for the survival of a video game.

8.2 Abstract Ontology Candidates

There is a tension between the ontologies of abstract entities like pi or the numeral 3 and abstract art forms like music; to put it another way, metaphysics and aesthetics are, at times, incongruous. This paradox motivates Marcus Rossberg's the following two premises:

(i) that artworks can be abstract objects; and (ii) that all art is created and can be destroyed.[5]

With the above, we could say that (i) precludes (ii) or, (i) on its own presents us with an impossibility. Rossberg analyses this issue in his chapter entitled, "Destroying Artworks", from which my chapter title draws inspiration.[6] Rossberg's chapter is relevant for my own interests because, in addition to addressing the metaphysical issues of art, he considers works of computer art more specifically. To question how video games might fare with this paradox, it is first worth summarizing various ontological conceptions of abstracta and how artworks may or may not be consistent with such accounts. In what follows, I begin with a summary of a few established views of abstract works and then follow those with more recent ones; this is followed by a discussion on the relevance of the algorithm for video game ontology; I end by considering how video games, if they are creatable, might be destroyed.

Platonism is a theory that suggests there are entities which exist as non-physical objects outside of a place and time.[7] A theory of platonic universals places abstracta into kinds (universals that have or do not have formed examples), where each will have features that are particular to them, like the earlier example of pi.[8] In terms of music, the note D sharp has specific properties, which of course becomes important for composers who use D sharp in their arrangements, even though D sharp has no provenance.[9] Platonic universals are neither modal nor temporal and so they are unsusceptible to human interaction, they exist independently of any other object, and they have no causal history. Given their characteristics, a general Platonist theory states that abstract entities are discoverable things rather than creatable. For this reason, philosophers of art may find this view unappealing if they subscribe to traditional notions of art authorship. To adopt a Platonist view, one must acknowledge that, if some artworks are abstract in the orthodox way, then works like music can only be discovered by their composer, not created. Therefore, Beethoven discovered rather than wrote the *Fifth Symphony*. Furthermore, this theory would prohibit any scenario in which artworks can be destroyed since they, like pi, can be rediscovered time and again.

An Aristotelian view of universals explains that instantiation is the point at which works are created. Those such as Stephen Davies suggest that, on this account, a musical work comes into existence with its first performance and it ceases to exist with its last performance.[10] However, the pitfall with this view is there is no explanation for what happens to the works in between instantiations. In addition, one might wonder how we should attribute authorship to these works if, for example, a piece like Beethoven's *Fifth Symphony* is created each time it is performed. A further worry arises because if a work's existence is dependent on its particular token, then we would have to allow that Beethoven may not have created all of the works we usually ascribe to him if he was not

---

[5] Rossberg, p. 62-63.
[6] Ibid.
[7] Julian Dodd calls these implicit types.
[8] Also, Davies, S. (2003), Dodd (2000), Wolterstorff (1980).
[9] David Davies calls these 'Doddian types', after Julian Dodd.
[10] Davies, S. (2003). Found in Rossberg (2013), p. 64-65.

the first to perform them (or maybe he wrote things that were never performed and so they were never created works). A separate worry is, since the performance would be a particular creation, and, if a work exists with its first particular instance, it is then a concrete work, and a discussion of abstracta becomes moot.[11]

To avoid some of the above authorship issues, Jerrold Levinson proposes the concept of an indicated structure (this is an application of mathematical structures to music).[12] Abstract types (musical notes) are invoked or indicated by the composer and arranged to create a structure consisting of music and instrumentation. The concrete instances occur when the work is performed, but unlike the previous view, the work exists prior to and regardless of instantiation. Levinson employs the phrase 'artistic indication' to emphasise that human creativity brings a work into existence even though composers draw from orthodox abstract entities.[13] To be more precise, Levinson claims that a work such as Beethoven's *Fifth Symphony* is a 'tonal-structure-as-indicated-by-a-specific-composer-in-a-specific-historical-context.'[14] Levinson suggests that, in theory, since indicated structures are creatable works there is a possibility that they are susceptible to being destroyed if they are erased from all record and memory. However, he believes it is more likely that a musical work will simply last forever.[15] As Rossberg frames it, this conception places works like music into a new category of "somehow in between: creatable and abstract."[16]

Amie Thomasson has, more recently, proposed an account of 'abstract artefacts'.[17] Thomasson recommends that we form new ontological theories of artworks (and social constructs) for newer ideas or things when they are needed, rather than force them into existing frameworks. The impetus for Thomasson's argument is the fact that new things, ideas, and works emerge all the time, which should motivate us to revise (or add) certain accounts to the existing literature. With that in mind, Thomasson proposes a new category for 'abstract artefacts', things (including economics, marriage, or scientific theories) that are not physical objects but their existence does rely on human causal action nonetheless. This view is warranted, but there seems to be an incompatibility between this account and repeatable works of art. Although Thomasson's account is plausible for constructs like marriage in a general sense, if abstract artefacts are abstract particulars as Thomasson suggests, then they cannot be repeatable works because particulars are not repeatable things. Rossberg also raises this worry and offers an example to illustrate this challenge. He says the particular marriage between Sandi and Debbie, for example, is abstract-like, but, this particular event between Sandi and Debbie cannot be repeated. This should make us wonder how specific artworks, if they are abstract artefacts, can be repeatable things, or what explanation we can offer to show that a new work is not created each time it is instanced (e.g., a new marriage between Sandi and Debbie, a new *Fifth Symphony*, a new *T.O.T.,* etc.). On the other hand, when we

---

[11] Rossberg, p. 65.
[12] Levinson (1990 & 2013).
[13] Levinson (2013) p. 51.
[14] Ibid.
[15] As found in Rossberg (2013), p. 65.
[16] Rossberg, p. 74. see also Levinson (2012).
[17] Thomasson (2004), p. 88.

instance a specific video game, like *T.O.T.*, it implements the same CGA. Therefore, following an algorithmic ontology, it might be that we cannot repeat the displays, but we can repeat the work.

Instead of abstract artefacts, we could return to a more traditional account of abstract art and entertain the thought that works are types that token their instances. These are repeatable works because, in theory, the type and its tokens are understood as equivalence classes because the instances bear the properties of the work. Returning to the example of music, *Fifth Symphony* is the work and every performance of it are its tokens (this general characterisation presumes that *Fifth Symphony* is somehow abstract). The issue that others[18] have pointed out relates to the number of members each class consists of because two-unperformed works will each have zero equivalence classes, thus making them identical, i.e., the same work of art.[19] I have already discussed in many of the previous chapters the more important difference between this theory and video games because video games can consist of a work type, many display types, and many displays, rather than a single type that allows for a single kind of 'correct' token. This suggests that the type-token distinction is applicable to interactive works, but it doesn't give us the whole story of video games and their distinctive qualities.

All video games have interactive features where the player's input will generate different displays revealing variable artistic and aesthetic features of the work. We must remind ourselves that the display is not always our sole object of appreciation because the work and display are not always identical. For video games, this means a single display should not exhaust our appreciation for the work because there are many displays still left to appreciate. For example, in the game *Dishonored*[20] a stealth action-adventure game, it is the player-character's goal to complete multiple assassination missions, but the player can choose to do so in a stealthy manner or combative one. These choices will determine the level of bleakness and violence within the game, meaning several playthroughs could produce very different kinds of game displays. This means that the work cannot be adequately appreciated until it has been played multiple times. Just how many displays a player needs to experience in order to adequately appreciate a video game is not so clear, but that is a separate issue for another time. Games like *Dishonored* make it clear that none of the individual outcomes is 'the' token of the work because each playing, although drastically different in their outcome, will be a token. This example shows that the type-token distinction has some relevance, but is too simple an account for video games.

The summary of abstracta accounts presented above is brief, but it highlights the difficulties one runs into when discussing the metaphysics of certain artworks. If we are going to make any sense of video games and ascertain if they can be destroyed, we must first take stock of how video game works are created and preserved.

8.3 The Components of a Video Game

It should be clear from Chapter 7 that video games are comprised of algorithms, programming language, and a compressed file, none of which are physical objects. Since

---

[18] Dodd (2003), Wolterstorff (1980).
[19] For more on the type-token distinction see chapter 6 in this dissertation.
[20] Bethesda Softworks (2012).

these things require a computer and other hardware for instantiation some scholars such as Rossberg view these works as concrete. Although gameplay is essential for an adequate appreciation of a video game, the hardware and computer architecture are not 'the work' so let us discuss how a video game might exist.

The author of the *T.O.T* article mentioned at the beginning of this chapter says that, "[t]oday, there are at least 65 million digital copies of *The Oregon Trail*, and at least one still on paper".[21] This is a far cry from when, at one time, the only instance of the work was "[e]ntirely, singularly analog".[22] Although the printed source code is not a common way to document and store games, we can understand the pages to be an instance of the work. To be sure, the original game created by Rawitsch, Heinemann, and Dillenberger poses an interesting question about originals, instances, and versions. The document containing the 800 lines of source code is not the work itself, just as the digital copies that exist today are not themselves 'the work'. In printed form, *T.O.T* is an implementation of the original algorithm so, although it is not in a playable format, it is a concrete instance of the work, albeit an unconventional one because it is not how we typically encounter a video game work. That means, when the source code was re-digitised later on, that action did not create a new work, rather the same work was instanced in a more conventional format.

The 65 million copies of *T.O.T.* today share a similar title with the work created in 1971, but they are played very differently than the teletype version described earlier. For one, the contemporary version of *T.O.T.* is comprised of many images and sounds, in addition to the text. For another reason, Rawitsch dug a little deeper in the history of the original pioneers than he had with the two weeks it took him and his programming partners to create something for their students to play. Consequently, he made certain aspects of the newer game more realistic such as how many average miles the original pioneers could have travelled per day, the typical sorts of problems they would have encountered, as well as a more realistic kind of geography. Rawitsch also realised that Native Americans would realistically, at times, help the travellers instead of always attack them as previously believed. So, the change from text to image based notwithstanding, this would constitute a different game than the one that consists of 800 lines of source code because they each implement a different CGA. Although we can say the document is an instance of the original *T.O.T.*, we cannot say it is an instance of the work today. Aptly, each new edition gets a slightly different title, e.g., *The Oregon Trail Classic Edition*, *The Oregon Trail Deluxe*, *3rd edition*, and so on. With each new edition, a new work is created.

The above points us to the ontological significance of the work's structure rather than to any particular object. In this respect, Levinson's framework for indicated structures gets close to characterising a video game because the work is comprised of abstract entities that can be instanced into particulars (as indicated by the creators). The only issue I take with fully adopting a Levinsonian account is that it was not intended for works with repeatable displays that vary, but rather, for traditional repeatable works such as western classical music. He stipulates this himself and recognises that we cannot

---

[21] Wes Fenlon, PC Gamer.
[22] Ibid.

necessarily extend his account of musical structures to jazz works or many contemporary and non-western musical works that consist of variations, or components that are not explicitly scripted. That being so, this theory will not do for works that consist of differing display types and displays such as video games, most of which are by default repeatable works. For my part, the closest accounts seem to be some variations of a Levensonian account or the equivalence classes mentioned within the type-token distinction. If, when using the type-token distinction, we combine the accounts presented by Lopes, Gaut, and Preston (see Chapter 6), then all kinds of interactive works are justly accounted for. At any rate, the above shows us that video games prove to be harder cases than other 'abstract' works because, even though works like music most likely do not belong within a category of orthodox abstracta, the distinctive features of a video game cannot be accounted for even within traditional abstract art ontologies.

8.4 How to Destroy Video Games

Whether we can create and destroy video games depends on which of the above philosophies we choose to endorse. If, for the moment, we agree that artworks are abstract and discoverable, then we have to allow that video games are immune to destruction. If video games are created works, then we have to allow that they can disappear. Of course, then there are the in-between accounts that allow video games to be creatable and indestructible. Given the above account of *T.O.T*, one should wonder if video games are susceptible to disappearing forever as the quote from the beginning of this chapter suggests, or, like Levinson suggests, if they linger on forever. Current accounts do not fully satisfy the distinctiveness of video games, but here is what we do know. The numeral *3* consists of inherent properties, but, unlike the numeral *3*, video games and their displays need to be endowed with properties by the game's creator.

Metaphysics makes it clear that video games are not orthodoxly abstract, and although once they are in a playable state they can be instanced into particular objects, they consist of abstract properties. Therefore, let us assume for a moment that video games, if they are created, are potentially destructible. If we grant that video games fit within one of the abstracta categories (or a variation of them), and if they are brought into existence by the artist in some manner, then how do we destroy them? If we do not consider the work to be tied to any particular object, there are a few options for video games. Of course, the Platonist account would not be one in which video games can be destroyed. Since this view states that works are entities that pre-exist their discoveries, I do not think it controversial to think this view is too far a stretch for an ontology of video games. However, for those that do view video games within a Platonist perspective then, contrary to the sentiment of those like Mika, video games are indestructible and, therefore, last forever.

As stated, a Levinsonian approach does not account for repeatable works with differing displays. However, we can adapt his account of a musical structure for a video game and say: a video game is an algorithmic-structure-as-indicated-by-a-specific-creator-in-a-specific-historical-context.[23] Although indicated structures of music bear similarities to

---

[23] I would not wish to tie myself absolutely to this characterisation; it is merely to make the point here that, like music, algorithms are comprised of abstract kinds.

the algorithms of video games, there are more than sounds and instrumentation involved in video games. So, if we want to include video games in a Levinsonian account it should be clarified that the kind of structure involved in a video game work is the game's algorithm, as indicated by the developer (whomever they might be). The video game *Dishonored* and many others shows us that many video games consist of repeatable, differing displays that can each display different properties and, therefore, different endings. Although an indicated musical structure does not account for this, the algorithm of a video game does. If one adopts this revised view, then, we should consider what is at stake for a video game's immunity to being destroyed. If we consider that Levinson's lesser argument is a possibility, that musical works can disappear, then a work like *Giant Steps* disappears if all records of the work are erased *and* forgotten from memory (remembering that the notes on pages are merely representations of the work). We store video games in all kinds of ways, e.g., hard drive, website, memory stick, etc., but those and the computer hardware that instantiate them can all be easily damaged or wiped clean. These, like musical notes on paper or chess pieces are only the representations (or the implementations) of the work so their destruction does not necessarily entail the loss of a work. Whether or not an erased and forgotten video game entails a destroyed work of art or merely a forgotten one that lingers on depends on our interpretation of indicated (and algorithmic) structures. I will continue with the possibilities of this and my reasons to prefer one of these accounts shortly.

Viewing video games as an abstract artefact is tempting because it allows for abstract things to come into existence when circumstances call for them to, but this theory makes the repeatable, differing displays a curiosity. We normally recognize the displays of music as repeatable things but, like Rossberg points out, this account does not offer us any good reason to think we can repeat a specific work. However, 'music' can be tokened again and again, even if a specific musical performance, if it is a particular object, cannot be repeated. What does seem appropriate to say, at the very least, that abstract artefacts are relevant for the *concept* of video games more generally and that, like marriage, exists as a constructed norm that came into existence when the idea of playing a video game occurred. By this view, the *concept* of video games would last as long as the norm of creating and playing a video game endures. However, more needs to be said about individual video game works (e.g., *Undertale*, *Dishonored*), which might not be as enduring as the concept.

There is an additional option we have not yet considered, which is to say that video games belong within what Barry Smith calls a 'quasi-abstract' ontology.[24] Smith begins with a discussion on the game of chess. According to his view, the board and chess pieces are representations of a game, and the game itself is not tied to any specific object or location, making it a repeatable work (Smith also recognizes that two people can play chess without the board and pieces, but ideas and concepts are still representations and so an 'in-between' account is still necessary). Although these works are not tied to a particular object, they are tied to an historical context and time due to specific actions of an individual. If video games are quasi-abstract then they are not tied to their hardware, etc., but are still the results of human creativity. But does this work for video games in the way it does for chess?

---

[24] Smith (2008).

Let us return to the example of *T.O.T.* Suppose that during those three early years when the printed document was the only existing instance of the work that someone accidentally spilled coffee on it, making it illegible. Since the program was deleted from the mainframe, the coffee-spilled paper is the only remaining instance of the work, but if this too is destroyed, is the work also destroyed? We can answer this question in two different ways. One, if video games are abstract in the orthodox way then, while it may no longer be playable (exist in an experiential state), the algorithmic structure exists indefinitely in an inaccessible state. Two, if they are abstract in the quasi way, then, like the game of chess, we should be able to experience an instance of the work even without the usual video game representations, including program and hardware.

To be sure, we can roleplay certain adventures that a specific video game entails, and we already know the displays and interactivity between some video games and role-playing games like *D&D* are similar. However, assuming the files are gone, we could only engage with some of the lusory and narrative features of the work in our minds, not everything else that the CGA consists of. Therefore, applying Smith's account to video games seems intuitively wrong. If Rembrandt's *The Night Watch* is destroyed in a fire, our memory of it does not entail its existence. Although a quasi-abstract theory works for games like chess, there is no real way to play *T.O.T* in our heads, nor is there a way to do so from the analog-*T.O.T*. This shows us that video games are more than their rulesets and stories. Video games include art assets (including visual and audio elements), as well as rely on a specific kind of interactivity for their possibility sets, which are all made possible via the CGA. Therefore, another and more plausible way to answer this question is, if video games are abstract in the in-between sense, then it would seem for *T.O.T* to exist, Rawitsch or some other individual would need to have memorised the source code in order to maintain its preservation (imagining the coffee ruined the document). In other words, it is my view that *T.O.T.* must be in a condition where it is able to be instanced, otherwise, the coffee destroys the work along with analog -*T.O.T*. Games like chess and musical works are more easily memorised than video games, making these latter works more vulnerable than the former.

To sum up, it is clear that video games are *likely* candidates of abstract art categories. It is also clear that they differ from other abstract works such as music and literature, as well as from games like chess. That being the case, we can offer some versions of the above theories and apply it to video games, but with subtle differences from the abstract works they normally pertain to. That is to say, video games are created (or indicated), they are comprised of abstract features, they are repeatable, and they are repeatable with differing displays. Furthermore, once a video game has been created, although it need not be re-programmed to exist, it must remain in a re-programmable state, a state in which a new program can implement the same algorithm. In other words, it is my view that video games exist in a somewhat abstract state, but they can be created *and* destroyed. Therefore, it would seem that Mike Mika is correct in saying that video games can be jeopardy of being lost forever.

Chapter 9: Me, Myself & My Avatar: Virtual Reality and Empathy[1]

So far, I have addressed video games very broadly in order to discuss an ontological account of such works. Now, I direct my attention more specifically to games that use virtual technology and focus on players and empathy. Although this chapter emphasises a distinctive experience that virtual reality (VR) games might afford players, there are currently fewer examples to draw upon than there are with video games in general. For that reason, I will use both examples throughout this chapter as needed.

Within philosophy of art it is well defended that certain narratives can elicit the kinds of imaginings that allow us to empathise with a fictional character, be it stories from film or literature.[2] VR offers a distinctive way to engage with stories via an immersive, simulated, and interactive experience and so they are also promising candidates for empathy. Since VR stories grant us access to the characters with a perceptually robust experience, should wonder what implications VR has for our emotional engagement with narratives and our player-characters.

VR creates an immersive experience where players feel as though they are physically 'in' the story. Not all VR games consist of narratives, of course, but those that do will often include nuanced characters, intricate stories, and game designs. These characteristics can blur distinctions between the real and fictional. Therefore, it can be expected that VR narrative games have the capacity to evoke a wide variety of heightened emotions in players because of the events they experience. Such is the case for player Jordan Belamire who claims she was sexually assaulted in the VR world when playing the archery game *QuiVr*.[3] Disembodied male hands belonging to another player continually groped and chased Belamire through the VR world, although she repeatedly demanded that the other player stop. For Belamire, this assault was real, but many of the dissenting online voices claimed otherwise because they viewed these kinds of incidents to be merely virtual experiences belonging to a world of make-believe. However, online harassment scholar Katherine Cross makes a good point in response to this case: we cannot laud the reality of VR on the one hand, and claim there are no real consequences from VR on the other.[4]

The above describes a player who feels *she* was assaulted, rather than solely feeling her that *character* had been fictionally assaulted. Therefore, Belamire's case says nothing of empathy, but it does say something significant about the realness of the VR experience; it would seem then, the reality of VR can make us feel as though we strongly connect with our characters' experiences in the gameworld. More specifically, the immersion and the actions of players can help them to feel like they understand their avatars, or the player-

---

[2] Matravers in Coplan & Goldie (2011), p. 19.
[3] Cross, K. (2016, November). Online Harm is Real. Slate Magazine. URL: http://www.slate.com/articles/technology/future_tense/2016/11/sexual_harassment_in_virtual_reality_is_real.html. Retrieved on: Dec. 2016.
[4] The developers of *QuiVr* responded in favorably to Belamire and have been working on adding a safety mechanic to the game that allows gamers to create a virtual force field around their characters if they feel threatened. For more, see Cross (2016).

characters whose point of view they take in the game. The realness that Belamire describes gives VR a privileged position to induce empathy.

Perhaps the interactivity makes the above true of applicable video games in general, which also entail distinctive affordances to explore a story (and make discoveries) in a process that is directed by the player rather than solely by the framework of the storytelling. This, along with the many hours one usually spends roleplaying a specific character will most likely bring about a variety of emotional responses in the player and perhaps the feeling that the player understands the avatar's emotions. I have felt this to a degree for characters in non-VR games. For example, if Filipanova, my avatar in *World of Warcraft,* becomes injured or harmed in some way by another character in the gameworld then I, as the player, am likely to have a variety of affective responses, such as anger or concern, even though she is a fictional character. This response is in line with Robson and Meskin's account of SIIFs. Does my response mean that I can empathise with my avatar? How much more heightened would my responses be within the VR gameworld? For some, my responses characterise a lower level kind of emotional empathy very broadly construed. For other scholars, my responses characterise something more like sympathy because, for them, true empathy is a higher level, cognitive response which, as I will explain, requires intentionality and an ability to differentiate between our own emotions and the emotions belonging to another. In this chapter, I question whether such a narrow view of empathy is possible in gameplay.

In what follows, although I am skeptical that higher level empathy normally occurs during gameplay, I argue that we can learn from our emotional responses with our avatars and that it is possible to empathise with game characters, at least on some lower level. VR presents audiences with a diverse set of (sometimes tactile) experiences that provoke automatic responses, making the lower level empathic responses more probable. As such, I will propose this account – if a player's actions are sufficiently noteworthy to herself (perhaps surprising), she will reflect upon them later, better equipping her to transfer this knowledge to ordinary-life. This is not to suggest that the reflection of games is more important than the game or gameplay. As will unfold here, there are both occurrent and retrospective gains that are involved with playing a game.

The popularity of video games and the nascent interest in VR makes gaming a valuable platform for learning because it enables the potential for empathy-like responses for a broad variety of people and situations that we may not otherwise encounter. This chapter explores such a possibility. Section I takes a closer look at VR games, especially of the kind that aim at empathic learning; section II takes a closer look at various conceptions of lower and higher level empathy and the conditions that distinguishes one from the other; section III analyses these lower and higher level empathic connections that VR games make possible and concludes that the former are more typical during gameplay; section IV is a discussion of mediated learning and how knowledge might transfer to different contexts (i.e., what we learn from VR can be transferred to the ordinary world); I end this chapter with some possible objections to my claims and I conclude with some solutions.

9.1 VR Games

Developers of video games (not necessarily VR) have recently pursued the idea that games have the capacity to enhance the learning experience of their players rather than

merely entertain the players. *Hush* is one such online (non-VR) video game developed with the intent to elicit empathic responses (by and large) for those living in war and genocide, but also, I would imagine, more generally for those who are less privileged and regularly live in fear.[5] You play the game from the perspective of Liliane, a Rwandan Tutsi mother living in the midst of the 1994 genocide. You are charged with comforting your young son, as you hide in a shack, by humming a lullaby to keep him quiet. If he makes a noise, he alerts the surrounding Hutu soldiers to your presence. To hum the lullaby adequately, you type out the pattern you see on your screen. The more accurately you repeat the pattern, the calmer your baby; the more you veer from the pattern, the more restless and noisy your baby becomes.

Games like *Hush* belong to a relatively new gaming design platform created with an overall objective to foster skills during gameplay, which, in this case, ultimately aim at prosocial behaviour, all without losing the lusory, i.e., game-like experience.[6] In general, VR is used for things like education, training, PTSD therapy, design simulations and, more recently, for entertainment purposes (film and gaming).[7] Newer gaming technology that allows for VR immersion has growing interest in the video game industry. Technological glasses or goggles, devices such as the Oculus Rift, HTC Vive, Samsung Gear VR, Google Cardboard, make you feel like you are inside the gameworld in a first-person perspective. Additionally, players can interact with a scene without a film-like frame and explore the virtual world by moving their actual bodies. Within these environments, players experience worlds and perspectives that are not their own and from the point of view of their player-character. VR equipment can track the player's movement to affect the actions of the character. This further emphasises the control a player maintains over the player-character, which further allows the player to act as an *interpretative performer*, which I described in Chapter 6.

But what is VR? Epsen Aarseth says that, with VR, the virtual pertains to a group, 'whose systems are dynamic representations of an artificial world'.[8] Although the representations belong within an artificial world, Aarseth importantly states that,

> virtual worlds technology is not about creating alternatives to reality,
> but about interpreting and understanding our own reality.[9]

Aarseth makes the above point because it is customary to think of the 'virtual' as something that pertains to the 'fake' and 'things-that-are-not'. We see this distinction time and again as it is applied to virtual versus 'real' money, friendships, and the like. Here, I adopt Aarseth's sentiment that the virtual has more to do with reality than is often credited, and VR games provide us with radically new ways of learning.[10] Of course, video

---

[5] *Hush* by Jamie Antonisse and Devon Johnson. Click here to play: http://www.jamieantonisse.com/hush/.
[6] For more on these kinds of games, see *Values at Play*: http://valuesatplay.org/. Accessed August 2016.
[7] See: Difede et al. (2004); Rothbaum et al (2001).
[8] Aarseth (2001).
[9] Ibid. p. 231.
[10] I depart from Aerseth's view that the virtual cannot be a fiction and that we cannot relate to our avatars.

games and VR games can also cause negative consequences, which is something I briefly touch on later on.

Video games will at times represent your character as an avatar, or the player-character you see on the screen in front of you, but VR immersion prevents you from seeing your character in the same way. Instead, you might perceive aspects of your character like a wisp of hair, a limb, or a foot, and sometimes by sound alone. I am not too concerned whether or not your VR character is an avatar or represented as a player-character in front of you. Either representation is the primary means for understanding the gameworld and overcoming the obstacles.[11] Moving forward, I will interchangeably use 'avatar' and 'player-character' to mean roughly the same thing.

Autumn is a VR game that, like *Hush*, aims at empathic responses using real-life scenarios.[12] The description reads:

> Autumn 'glimpses into a character's journey during the months following a sexual assault: her struggles with herself and the world around her.' The story is revealed in reverse chronology and divided by season, beginning with summer, months after the attack and following her transformative recovery into finding a sense of hope. Spring focuses on confronting others, and coping with the feelings of judgement and shame which can too often follow an experience of rape. Winter portrays the deepest pits of her trauma: the fear of leaving the house, constant depression and panic attacks. 'Autumn,[...] is when her life is shattered.'[13]

Articles applaud games like *Autumn* as therapeutic gameplay that claims to treat PTSD, and usually with the headlining question, 'can a videogame help rape survivors?'[14] I see no reason why video games couldn't, but there are two more specific questions to ask: can a video game grant us knowledge of another's situation, even if we have *not* experienced what our avatar has and, can that knowledge allow us to empathise with our characters?

9.2 Empathy

Before continuing a discussion of VR game characters and players, we first need a better understanding of what empathy is. In general terms, empathy is understanding the emotions or mindset of another person. It is important to recognise that there are both

---

[11] What we should also find interesting about avatars is they say nothing of the person controlling them. Avatars give us no insight on the player's gender, race, age, or appearance. In fact, often times players will gender-bend or alter their avatar's personality from their own. Data studies reveal a shift from player interest in character representations to the functional gaming abilities a character has. This can have a significant epistemic impact on the players, a phenomenon that becomes important to my discussion of empathy in this chapter.

[12] This game is currently in beta testing (and, at this rate, may never see the light of day).

[13] https://killscreen.com/articles/autumn-oculus-rift-experience-tackles-post-traumatic-stress-surviving-rape/. Accessed March 2016.

[14] http://www.theatlantic.com/entertainment/archive/2015/01/treating-ptsd-with-the-oculus-rift/384262/. Accessed March 2016.

broad[15] and narrow[16] conceptions of empathy, and they can be discussed as both a psychological and an epistemic phenomenon.[17]

Adam Morton presents this broad definition of empathy,

> One person, A, has empathy for another, B, with respect to a particular state of mind, when B experiences an emotion or attitude and A has a representation of B's state which shares its affective tone and perspective.[18]

Morton's definition states that empathy means more than understanding another person's emotions. There are more precise definitions of empathy than this, but it is general enough to initially describe empathy as a *shared* emotion or attitude of another person. I should point out here that an individual's ability to empathise will vary because we each have a higher or lower disposition to do to so, which some suspect is linked to our innate perspectives and attitudes. However, some believe that empathy can be induced, or taught.[19] That we might learn how to empathise is, of course, is profoundly interesting to some game developers.

There are two overarching categories of empathy: one pertains to *emotional* empathy and the other to *cognitive* empathy. First, emotional empathy refers to a broad range of emotions or affects that are automatic, not intentional. By intentional, I mean that a person is deliberate about trying to empathise with another individual. Emotional empathy suggests that a person accidentally feels for another even when she has not premeditated to do so. Usually, these automatic responses are characterised as lower level emotions, or for some, as a quasi-empathy. Emotions such as care, sympathy, or concern, often qualify as empathy, but only in the folk sense or for philosophers whose concept of empathy is painted with a broad brush. For example, consider a scenario where you observe a bully traumatizing a victim. If you have experienced this situation before, then you might automatically feel the same emotions that the victim does (e.g., fear) even though you were not aiming to do so. On the other hand, this situation might automatically elicit different emotions in each of you (e.g., you might feel pity or concern, while the victim might feel fear or shame). For some philosophers, this is a kind of empathy even though the observer and victim experience different but similar feelings (e.g., sympathy and fear).

Another form of lower level empathy is called emotional contagion, a term that describes an automatic mirroring of another's emotions, but without any knowledge of why you are doing so, e.g., such as when you reflexively begin to smile or giggle because you hear two strangers laughing at a table next to you. Although the bully example above could characterise a kind of contagion, or at least it could lead to an emotional contagion, the latter example is slightly different because the 'observer' has no understanding of the

---

[15] Lopes, in Coplan & Goldie (2011).

[16] Following those such as Amy Coplan, Derek Metravers, Al Baker (see footnote below).
[17] Baker-Graham, Alex. (2016), *Feeling Like Stories, Empathy and the Narrative Perspective* (Doctoral dissertation to The University of Sheffield).
[18] Morton (2011), p. 319.
[19] Shapiro, Morrison, & Boker, J. (2004), p. 73-84.

'target's' affective cause for laughter, yet appears to be similarly affected. Both examples are psychological, lower level empathic responses that occur automatically and do not require any intention or control on the part of the observer (the empathiser). Those who maintain a broader definition of empathy would say that the different, but similar, affective states described above are sufficient to constitute a kind of empathy.[20] For others, these are not examples of true empathy.

Murray Smith conceptualises a narrower view of empathy and characterises the above attitudes as a 'feeling-for' others, rather than a 'feeling-with', the latter of which he deems necessary for true empathy.[21] This brings us to the cognitive kind of empathy that differs from the general feelings of concern or sympathy already described. Unlike emotional empathy, cognitive empathy is an intentional process that requires an individual to deliberately aim at empathising with another. This requires *perspective-taking,* for which there are two different approaches.

Firstly, you can hold the perspective of imagining yourself in 'another's shoes' to gain a better understanding of how they might feel (by imagining how you would feel in their place). Secondly, you could attempt to gain knowledge of another person's frame of mind by focussing on what the other person is feeling. Instead of imagining how you might feel in their place, you imagine what *they* are feeling in their place. This latter process requires the observer to focus on the perspective of the other person, rather than her own. Although both of these perspective-taking processes involve a stricter, intentional approach than the requirements of emotional empathy, the latter example takes on further restrictions than the process of placing yourself in another's shoes. Therefore, although empathy requires imagination to personalise an observed experience, the way we proceed with these processes bears on the kinds of affective responses we, as observes, experience.

A narrow account of empathy stipulates that only the perspective-taking that imagines the feelings of the *other* can induce genuine empathy because when we imagine what the other feels, we are better able to simulate (and understand) *their* emotions. Alternatively, the 'in-her-shoes' imagining is overly self-involved and can lead to (although not necessarily) responses of concern or sympathy in the same manner that emotional empathy can. In other words, it has more to do with *your* emotions. Amy Coplan classifies these two approaches as other-oriented-perspective-taking and self-oriented perspective-taking, which she views as distinct and not necessarily equal. As Coplan states it, both characterise 'an imaginative process through which one constructs another person's subjective experience by simulating the experience of being in the other's situation.'[22] However, as the categories imply, one perspective focuses on the target, whereas the other focuses on the self. For Coplan, both perspectives can be valuable, but

---

[20] Additionally, it is suggested that, unlike anger, happiness, or frustration, empathy is not an emotion and, therefore, affective matching need not be requisite of empathy (while not denying there can also be some kind of match).

[21] Smith in Coplan & Goldie (2011), p. 103.
[22] Coplan, Ibid, p. 9.

other-perspective-taking is the more accurate route toward empathy. I will briefly look at each in turn.

Let us being with the self-oriented-perspective-taking, which is requires a process of imagining *yourself* in the situation of another's in order to bring you epistemologically closer to their state of mind. For example, if my friend tells me how happy it makes her to have the companionship of her pet dog, I might try to put myself in her position by imagining that *I* own a dog. This 'in-her-shoes' process is suspect for those such as Coplan because, since this imaginative perspective is more self-oriented, the resulting emotions will be dissimilar to the emotions of the other person. Murray Smith calls this process 'self-focused imagining', a process where, via imagination, I project, "a variation of my own state of affairs".[23] If, for example, I do not enjoy pets, I might imagine the wrong things associated with owning one, like what the dog would make the house smell like, cleaning up after it, fur on the furniture, the noise, or a host of other negative things. My response to this imagining might be genuine, but it does not indicate anything beyond a general or personal sense of what is, in this case, my own aversion to owning pets. Clearly, this is a different result than the feeling of happiness my friend describes and, as such, Coplan would suggest my self-orientated perspective-taking is not a reliable process towards empathy. Additionally, Coplan and others claim it is problematic to try and match another's affective state by simulating some other situation that is entirely unrelated to the target's, in an attempt to match their emotions. For example, if reading a mystery novel makes me happy I could use that scenario to imagine my friend's happiness in place of owning a dog. However, while it might help me to match the happiness my friend describes, the experiences are unrelated. For some, taking a different imaginative route to force a similar valence does not count as empathetic understanding because the *processes* are unrelated.

Alternatively, other-oriented perspective-taking describes a process in which one remains focused on the target's emotions and experiences in an effort to 'adopt' the other's point of view.[24] This process requires us to hold the target's experiences and emotions, to some degree, separate from our own, which, ideally, can reduce our potential to offer the phrase, 'I know just how you feel', too hastily. Instead of imagining how I would feel about a dog in my friend's situation, I imagine her in the situation and try to focus on the emotions she expresses and feels, or, as Smith puts it, by an 'other-focussed personal imagining'.[25]

Admittedly, 'other' perspective taking can turn into a kind of emotional contagion because, as Coplan points out, other-oriented-perspective-taking is not always possible 100% of the time since we cannot magically become the other person.[26] For this reason, Coplan stipulates that the observer must also be able to differentiate between her own emotions and the target's, which she calls *self-other-differentiation*. Here, the observer views a distinct boundary between themselves and the target and recognises that each of the participants are 'separate agents.'[27] Coplan writes that without self-other

---

[23] Smith, Ibid., p. 101.
[24] Coplan, Ibid., p. 13.
[25] Smith, Ibid, p. 101
[26] Coplan, Ibid., p. 15.
[27] Ibid., p. 16.

differentiation, 'we either lose our sense of self and become enmeshed or, more often, we let our imaginative process become contaminated by our self-perspective and thus end up engaged in a simulation that fails to replicate the experience of the other.'[28] In other words, without self-other differentiation, our emotional responses are automatic rather than controlled and cognitive.

Both emotional and cognitive empathy are connected to observation and imagination, or, as Smith puts it, "a vivid mental projection of a possible state of affairs".[29] Generally, we use the representations of facial expressions and other expressive behaviour of characters found within narratives to guide our understanding of a character and their affective state. In accompaniment with observation and imagination, the empathiser will often mirror the target's expressions and body language. Mimicking, as Smith discusses it, does not necessarily entail empathy in the narrow sense, but neuroscience suggests that it, at least, may form a foundation for higher level empathy. In Smith's words, "mimicry of basic actions and emotions may scaffold the imagination, including the empathic imagination, of more elaborate, finely-specified states of mind".[30]

Although it is generally thought that the knowledge gained from the other-perspective-taking can be more accurate, the narrow conception that Coplan presents does not allow for empathy with fictional characters, given the perspective taking she discusses. Returning to Belamire's plight, it is also unclear as to whether she felt she was assaulted alone, or if she and her character were assaulted. But it is an interesting question because this also shows the difficulty players have in maintaining a self-other differentiation (at times). That being the case, all forms of empathy are viewed as relevant and potentially useful. The following section will take a closer look at the kind of responses that VR games are likely to entail.

9.3 VR Games and Empathy

Narratives engage our minds and potentially enhance our understanding of a particular situation or emotion.[31] Susan Faegin makes the case that simulating mental activity is an easier process with fictions than with actual people in ordinary life because the fiction is created for people who actively seek it out to appreciate it.[32] This is certainly true of video games, which are created for a specific but very broad audience. Game developers whose objective is to evoke empathic responses are more likely to employ gaming mechanics for inducing empathy, rather than rely on the predispositions of players (but not at the expense of the gaming features lest they lose their demographic). Of course, empathy in this sense is intended broadly, and it is normally the case that within folk concepts of empathy all forms of empathy are taken to be important on some level. It is my view that lower-level empathy is more likely to occur during gameplay than the higher-level empathy, which is probably more standard in the ordinary world as well. But first, how do we engage with our characters in games like *Hush* and *Autumn*?

---

[28] Ibid.
[29] Smith, Ibid., p. 101.
[30] Ibid., p. 102 (original italics).
[31] Following Clark and Chalmers, Smith discusses this in terms of the *extended mind*. See Smith (2011), p. 106; Clark & Chalmers (1998) p 7.
[32] Feagin in Coplan & Goldie (2011), p. 161.

It is widely believed that we are more likely to empathise with a person if we feel we are familiar with their state of mind.[33] Stories within film and literature grant us access to characters and we attend to them in a particular order and time so that we might become familiar with the characters. Earlier, I said that video games grant the player an incredible degree of freedom. Video games allow us to *achieve* certain features on our own, which bears on the (potentially different) outcomes of the game. VR games, like video games, allow for a similar process but one in which you physically direct the story as the character. Like video games, players gain a significant degree of knowledge about their characters through the many hours one will usually invest in gameplay. Depending on the game type, this familiarity can condition the player to aptly interpret and understand their character over time (not to suggest that there is any single way to interpret a player-character).

That so, it is not just about the immersive experience of VR that grants access to the characters in a robust way, it is the kinds of play the visual representations permit us. I will explain. When reading a book or watching a film, we imagine all sorts of things about the characters that are intrinsic or extrinsic to the story. Smith states that representation and narration may augment empathy because fictions aid us by expanding the personalities, occurrences, and feelings we are normally used to observing and experiencing in ordinary life.[34] With video games, it is common for players to make choices in the game in virtue of what is not allowed in society, or what is abnormal for their own behaviors. VR extends this because the technology allows players to mirror the character(s) in a physical, not just imaginative simulation, and in a manner that intentionally determines outcomes for our character.

Actions may enhance our understanding of a particular situation, environment, or concept, which is something Smith raises following what Andy Clark and David Chalmers' call 'active externalism'.[35] For example, the act of writing a to-do list might help us to feel more organised, or writing out a word may help us to spell it correctly, or, to use the given example, rearranging Scrabble tiles can help us process word patterns more easily. These actions (and props) increase our cognitive abilities even though, for example, we are capable of correctly spelling words without writing them out. A game can be an equally useful sense-making prop. Ted Friedman notes that tests reveal that players see themselves as not just the character in the gameworld, but as the whole screen, in a manner of speaking.[36] Drawing on this, Newman points out that in more character driven games, even ones like *Super Mario Bros.*,

> Perhaps the concentration on Mario [...] masks the complexity of the player's perspective. Perhaps the manner in which the Super Mario player learns to think is better conceived of as an irreducible complex of locations, scenario and types of action.[37]

If this is so, then games comprise a great deal of epistemic complexity but also phenomenological opportunity when we can move like our player-character.

---

[33] This is also why, problematically, we tend to empathize with those we feel more connected to (race, religion, socio-economic background, etc.)
[34] Smith in Coplan & Goldie, p. 109-111.
[35] Ibid., p. 106.
[36] Friedman (1995).
[37] Newman (2013), p. 134.

In addition to this phenomenology, research shows that rather than leaving empathic responses to chance, games have a greater influence on players to empathise if they are aware that empathy is a goal.[38] This aligns with the intentionality that philosophers ascribe to in characterising empathy instead of the automatic affective responses. That so, an objective to induce empathy requires some creativity in how it is presented to the player so the intended goal does not take away from the lusory aspect of the work. In recognition of this, developers of *Hush* make this the first message to appear on your screen,

> Rwanda, 1994: The Hutu are coming, Liliane. Hide your child. If you falter in your lullaby, he will grow restless. The soldier will hear him, and he will come for you.

Notice that you are addressed as 'Liliane', a game mechanic that makes an explicit identity connection between you and the fictional character from the very beginning (contrast this with a message that could have read: This is Liliane, a Tutsi mother in Rwanda...). Additionally, the mechanic of typing the lullaby pattern as you see the corresponding letters appear on screen, instead of hitting a single button, is an innovative technique that is unique from the usual point-and-click, or pushing of a single key commonly associated with shooting at a simulated target.[39] Recall Smith's discussion of mimicry and its potential importance toward an enhanced empathic imagination. Instead of merely perceiving certain mimickings within the game (as with Smith's example from the film *Strangers on a Train*), the physical actions you make as the player are intended to match the intensity of the features within the work. One possible disadvantage of VR is that players do not see their character's emotions and affect expressed on their faces like we can see when watching a movie.

However, in playing *Hush*, the action of typing creates a parallel between the intensity of your own actions, the scene, and of your character's emotional responses at given circumstances of the game (it is not enough that you type the pattern correctly, but that you do it at the correct time, neither too soon or too late). Although I could read about the Rwandan genocide to learn about fear, playing *Hush* gives me a phenomenologically different perspective, if not to any specific event, to the potential emotions and plight of a genocide survivor. VR games allow for a greater mimicry of actions with the kinds of representations they consist of compared to games like *Hush*. At least, what we think mimics our character's actions. The process you take to understand the survivor's experiences in *Autumn* is unprecedented. To be able to perceive the sights and sounds such as quicker breathing, heightened heart rate, or faster footfall while you run from 'your' attacker allows you to do more than imagine yourself in her situation because you, in a manner, act out certain scenarios in a kinetic and perceptually vivid way. When playing *Autumn*, both you and your character might feel panicked, sad, or lonely at given stages of the game because you perceive and imagine yourself to be in the situation.

---

[38] Belman & Flanagan (2010).
[39] Ibid.

This process leads to a personal imagining of our characters because, in a way, we become responsible for them. The perceptual process allows you to imagine their mental and affective states, which may elicit responses that either mirror the perceived emotions in a matched sense or resemble the perceived emotions in a reactive way (as with the example of the bullying scenario in the section above). What results, whether fear, indignation, concern, frustration, shame, etc., might consist of both automatic and intentional responses that relate to emotional and cognitive empathy in a broad sense. At minimum, the relationship we share with the characters qualifies as empathy under the definition presented towards the beginning of this chapter. That being the case, what of empathy in the narrow sense?

Recall that narrow conceptions of empathy require a perspective-taking in which you imagine what the other, not yourself, is feeling. Because these games are self-involved, there can be no doubt that a strong sense of engagement is likely to occur between you and who you imagine your character to be; whether or not you approach your character with that kind of other-perspective-taking during gameplay, or whether you can even distinguish between your feelings and what you imagine the other's to be at all times is questionable. Recalling Coplan's concepts, the other-perspective taking need not occur 100% of the time. Although a player is likely to experience self-perspective-taking more frequently, other-perspective might not be entirely incongruent with the overall attitude that one normally takes when playing a game.[40] This has to do with the attitude players adopt during gameplay, as defined by Suits.

If we take what we have learned about various gameplay attitudes from the previous chapters, then we know players focus on more than just fulfilling a ruleset. Broadly speaking, while there is an expectation that a player engages in gameplay to compete and win the game, the emphasis for the player is in experiencing the *process* of the game as prescribed by the rules.[41] In cases such as *Autumn*, I can play to finish the game, but the process also entails overcoming the obstacles that are intended to induce empathy for the rape victim. For game developers, the mechanics for eliciting empathy is a promising implication of games. However, in order for higher level empathic responses to occur my primary motivation during gameplay must consist in a controlled perspective on what I believe are my character's emotions. That I would be motivated during gameplay to maintain the perspective on my character at all times and not my own is unlikely (some might claim it is not possible at all given that *I* am role-playing the fictional character, but these are nonetheless prescribed by the narrative).

In accord, I would claim that during gameplay empathic understanding (to any degree) is usually the result of automatic responses, or other non-epistemic mechanics of empathy that I gain along the way. [42] This, of course, is a different kind of engagement than intentional perspective-taking. That so, we should not separate higher level empathy from gameplay altogether. Importantly, VR games allow one to *roleplay* the character and not merely to engage with a character like we do with novels. This will usually consist in

---

[40] Suits (1978) suggests it is not just for the winning, but we play games to experience the obstacles.
[41] As a means of winning, this would exclude 'cheating' and other perhaps more efficient ways of reaching the prescribed goal. See Chapter 7 in this dissertation.
[42] I'll hold off on claiming it is contagion, but something close to it seems right.

the player consciously making decisions based on what they believe their character would do rather than project their own state of mind into the situation (this might return us to a discussion of SIIFs). These cases are not necessarily 'in-her-shoes-imagining' because a player will surely be aware that they are behaving in a manner not customary to themselves or relevant to their current ordinary-life situation, thus making self-other-differentiation attainable. Overall, such a strict conception of empathy like Coplan's, seems to make empathising with any fictional character an impossibility.

For those sceptical that a player can experience high level empathy during gameplay, there are still important implications from the more basic, lower level responses (relating to contagion, etc.) either during gameplay or after. I want to suggest that the mimicry of lower level affective responses during gameplay can motivate higher level empathic responses at a later time, perhaps after some reflection. For other narratives, Smith refers to this as occurrent and retrospective empathic responses.[43] These kinds of retrospective actions (or reflections) of gameplay may play an important role when engaging with individuals in the real world. I will discuss this further in the next section before I consider a few possible objections to what is presented above.

9.4 Empathy and Prosocial Behavior

Recent studies indicate that a person who is instructed to empathize prior to engaging with the target seems to yield more positive results (i.e., care or concern) than those left to dispositional empathy.[44] Games can induce emotions either occurrently or retrospectively where players may feel emotions like sympathy, concern, frustration, and many others, toward their character and other characters during gameplay or after. This presumes we can learn from games at all, rather than only be entertained by them. A particularly devastating meta-study from 1973 reported that almost fifty different studies showed a negligible difference in learning acquisition among students who played games to learn versus those that used more traditional methods of learning.[45] That so, games have undoubtedly changed since the 70s and more recent experiments and research suggest video games can teach skill sets as well as affect behavioral outcomes. None of these studies are entirely conclusive because pinpointing the causal relation between gameplay and specific actions that are made later on is difficult, especially when trying to isolate actions that arise from certain predisposed attitudes versus learnt ones.

We also have to remember that if prosocial behavior can be learned from gameplay, then we have to acknowledge that games can entail antisocial ones as well. That may well be the case and certainly warrants investigation, but given the scope of this chapter, I do not want to discount the potentially positive role that even less savory characters or player actions might actually have. For example, after I successfully accomplished the overall goal of *Hush* I had a morbid curiosity to find out what it was like to make the kid restless, which I did the next time I played the game. This might indicate questionable motives on my part, but I would not have experienced the degree of reprehension I felt had I not played the game this way. It is important to recognize that it is common for players to act in ways that are unusual compared to how they would in ordinary life. While this might sound concerning, I believe it is not only these less honorable moments that can be useful

---

[43] Ibid.
[44] Belman & Flanagan (2010).
[45] Wentworth et al. (1973), p. 432-440.

teaching tools, but it is the collection of various playthroughs that help us frame our understanding of a particular situation. In short, when we play a video game, we learn more about a situation the more times we play through it and from the different outcomes of each.[46]

Although much of the earlier literature on video games focused on negative outcomes of gameplay, more recent studies indicate an increasing interest to locate positive results of gameplay. A comprehensive review of video game literature reports that data-based studies show evidence that video games can lead to knowledge and induce affective and motivational outcomes.[47] Empirical data such as those in the study suggests that gaming can be used as an instructional tool. However, understanding a skill and applying it in the real-world are not the same thing. There are concerns that knowledge transfer requires a similar context (not necessarily representational resemblance) between the virtual and real worlds in order for there to be any efficacy.[48] That so, game developers demonstrate a desire to create games with targeted transferrable skills by mechanics built into the narrative.[49] One such case that shows a knowledge transfer from the virtual to real is summarized by Belman and Flanagan:

> Foubert and Perry (2007) describe an empathy-based rape prevention program designed for fraternity members and male student athletes. Participants were particularly affected by part of the program in which they viewed a videotape describing the rape of a male police officer by two other males. Their feedback indicates that they were induced to empathize with victims of rape to an extent they hadn't been able to prior to viewing the video.[50]

Instead of merely stipulating to the audience that the road to recovery after a rape can be exceptionally difficult, the video allows the audience to come to this understanding through the narrative of the victim. Belman and Flanagan go on to emphasise one participant's reaction to the program saying it made him more aware than he had been previously that women find themselves in these situations regularly. Although this is not a game, and this says nothing of changed behaviour, these game developers suggest that it shows how video games can be used. For at least this one participant, concern for the subject of the film (the police officer) was later applied to a broader group (women in general). This gives reason to believe our attitudes, at the very least, can be affected by deliberately focusing on another's emotions and experiences, which in turn has the potential to inform our actions. *Mafia III* (2016) is a popular video game lauded for inducing empathy for people of colour by creating the main protagonist as biracial in the 1960s American South.[51] If by playing games we can learn certain feelings associated with racism or a traumatic assault then those same emotions can be triggered to make us more

---

[46] Thank you to Henry Pratt for pushing me on this.

[47] Connolly, et al. (2012).

[48] Detterman, et al. (1993). Ablex, et al. (1901). (both cited in Squire (2002)).

[49] This is currently seen most notably with organizations like Tiltfactor (http://www.tiltfactor.org/about/) and Values at Play (http://valuesatplay.org/).

[50] Belman & Flanagan (2010), p. 9.

[51] For more on this, read: *How One Video Game Unflinchingly Tackles Racism with History and Raw Interactions*, NPR. http://www.npr.org/sections/alltechconsidered/2017/01/03/506762046/how-one-video-game-unflinchingly-tackles-racism-with-history-and-raw-interaction?utm_source=facebook.com&utm_medium=social&utm_campaign=npr&utm_term=nprnews&utm_content=20170103. Accessed January 2017.

aware of real issues around us that we may have otherwise ignored or were simply oblivious to. If mimicry is as effectual as believed, then VR games should have significant outcomes comparable to the videotape experiment and, perhaps to video games more generally.

To summarise, ideas, presumably, can affect action; while this causal chain may be difficult to test, there are indications that video games might allow for knowledge transfer from one context (gameworld) to another (ordinary world). In fact, there may be broader applications that go beyond the interpersonal. One study shows that induced empathy for plants and animals have strong links to proenvironmental behavior (and attitudes) later on.[52] There are of course negative aspects of empathy, let alone games. Although space here will not allow me to discuss all potential concerns, the final section will address a few.

9.5 Objections

If VR games can induce prosocial behaviors and affects, we have to concede that they can induce negative ones, or that perhaps empathy will be applied for immoral reasons. Indeed, psychologists note that in some cases of bullying, the bully may have a strong perspective-taking sense. Empathy works negatively in this case and gives the bully a better understanding of their target and, consequently, better enables the bully to manipulate the target. If that is so, we should call into question whether cognitive empathy is always sufficient for positive responses or outcomes. As with Jordan Belamire's VR experience addressed at the beginning of this chapter, gamers can certainly use a level of empathic understanding to be injurious rather than helpful to others. Given that video games are things we play with and, not only interact with on a gaming level, but interact on a psychological level, we should expect there will be positive *and* negative effects of gaming. Although I will focus on the former outcomes, I will address the negative ones as necessary in order to show a wide range of evidence.

Several meta-studies from the early 2000s report a direct relationship between higher aggression in those who play violent video games.[53] The analytics reveal similar outcomes as watching violent films, but with some indications there may be a wider effect from video games.[54] Although it was later supposed (by the original psychologists who conducted the studies and others) that publication bias contributed to the analyses of these earlier studies, it turns out we cannot disregard the findings altogether.[55] What is thought to be an improved testing method still shows that playing violent video games might be responsible for *increased* aggressive behavior and *decreased* empathy and prosocial behavior in players over a period of time.[56] Another meta-study in Italy reveals that playing sexist and violent video games potentially makes young males less sympathetic to an in-real-life female appearing to be abused by a male (whereas, no

---

[52] This would clearly be a case of lower level empathic responses. For more on this study, see: Berenguer, (2007).

[53] Higher aggression includes "behavior, aggressive cognition, aggressive affect, and physiological arousal and with lower levels of prosocial behavior." As found in Anderson et al. (2010), p. 152. For more early studies on negative outcome of violent video games, see Anderson (2004); Anderson & Bushman (2001); Anderson et al. (2004); Sherry (2001)

[54] Anderson et al. (2010).

[55] To read more about publication bias and video games see, Anderson et al. (2010), Ferguson (2007a) and (2007b), and Rothstein et al. (2005).

[56] This particular study was not conducted with anyone over the age of 16 and was mainly testing differences between eastern and western cultures. Anderson et al. (2010).

differences were shown in females after playing the same games).[57] In yet another study, experiments reveal that empathy might not factor at all in reducing aggressive behavior after playing violent video games. Although each of the experiments mentioned here have limitations, the unknown long-term effects not being the least of them, they show us that game developers (and teachers and parents) should take the implications of playing gratuitously violent video games seriously.

There is a growing number of game developers who are making such considerations. Due to a recent report that suggested there is a potentially greater efficacy in prosocial behavior when an observer uses a *combination* of emotional and cognitive empathy, some game developers have begun beta testing different gaming platforms in an attempt to induce *both* kinds of empathy.[58] Of course, empathy in these cases are applied in general terms and so they do not offer an absolute account of induced higher-level empathy via gameplay. However, what I want to suggest is this, even scenarios where games induce only lower level emotional (e.g., contagion) and cognitive empathy (e.g, an 'in-her-shoes' cognitive response), then plausibly these emotions evoked in the virtual world can be combined and put to use toward higher level cognitive empathy in the real world. There is always a danger that empathy will be employed for immoral reasons, but that may have more to do with the predisposition of the individual rather than with the game. It will be nice to see, as with *QuiVR*, games designed with preventative features that defend against immoral behavior.

As stated above, gratuitously violent video games may pose problems for certain types of players but some philosophers argue there are other issues to consider. Adam Morton sees a risk in a different possibility, not that we will use empathy for immoral reasons, but that we may wrongfully become empathic with the 'bad guy'. He proposes the following thought experiment: the wife of an abusive husband witnesses her husband belittle and harass a co-worker of his. Because she has an understanding of how her husband reasons, she empathizes with how her husband feels and why he acts so egregiously, given certain annoying idiosyncrasies of the co-worker. As a result, she defends her husband's less-than-professional actions toward his co-worker. In this scenario, she empathizes with the wrong person, which is detrimental to the co-worker and potentially herself. I agree that, in games, there is a risk that we will empathize with the wrong character, or the 'baddy'. Keeping in mind that games like *Hush* and *Autumn* aim at induced empathy, this puts the onus on game developers to be aware of these gaming mechanics and responsible for which characters they try to induce empathy for. This is a tall order, but we are seeing promising steps.

Perhaps most detrimental to a chapter like this, which is dedicated entirely to empathy, are Paul Bloom's claims that we should do without empathy altogether. He believes empathy is damaging because: empathy leads to burnout and exhaustion, it guides us to exclude certain groups, and it creates imbalance in relationships.[59] By example, Bloom suggests that a compassionate person is just as likely to be charitable to an organization aiming at ending childhood hunger as is an empathetic person, but without the emotional

---

[57] Gabbiadini et al. (2016).

[58] For more on the combination study, see: Sutton, et al. (1999). For more on the gaming platforms, see: Belman & Flanagan (2010).

[59] For his reasons that follow, Bloom notes significant studies from the fields of neuroscience and psychology. I will not recount them in this chapter, but the reader may find them interesting. For more, see his article: http://bostonreview.net/forum/paul-bloom-against-empathy. Accessed January 2017.

and mental exhaustion that comes with empathy. Bloom also cites a correlation between higher rates of depression among women because they have higher propensity to empathize than man. Empathy, continues Bloom, is also likely to make us less objective because we are more apt to focus on the individual(s) we feel emotionally connected to rather than from objective data. In this case, empathy fails a larger number of people who would not be ignored with an objective state of mind. As for relationships, Bloom offers an example of a doctor and her patient, claiming that professionalism is maintained and confidence is bolstered for the doctor who expresses compassion, and for one who does *not* mimic the emotions and postures of their perhaps agitated, scared, or confused patient.

Bloom makes an interesting and unusual case against empathy. His points are valid, but I take their validity only to a point. First, the example of burnout and exhaustion for those ranking with a high level to empathize relates to a person's predisposition to empathize rather than to empathy that is induced. I can imagine a scenario where playing a game that induces empathy 100% of the time would be emotionally and mentally draining to the point that most players would stop playing the game. But we should not forget that my discussion relates to games, which are first and foremost intended to be played and enjoyed. Given evidence that players can learn from gameplay, it is important for game developers to understand *how* they can effectively do so while also engaging the player. For example, learning-based games promote improved skills in their users with an 'exogenous' design format, that is, a format where the intent of the game is to make learning a specific skill (e.g., math) more fun or interesting (e.g., *Math Blaster*) to the user. As expected, these sorts of games show improved skills in their users over time, but these exogenous games have a limitation because they appeal to a narrower audience (or only to those wanting to learn a particular skill). There is a recent interest in the increasing pool of evidence indicating that entertainment-based games, games that do not necessarily have the primary aim of teaching a skill or moral behaviour, can also enable learning development. [60] These 'endogenous' games build the learning features into the gaming narrative in a more covert platform (*Hush*, *Autumn*, and *Mafia III* are three such games). These games generally have wider appeal than exogenous games because they have a broader target audience. Also, in relation to the point about empathy and exhaustion, Smith says narratives need not make empathy *quantitatively* dominant so much as they have *qualitative* moments.[61]

Compassion, as Bloom stipulates, is important and I would agree that at times it can be just as or more fruitful than empathy. But that is not always so. To use his example of the charity case, I might see the commercials of starving children and feel compassion toward them, but not to the degree that I feel compelled to donate anything (or maybe I *feel* compelled, but I do not follow through with action). Whereas, if I imagine my own child in that horrible situation I might be more inclined to donate on the grounds that I would hope someone would do the same for my own child, if situations were reversed. This 'in-her-shoes' imagining, even at a basic level is what also allows us to potentially empathize with those who do not resemble ourselves (in look, personality, demographic, beliefs, etc.).[62] If we leave it at the emotional level then, yes, perhaps it prevents an objectivity

---

[60] Ibid.

[61] Smith in Coplan & Goldie, p. 113.

[62] Similarly, one could argue mechanics of empathy have been successfully used in raising funds for the current situation in Aleppo, for the Black Lives Matter movement, etc.

that would encourage us to help a broader group. However, this may be less relevant to this topic, where players are encouraged to attempt different outcomes in games.

Bloom's example of the affective behavior between the patient and doctor sounds convincing at first, but this view assumes empathy is a final destination rather than a means to an end. If the doctor is able to empathize with her patient she may be able to better support her patient while still maintaining a professional affect (for example, given that professional behavior is also taught in medical school, we should not assume learnt empathy skills would sabotage the other skills the doctor has developed).[63]

Although there are concerns where empathy exists, the potential positive aspects of empathy should keep us from dismissing it altogether. At the very least, empathy is worth more research, especially where games are concerned.

9.6 Conclusion

Not every response or outcome that results from gameplay will be positive and most of us would acknowledge that the negative aspects of gaming are important to research and understand. What I hope to have convinced the reader of here is that video games (more generally) and VR games (more specifically) have the ability to provide us with a distinctive kind of representation and narratological experience. In summary, there is a strong connection between player and character in VR games because the distinction between 'us' and 'them' is minimized. VR entails a vivid kind of imagination that grants us a unique access to the experiences, emotions, moral dilemmas, and particular vulnerabilities of our characters that arise from gameplay.

The freedom we have to direct our character in VR game environments gives us exposure to various and potentially new kinds of emotions we might not have otherwise encountered. Players might make decisions and take actions to direct their player-character in ways that are different from how they would behave in ordinary life. This aspect of gameplay is what makes player engagement a potentially important connection for reflective empathy. Although this kind of engagement is not possible in all games or at all times, even the lower level responses during gameplay can foster the narrower conceptions of empathy in a player for a later time. This is possibly true of those seeking a VR experience like *Autumn*, and I wager it can also be so with other games where this is not the overt aim, like *Mafia III*.

Video games like *Mafia III* and, perhaps especially so, VR games *Autumn* immerse the player in an interactive perceptual experience. What seems significant about the above is, given the transparency between your character and self in VR, we should be able to claim that a video game can be epistemologically helpful for the real-world.

---

[63] Jesse Prinz has argued that empathy is necessary for morality. Among others, see Prinz (2011).

Chapter 10: Games: Failure, Competition, Selfish Punishers, and Why We Need Them

Games allow players to connect with other players and, potentially, to our player-characters. However, in light of this engagement, games also present us with interesting paradoxes. Players, for example, will often experience negative emotions and encounter (or exhibit) negative behaviour during gameplay and yet they choose to keep playing games. What is more, we do not play games and merely accept the negative aspects that gameplay often entails, it seems that we sometimes enjoy games, in part, *because* of these seemingly negative aspects.

In this concluding chapter, I highlight two features of games that are paradoxical to our liking them: failure and competition. To discuss these paradoxes, I draw upon the works of Jesper Juul and C. Thi Nguyen (respectively) and analyse how things like failure and competition are actually good for gameplay. In turn, I add another paradox of games: the paradox of selfish punishers. I extend these views to include an evolutionary explanation for some of these paradoxical phenomena in games because it is my view that things such as failure, competition, and selfishness are not only good for gameplay, but they have the potential to build strong communities. Although group-wellness is not unique to games, it is analogous to groups that we find in ordinary life; a healthy community suggests at least one key reason we should want to play games.

10. 1 The Paradox of Failure

Let us first discuss the paradox of failure. Jesper Juul notes a curiosity with video games because he says that players like to fail, at least to some degree.[1] Failure in this sense is not only about the outcome of a game, such as when one football team loses to another, but also about the failures within the process of gameplay. When I play the platformer video game *Super Meat Boy*, for example, I tend to fail throughout each of the levels because I constantly run into the quickly spinning blades, whereby I'm forced to re-start the level from the beginning and try again. When I say I 'tend' to fail at this game, I tend to fail a lot and very badly, but this does not stop me from playing. Juul compares this curiosity, which he calls the paradox of failure, to the paradox of tragedy that occurs between readers and sad stories.

The paradox of tragedy, originating from Hume's *On Tragedy*, roughly goes roughly like this: sad books can make us feel sad, yet we find pleasure in reading them, and, perhaps, pleasure in the sadness.[2] What is even more curious is that we often return to a sad story to re-read it, and, although we do not like that the protagonist will die, for example, we *want* him to. At least that is one theory. The paradox of tragedy can help us understand games and failure because, to some extent, players similarly choose to play things that make them fail because if a game is too easy then it is no fun to play. This is true of non-video games as well and we see this, for example, with a game like tic-tac-toe, which is no longer enjoyable to most people after they have achieved a certain level of strategy. In

---

[1] Juul (2013), p. 7.
[2] This comes from Berys Gaut's idea that, roughly, suffering can be a source of enjoyment. See Gaut (2007).

short, we seek games out, things that make us fail, when we dislike failing in ordinary life. So, what is it that games are doing?

To understand the paradox of failure with games more clearly, it is also helpful to relate it to a more broadly discussed issue between art and the paradox of pain. Aron Smuts summarises the premises like this:

1. People do not seek out situations that arouse painful emotions.

2. People have painful emotions in response to some art.

3. People seek out art that they know will arouse painful emotions.[3]

Smuts notes at least three methods that we can apply to try and solve the above paradox:

Deflation: Art is not painful. This type of solution agrees with the first premise of the paradox (that we avoid pain), but it denies the second premise (that we experience pain in relation to art.

Compensation: Pain is compensated for. This type of solution agrees with first two premises of the paradox (humans avoid pain and we experience genuine pain in relation to art), but proceeds to argue that art provides something positive that compensates for the pain.

A-hedonism: We do not always seek pleasure. This type of solution denies the first premise of the paradox by saying that humans are not simply pain-avoiding, pleasure-seeking creatures. This is an effective, if unusual, way of dissolving the paradox.[4]

According to Juul, the above methods do not get us much closer to a resolution because none or all could fit for a paradox of failure at some given time. To be sure, Juul's account of failure is rather vague, but, I agree with him when he says that if we take the original point of view that failure offers catharsis, then video games require different reasoning because '[g]ames do not purge these emotions from us - they produce the emotions in the first place'.[5] When we read a sad novel we may feel sad in an empathic way, or we may experience actual sadness. However, failure within games is, to some degree the fault of the player and the result of their inability to overcome specific obstacles. Although reading a complicated novel requires a certain adeptness, books do not entail failure like games often do. Juul says that we are motivated to play a game that causes failure so we can attempt to overcome inadequacies (or so we do not fail anymore).[6] More specifically, "[f]ailure brings about something positive, but it is always potentially painful or at least unpleasant".[7]

---

[3] Smuts (2007), p. 60, as found in Juul (2013), p.37.
[4] Juul, Ibid.
[5] Juul, p. 4.
[66] Ibid, p. 7.
[7] Ibid, p. 9.

Juul goes on to say that we can relate this to a four-stage cycle that occurs when playing a game:

> 1. New goal is introduced. 2. Failure presents the player as inadequate. 3. Player searches for failure cause and improves. 4. Inadequacy gone in a player; player has a new skill.[8]

The fourth stage leads the player back to seeking a new goal and the cycle continues. Juul recognises that between the paradoxes of failure and pain, the former is not *always* a philosophical issue given that we are taught from a young age to maintain good sportspersonship regardless of a win or a loss. This is one social explanation since, if we fail during gameplay, we understand that, socially, we are to put our best attitude forward and try again. Games also allow us to accept failure differently than we can with failures in ordinary life. For example, playing a game or a certain difficulty mode that is too easy is not usually fun for the player, but if it is too difficult, the player can always use the excuse that the game design is 'unfair'. In such cases, we might choose to purposefully fail even harder for the sole aim of amusing ourselves or others. Juul contrats this with ordinary life where we do not tend to find this self-defeating behaviour. For example, a student might self-defeat the night before an exam by not studying and drinking too much alcohol, but very little amusement would ensue from this behaviour, or from the failed exam that is sure to follow. However, with games there are instances in which failure becomes the very object of appreciation, so to speak. As I mentioned in Chapter 5, there are those player *entertainers* who capture and publish their worst fails for the amusement of and validation from their internet audiences. Juul calls this 'spectacular failure.'[9]

The paradox of failure is relevant to video games, mere games, and sport. Of the three solution methods described by Smuts, it is my view that in the context of games *compensation* is the likely answer to the paradox. So, we play games that cause us to fail, not because we enjoy failure on its own, but because we enjoy the challenge and, most importantly, the opportunity to redeem ourselves. Recall Suits' definition of gameplay, or the 'voluntary attempt to overcome unnecessary obstacles*'.* My view is aligned with Suits' once again because we enjoy the experience of attempting to overcome the obstacles knowing we *might* win the next round. We are aware, even if in the back recesses of our minds, that games are created to be winnable, whereas there is no such promise that we will overcome tasks in ordinary life. For games, compensation seems one plausible solution to the paradox if we play a game with a proper Suitsian attitude. For another, Hume might offer the trade-off account between pleasure and pain for a more convincing solution. According to Hume, we might enjoy things that give us pain, such as video games, if the pleasure is greater than the pain it entails. Moreover, pain may, at times, restrict the degree of pleasure and, therefore lead to a more a satisfying experience (in a non-hedonistic sense).

Juul does not offer an account for the different kinds of failure that games entail or how players may experience different reasons for failure. For example, what about the success that a player might feel in failing, if it helps their opponent, or perhaps aids the wellbeing

---

[8] Ibid, p. 60.
[9] Ibid, p. 63-64.

of the group overall? In fact, this would seem congruent with Juul's own point that playing a game is not just about winning, but experiencing it. The idea that failure can benefit the common good of the group has bearing in the final section of this chapter because it is my view that failure can help create stable groups. This might seem like an odd view to take, but we know that when we fail, we attempt to do better. On one level this improves the player ability, but more broadly, personal failure can, at times, strengthen game groups.

Although, Juul's discussion of individual failure does not extend as broadly to include the altruism I describe above, we should keep in mind that Juul only discusses a general kind of personal failure in games. That being the case, many games are multiplayer activities that require cooperation between players and so it is worth investigating additional outcomes of failure. In order to make this point, I want to shift the focus from the paradox of failure to the paradox of competition, the feature that makes cooperation possible.

10.2 The Paradox of Competition

C. Thi Nguyen notes a different paradox with games, the paradox of competition. He recognises a seemingly contradictory aspect of games in that, in order for your opponent to have fun with some kinds of games, you have to try very hard to win. Nguyen says,

> Such games have a complex and seemingly paradoxical structure: they are both competitive and cooperative, and the competitive element is required for the cooperative element to work out. We might even call them a social technology, capable of converting aggression into a social benefit and perhaps even a moral good.[10]

The above paradox means that I must be quite ambitious and aggressive against my opponent in order for something positive to occur, which is what Nguyen calls a moral conversion. But first, what kinds of games does this sort of competition refer to? Not every game is suitable for funnelling such opposition in order to get the most out of the experience. Nguyen's example of party drinking games is appropriately not competitive in the same way as, say chess. In fact, drinking games become more fun, in general, as skills of players *lessen* over time (as Nguyen points out, the reward usually comes with the loss in these sorts of games). Chess is different than ones like some drinking games because a level of skill is required to overcome the in-game obstacles.

The above quote suggests to me that even the failure discussed in the previous section does not always cause pain, nor does the pain of failure only work by motivating us to succeed in the introspective way as Juul suggests it does. In fact, Nguyen views this transformation from competition to cooperation as a moral function of some games.[11] This is an alternative view to the more common 'internalist' view that says 'the primary function of all sports is the development and display of various personal excellences'.[12] Nguyen continues to characterise this contradiction between competition and cooperation and says,

---

[10] Nguyen (2017) p. 123.
[11] Ibid.
[12] Ibid., p. 124.

Rather, the transformation only happens if one successfully creates desirable striving. And that depends on finding appropriate opponents, fit to one's skill level and to the particular game we are playing. In informal situations, this means proper selection of game and player. In formal situations, this means, among other things, having good ranking and matching systems.[13]

This means, the kinds of games that allow for this competition-cooperation transformation prescribe the players to *endeavour* to do well so that the other player does well. Accounts will differ from Nguyen's because some philosophers indicate that players will engage with a game to win, and that players must intend to cooperate.[14] Nguyen, on the other hand, emphasises that cooperation requires players to adopt a correct mental attitude, which, in turn, makes the obstacles more relevant than the winning. This attitude, including a good (and relevant) game design, and player selection, allows for a transformation from aggression to cooperation, which means cooperation does not have to be the primary intent. However, this does not suggest that games are always played for selfish reasons, nor does it suggest that positive things cannot come from self-interestedness. In fact, often, if one properly engages in gameplay (in the way Nguyen proposes) personal gain is subordinated to the common or greater good of the group. Although this conversion is not possible or necessary in all sport or games, Nguyen says it can be the primary aspect of *striving games*, over the goal of winning (or personal betterment). This is what he calls 'striving play', which Nguyen defines thusly,

> One engages in striving play when one takes on unnecessary goals and obstacles for the sake of the activity they make possible, and when one does so for the intrinsic value of being engaged in that activity or one's experience of being so engaged.[15]

The reader will recognise that the first part of Nguyen's definition is adopted from Suits' definition of gameplay. Following Hurka, whom I introduced in Chapter 5, Nguyen adds a further condition that gameplay must have *intrinsic* value, which is not explicit in Suits' original definition.[16] Although Suits claims that we *voluntarily* take up unnecessary obstacles, meaning we engage in gameplay wanting to experience the process a game entails, he offers no reason *why* we should want to engage with games in the first place. Nguyen's extended definition includes the intrinsic value, meaning players who engage in striving play *desire* to play the game for the experience of the obstacles and activity rather than for solely overcoming them. At times, this could mean that blocking your opponent's shot in basketball, for example, is good, not only for yourself, but for your opponent. This, of course, requires our opponent to have similar skill sets or there can be no moral conversion, and striving play will not be possible (imagine competitively playing chess with a three-year old). Although striving play is not a condition of gameplay,

---

[13] Ibid., p. 128.
[14] Simon (2014), Weimer (2012, 2014).
[15] Nguyen (2017), p. 125.
[16] Suits goes on to clarify this at a later time. Hurka, (2006), p. 226-228. Also in Nguyen (2017), p. 125.

it is the mechanism that makes cooperation an achievement of the game, or, as Nguyen says, it allows for an 'excellent struggle'.[17]

The moral conversion described above is different than how morality is typically applied within game studies. Usually, philosophers of sport discuss morality in terms of player consent. For example, consent between two players allows for a sport like wrestling to qualify as such, otherwise, we might deem it to be an act of violence. This is the view of Steven Weimer, for example, who views consent as the primary mechanism for moral transformation (even with sports that are violent).[18] Consent occurs when the players of a game or sport agree to the formal rules and, thus, play accordingly. His account does not suggest that players do not also play a game for personal excellence, but, according to Weimer, where there is a conflict between consent and personal excellence, the former should govern.[19] He explains that personal excellence cannot be the primary goal or it seems gameplay would be more closely related to training and practice.

Nguyen says that we should not place too much emphasis on player consent, however. He illustrates this point by asking us to imagine ourselves playing a game of chess where the opponent is far less skilled than one's self. Within a scenario like this, your opponent (and yourself) may have both consented to the match but 'desirable striving' cannot occur because there is an imbalance of skill between the two players. When this is the case, Nguyen, contra Weimer, stipulates that it is not sufficient for opponents to merely consent to a game in order for a moral conversion to take place. If we select a player who is far less apt than ourselves and our only goal is to beat them relentlessly, then consent does not seem to go far enough for any moral conversion. By this token, if any conversion is to occur, and when we want a game to challenge us we need, in addition to conducive game design, a proper opponent to make competition possible.

We are discussing a psychological frame of mind so at least one player within the group will have to be intentional about the above attitude, but a player need not maintain this intentional attitude during gameplay at all times. Nguyen describes it this way,

> We may enter a game with cooperative intentions, but once we are inside, we no longer have to maintain them. We may turn all our efforts to wining, albeit within the rules. The difference between games and ordinary life is that in ordinary life, we must usually intend to help other people in order to actually help them. In games, the very structure of the game permits us to be entirely competitive and aggressive, yet the game will transform these efforts into something worthwhile for our opponents. Games permit us to offload our cooperative intention into the structure of the game itself.[20]

The above means that we do not have to intend to cooperate with an opponent in order for cooperation to occur rather, the transformation will occur if the conditions are right. Cooperation, Nguyen adds, might even occur when a belligerent opponent has more

---

[17] Nguyen (2017), p. 126.
[18] See Weimer (2012), (2014).
[19] Ibid., (2012).
[20] Nguyen (2017), p. 130.

selfish ambitions when adopting the game's rules and entering gameplay. The architectural design of certain games allows for this conversion, a point I will return to at the conclusion of this chapter.

There are at least two things missing from Nguyen's claims. First, he never discusses the concept of modifications with differences in skill level between opponents. It seems to me that a mismatched pair of opponents could still have fun (and strive) in a game even if the more skilled person gives themselves a handicap. This is regularly seen in sports such as golf, for example. Second, Nguyen should clarify the distinction between the normativity and descriptivism of games. The behaviour described above requires internal decision-making rather than what pertains to external variables that constrain the way we *tend* to play. If we bear this difference in mind, then it ought to be added that Nguyen's account of moral conversion may occur if we play a game in the manner that a game *should* be played. In other words, for the cooperation Nguyen discusses to occur during gameplay, we ought to select the appropriate game and players, and we ought to adopt the correct attitude. This is different than Juul's normative account of gameplay.

In the quote at the beginning of this section, Nguyen addresses the importance of the selection process (of games and of opponents) for the conversion from competition to cooperation to take place. If everyone who participated in games were cooperative, then groups would have a stronger potential to experience the benefits that come from failure and competition. However, we know that players range in their behaviour and, often times, will exhibit horrible behaviour and attitudes; Belamire's assault within the VR game *QuiVr,* which I described in the previous chapter, is one such example. While cooperation and sportspersonship are valued within gameplay, some behaviour like selfishness is perhaps less so. In the remainder of this chapter, I will add to Juul and Nguyen's accounts and discuss the paradoxical nature of selfishness and its role in building strong communities.

10.3 The Paradox of Selfish Punishers

From the above we can note that aggressive behaviour may benefit the game overall. So too, selfishness has the potential to motivate group wellness. In fact, selfishness allows for the introduction of effective punishment, thereby returning stability to the group. Guild leaders, game masters, and fellow competitors keep the game group in check and have the ability to punish unacceptable behaviour from either a game character or a player. Players who continue to take matters too far with their bad behaviour may experience expulsion, character consequences, and the like. For example, in my D&D group, we continually caught one player selfishly taking all the coveted healing potions from the places we looted. The dungeon master (DM) decided to set a trap for, let's call him the 'thief-character'. In knowing the thief-character would be tempted to steal, the DM alerted the group to the contents of the room that our player-characters were in. Among other listed items was a wooden chest. The other player-characters went about investigating the room and the thief-character, as suspected, went straight for the chest. When he discovered that it wasn't locked, he opened it (without making a perception check) and set-off a booby trap, which caused a paralyzing potion to spray over his body. The paralysis, which lasted for 2 hours, allowed the group to carry on without the thief-

character in the following missions (allowing the rest of us more loot) until its effects wore off. The game narrative did not suffer from this tactic (if anything it added to it), and the players all learned a lesson about character control while still enjoying the game.

Players are typically kept in check by the rules of games and the normative ways they engage in games. But what does this say about selfishness and how it benefits gaming groups? The following will attempt to answer this question.

In Chapter 5, I mentioned that Huizinga viewed games as conduits for a 'magic circle' wherein the fantasy world is protected from the ordinary one. Within this figurative circle, individuals leave behind ordinary roles and relationships and trade them for game ones, but where characteristics of the real world are still present.[21] On the other hand (but similarly), Suits viewed games as the only thing humans would do in a utopian society when all our utilitarian needs are met. By his account, regular tasks might become games if we have no obligation to do them. For example, say that in some utopian society robots normally build our houses. But imagine you really enjoy carpentry and so you choose to build a house without the robot, which allows you to experience the process like a game (note that this also fulfils the condition of inefficient means). Huizinga and Suits describe games differently, but notice how both characterise games as structures that consist of their own self-contained societies.

Game groups range in size from single player, to multiplayer, to massively multiplayer communities. It is good to remember that these latter groups, although they can be quite large, are still selected groups. Games consist of mechanisms that allow groups of any size to function well, which, from an evolutionary standpoint, is not surprising. Since the age of hunting and gathering, smaller groups tend to be less complicated than the larger ones. In this respect, we might be curious about the kinds of cultures that games constitute and, more specifically, why things like failure, competition, and selfishness can be good for the group.

Here, I want to turn the focus from the games to the gaming groups themselves and look at how they operate as functional organisms. Group success, in other words, can occur, not necessarily despite failure and competition, but by virtue of them. Competition may result in cooperation, but what this also suggests, to me, is that game communities exhibit a framework that fits within an evolutionary strategy. In other words, gaming groups are communities that function like Darwinian organisms. With things like failure and competition games are motivations for healthy groups because they help communities to get along better. Essentially, games build community. However, it is not only because games promote cooperation if they are played the they should be played, but also because games are normally played with some degree selfishness. Although selfishness and punishment, as with the *D&D* scenario described above, might indicate a problem with gameplay, I want to suggest these behaviours indicate a level of selflessness is present. This section will consider how selfish behaviour in gameplay might function to promote healthy groups.

---

[21] As such, some view the magic circle as a 'synthetic world' rather than completely protected. See Castronova (2005 and 2008).

The paradoxes explained in this chapter suggest a general tension between what games require of their players and why we keep playing them. Initially, it may seem that things like failure and competition entail the negative aspects of gameplay because, if we experience enough failure and competition in the ordinary life, why would we *choose* to experience them in games? However, these very characteristics of gameplay promote the success of the overall group even if individuals do not always win or better themselves in the process. This thought is in line with Juul and Nguyen and the paradoxes presented above.

Correspondingly, evolutionists might characterise the social structure of gaming groups as the result of a kind of Darwinian strategy that consists of selfishness and selflessness. Although I am hesitant to say games create cultures of absolute altruism, I do think players exhibit altruistic-like moments during gameplay and highly coordinated roles that make organised communities possible. Of course, games are not just environments for selflessness, they are often sources of atrocious behaviour, particularly within the online gaming community. One has only to read through the chat windows to see examples of misogyny, bigotry, and immaturity. However, to build from the previous chapter, games are sometimes excellent examples of things that promote thriving groups even in the midst of (and because of) self-interestedness and competition. It is my view that evolutionary theory can help us understand how player's normative actions, the altruistic-like and the selfish ones, can add to the group's overall success. However, the question to ask first is, what is altruism?

Altruism concerns another's welfare instead of your own. In fact, if altruism leads to action, then it usually comes at a cost to the altruistic individual's own wellbeing. I should say first that it is debated whether or not true altruism exists, especially at the level of altruistic thoughts. For example, we might behave in a certain way to benefit someone else, but it is debatable whether our actions come from a desire that is truly other-interested rather than self-interested (this issue is compounded when religious beliefs are present). Suppose, for example, in *D&D*, my party comes across a room full of loot. In the distance, my character sees a vicious goblin closing in on the group and so instead of staying with the other adventurers to collect treasure, I choose to leave and attack the monster so my party can gather treasure in safety. Now, it could be the case that I truly place my party's safety and desire for plunder over my own, or it could be the case that, ultimately, I believe the benefits from the loot will eventually trickle down to me if the group is successful overall. Although there is disagreement as to whether psychological altruism exists, it is believed that, at the very least, altruist-like actions improve the functions of a society as a whole even if there are expectations of reciprocity.

The group functions well when it is organised. According to evolutionary biologist David Sloan Wilson, '[s]omething is functionally organized when its parts work together in a coordinated fashion to achieve a given end'.[22] Of course, altruism is not required for a society to be functionally organised but it is one way of reaching stability or maybe even thrift. This question of whether altruism actually exists preoccupies Wilson for which he says, 'when altruism is defined in terms of action and in terms of relative fitness within

---

[22] Wilson (2015), p. 9.

and between groups, it exists wherever there is group-level functional organization'.[23] Working together in a coordinated fashion means that cooperation is one strategy that usually benefits the group, even if it is less beneficial to the individual.

According to Wilson, the current level of cooperation within any group is due to the degree of *competition* among groups. This, interestingly, seems to support the claims Nguyen makes. To illustrate this point about cooperation and competition, Wilson led a study among school children in various neighbourhoods of New York, which he and his team called the Binghamton Neighborhood Project (in Binghamton, New York). With the help of the local school district they began the experiment by collecting data on school children from a survey that profiled their healthy development. Questions to the children ranged from where they received help within their communities (e.g., school, parents, church, etc.), to how they felt regarding certain claims (e.g., "I think it is important to help other people"). The students were asked to rate their agreement with these statements on a scale from 1 to 5. Once the data had been collected and sorted from the surveys, Wilson et al. created a map of Binghamton with a grid that demarcated specific neighbourhood districts.

As a biologist, Wilson knew that these kinds of maps work well to detect problem areas for endangered species, to locate the areas where species thrive, as well as to track any changes. In an effort to note trends for prosocial behaviour, Wilson plotted the students' prosocial scores on the map grid with dark dots representing the locations consisting of high prosocial behaviour scores (High-PROs) and lighter dots representing lower prosocial scores (Low-PROs).[24] The gradient revealed interesting results. The students who scored as High-PROs also indicated they received the most help from others within their communities. Those who scored lower did not give any indication that they were often on the receiving end of any prosocial behaviour. This is as Wilson suspected because, 'High-PROs can expect to succeed when they are in the company of other High-PROs'. [25] This corroborates what we might expect, that cooperation is beneficial to groups.

Additional experiments were conducted around the specific neighbourhoods to determine if these students merely liked the idea of being altruistic or if they in fact showed helpful behaviour within their communities (one of four such tests were simply to put stamped and addressed postcards on the ground to see if students would pick them up and return them to the intended mailbox, or if they just left them). The results of these tests supported the information that the gradients on the map reflected. Furthermore, it indicated that High-PRO kids were not normally found among those whose families had money, but among kids who had little financial capital and greater social capital (where they could practice cooperation on a regular basis).[26] Cooperation means that, at times, you receive help, but at other times you give help. In other words, healthy groups consist of individuals who give *and* take, which is one reason Wilson suspected High-PROs would do well with other High-PROs, so the act of giving would not be exploited. Consequently,

---

[23] Ibid., p. 29.
[24] For the map, see Ibid, p. 119.
[25] Ibid, p. 120.
[26] Ibid., p. 122.

those who scored the lowest on the prosocial scale where children who had neither financial nor social capital. This points to the importance of a social environment, one that games often create.

If altruism exists at the level of action (beyond psychological altruism), games are one more kind of group that suggest it could because within games, there are players who are givers and takers. I will pause here to emphasise that, usually, when we think about the successful evolution of a group, we think in Darwinian terms of individual (sexual) selection. In *The Decent of Man*, Charles Darwin makes the following claims,

> It must not be forgotten that although a high standard of morality gives but a slight or no advantage to each individual man and his children over the other men of the same tribe, yet that an increase in the number of well-endowed men and an advancement in the standard of morality will certainly give an immense advantage to one tribe over another. A tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid one another, and to sacrifice themselves for the common good, would be victorious over most other tribes; and this would be natural selection. At all times throughout the world tribes have supplanted other tribes; and as morality is one important element in their success, the standard of morality and the number of well-endowed men will thus everywhere tend to rise and increase.[27]

Some evolutionary biologists consider group success within society to be more than the genetic success that Darwin hints at here, and others have carried further.[28] *Group* selection, on the other hand relies on cooperation instead of kinship. If this is true, then it is an explanation for the outcome representations on Wilson's map. However, not all evolutionary biologists are in agreement with this. There are those who claim that genetic selection is still relevant, those, such as Wilson, who says it's not, and an in-between goup who say that both genetic and group selection occurs, just at different levels. Wilson compares the earlier non-group selection evolutionary theories to outdated pre-Copernican theories of the universe. He goes so far as to say,

> The controversy over group selection is receding into the past and eventually will be forgotten except from a historical perspective, like the controversies over the Copernican view of the solar system, Darwin's theory of natural selection during the late nineteenth and early twentieth centuries, and the theory of continental drift during the early twentieth century.[29]

This is a big claim and since I am not a scientist myself, I will avoid these controversies and merely focus on how games constitute groups that are *reflective* of the group theory that Wilson adopts. At the very least, group selection is just one mechanism used by

---

[27] Darwin (1883), p. 89.
[28] Such as early 20th century scholars, Peter Kropotkin and David Lack.
[29] Wilson (2015), p. 34.

players to organise themselves. Bearing these caveats in mind, let's return to the notion that a group's success relies on cooperation.

Nguyen does not provide a definition of cooperation and, up until now, I have not been specific with any particular meaning of it. Martin A. Nowak, in his book, *Evolution, Games, and God*, defines it like this, 'Cooperation is a form of working together in which one individual pays a cost (in terms of fitness, whether genetic or cultural) and another gains a benefit as a result'.[30] If we compare this definition with the definition of altruism presented earlier then we should be confident that altruistic like actions can occur in games, where cooperation often takes place. Wilson notes this kind of group cooperative behaviour first among insects (e.g., ants and wasps) where functionally organised groups consisted of self-sacrificing actions, which generally had little to do with kinship.[31]

As noted above, competition and cooperation seem at odds with each other and the same can be said for selfishness and altruism. Studies show that, as a whole, groups fare better if everyone within the group is an altruist, which is something we may intuitively expect. Not everyone within society (or game groups) are altruistic, however. In ordinary life, we all do things that are self-centred and sometimes our actions are intentionally done to the detriment of others. We sometimes see this as we compete for jobs, for pay raises, or self-recognition, and, of course, when we play games. Regardless, the idea recapitulates the subtext in the accounts by Juul and Nguyen that sometimes selfishness leads to better results in the long run.

There is at least one study conducted by sociologists Eldakar and Wilson (again) that shows a difference between selfish and non-selfish individuals, where the former types generally maintain the highest fitness within the group if left unpunished. This stands to reason because the selfish individuals usually benefit from their own behaviour *and* from exploiting the benevolence of the altruists.[32] Consequently, a non-selfish individual would fare better (personally) if they became a selfish member. That being the case, balance can be acquired or returned when effectual punishment is introduced to groups where selfish members exist. Eldakar and Wilson test and report this theory using the following model,

> Now consider a method of social control in which individuals can punish selfish group members at a personal cost c, which results in the selfish individual losing its acquired energy for a given round of the game. The cost is incurred for every selfish member of the group, and punished individuals risk the loss of their previously acquired energy (b + pbm) at a probability equal to the frequency of punishers that reside in the group. Punishment can be exhibited by either altruists or selfish individuals, yielding four possible strategies (altruistic punishers, selfish punishers, altruistic nonpunishers, selfish nonpunishers) at frequencies of p_{ap}, p_{sp}, p_{an}, and p_{sn}, respectively. In a single group, the average fitness W of the four strategies are as follows:

---

[30] Nowak (2013), p. 4.
[31] For more on these studies (in addition to Wilson 2015) see, Wilson and Sober (1994).
[32] Eldakar & Wilson (2008).

$$W_{an} = (p_{an} + p_{ap})bm \qquad [3]$$

The fitness of altruistic nonpunishers (Eq. 3) is exclusively based on the altruistic contributions of group members and remains unaffected by punishment.

$$W_{sn} = [(p_{an} + p_{ap})bm + b](1 - p_{ap} - p_{sp}) \qquad [4]$$

The fitness of selfish nonpunishers (Eq. 4) is determined by the sum of withholding cooperation b, and the exploitation of altruists $(p_{an} + p_{ap})bm$, however, is only retained in the proportion that punishers are not present in the group $[1 - (p_{ap} + p_{sp})]$.

$$W_{ap} = (p_{an} + p_{ap})bm - c(p_{sn} + p_{sp}) \qquad [5]$$

Altruistic punishers (Eq. 5) retain the same fitness as altruistic nonpunishers yet bear a cost for punishing all selfish members within the group.

$$W_{sp} = [(p_{an} + p_{ap})bm + b]\left[1 - \left(p_{ap} + p_{sp} - \frac{1}{N}\right)\right]$$
$$- c\left(p_{sn} + p_{sp} - \frac{1}{N}\right) \qquad [6]$$

Selfish punishers (Eq. 6) exploit the altruistic contributions of group members yet punish all other selfish group members.[33]

As it turns out, the above tells us the following. The strategies of selfish individuals are challenged when punishment is introduced, thereby making their fitness less strong within the group. However, punishers fare worse compared to non-punishers in terms of their output. All things being equal, this makes the punishment (by altruistic *or* selfish individuals) an act of second level altruism because the punishers sacrifice performance for the overall benefit of the group. Now, if we compare the altruistic non-punishers and altruistic punishers, the former out-compete the latter while the latter are disruptive to the punishment. Therefore, the combination of these two groups create instability within the group and, to paraphrase Eldakar and Wilson, non-punishing altruists should not be a favoured model of behaviour if selfishness exists in the group because they are second-level free loaders. Fitness is stronger for selfish punishers than selfish nonpunishers, because the former are less likely to get expelled from the group since they benefit the group's overall fitness. Selfish nonpunishers are likely to be expelled. The same test also indicates that when cooperation is withheld from selfish individuals, altruism is more likely to evolve.[34] Finally, groups tend to thrive with selfish punishers and altruist nonpunishers because the output between the two creates an equilibrium. To a growing number of scholars like Wilson, the above also suggest that there is something more going on than Darwin's theory of individual selection since successful groups do not always consist of kin. In fact, we see cases of more than just successful groups – super groups

---

[33] Eldakar & Wilson (2008).
[34] Wilson (2015).

might consist of groups within groups, within groups, all of which might be successful due to group selection.

So much for altruism and selfishness in society. What does this say about failure, competition, and selfishness in games? A predominate conception of games (also related to sports) relates to the internalist view that we play games to self-improve and and personal development. Juul's concept that we like failure (to the degree that it motivates us to do better) is one paradox that can lead to a highly functioning group, even if at an individual level. It would seem likely that failure also motivates a stronger community even if the failure occurs for selfish reasons. Simon Smith proposes a view that sounds similar to Juul when he says:

> ...sports are arenas in which we test ourselves against others, where we attempt to learn and grow through our performances, and where we attempt to develop and exhibit excellence at overcoming the sport-specific obstacles created by the rules.[35]

Nguyen argues against this specific position for reasons explained earlier. That so, Simon's view relates to the broader ideas of Suits, Juul, and Nguyen that winning is not the only measure of success. Regarding any moral worth, Nguyen suggests that competition can lead to cooperation and the overall wellbeing of the group, but I think punishment can play a significant role. My own example comes from, once again, playing a session of *D&D*. In a different playing than the one I already described, I was frustrated at my group because certain decisions they made prevented my character, Scarabina, from participating in an exciting quest that we had been building up to for a few weeks. After they completed said quest, without my character, our adventurers decided to hang out in a local pub of the game-world and, since I was frustrated at the other players, I had my character challenge the other characters to a fight-club-like challenge, including bets with our gameworld gold pieces. Ultimately, this challenge dispelled my own frustrations and proved to be a lot of fun for everyone in the group. In this case, cooperation was not my primary intent, but my aggression was funnelled into competitive playing, which, in turn, led to cooperation.

By the same token, players are not always competitive in a manner that aims for a healthy community, even on some secondary level. In fact, many times, selfishness and aggression in the gaming world are no different than the actions we experience in the ordinary world. Belamire's assault is one such example. As a result of this incident, the *QuiVr* creators added a force field feature to the game as a form of protection and punishment. Players who feel threatened can implement the forcefield by pushing their fingers together and their character will teleport to a different location. This is, of course, a temporary fix, but it could conceivably improve the group, which is something that remains to be seen. Additionally, things like trolling, griefing, and teabagging are just some of the frowned upon behaviours that players might have their characters engage in to aggravate fellow competitors within and between groups. However, to keep within the theme of paradoxes, not all selfish actions (opposed to altruistic) are detrimental to groups as one might presume. Recall that selfish punishers represent, at least minimally,

---

[35] Smith (2000) as found in Nguyen (2017), p. 132.

a kind of altruist because their actions promote the wellbeing of the group at the sacrifice of their own fitness. Unfit behaviour is usually dealt with by other players and especially by guild leaders and game masters who have the authority to publicly shame, suspend, or ban these sorts of players from the group. This exemplifies how punishment in the more severe sense can curtail bad behaviour, promote altruism, and ultimately, constitute an organised group.

To emphasise competition, Nguyen provides an example of a similar outcome, but where no punishment takes place. He describes a scenario in which a belligerent guest comes to his house, making the other guests uncomfortable with demeaning behaviour. If this example were to follow in line with my previous example above, Nguyen could simply ask this guest to leave, and the group would potentially benefit. What Nguyen suggests, however, is that the group play a competitive board game and, assuming it is the correct game design for moral transformation, everyone can play to their enjoyment. Mr. Belligerent channels his competitive energy to the competition of the game and the rest of the group benefits from a good match. Notice here, none of the players are intentionally promoting cooperation, save, perhaps, for Nguyen and his original suggestion to play a game in order to redirect the atmosphere. As it happens, this example as well as that of 'Scrabina' puts another point of Wilson's to the foreground, that conscious intention is not always necessary for the collective good.

Notice how all of the above describes certain characteristics belonging to ordinary life, mere games, and video games, but not necessarily to art. This affirms some of the content presented in the preceding chapters and further reminds us about the hybridity of video games and other interactive fictions.

10.4 Conclusion

In Darwin's publication, *The Structure and Distribution of Coral Reefs* (1842), he notes a different kind of paradox, the fact that in the poorest of water conditions, coral thrives. At face value, failure, tragedy, competition, selfishness, and punishment should be things we turn away from because they seem to be toxic features of any group. Yet, not only do we enjoy games that often entail these very things, the group, like the coral, thrives because of them. None of this is to suggest that games create groups in a strictly Darwinian or Wilsonian sense, and certainly there are clear examples of highly organised groups that are less successful.[36] However, I view gaming groups analogously to other groups where selection strategies are evident, but with at least one significant difference. Another important aspect of games, in comparison to ordinary life, that Juul points out is that players play them with the understanding that games were created to be winnable. This knowledge distinguishes games from ordinary life where there is no such guarantee. Games, it seems, are reasons to have community and games help communities to get along better, as was the case with Mr. Belligerent described by Nguyen. Failure and competition motivate us to do better, particularly when we adopt the correct attitude for gameplay. Like the High-PROs shown to Wilson on his neighbourhood map, it seems reasonable to extend the idea that for game groups to thrive, individual players must

---

[36] Unfortunately, the Native Americans are one such group within the U.S. that illustrates problems (or exceptions) with this theory.

sometimes give and sometimes take. Although improvement is not always our own, certain actions benefit the overall fitness of the group, making it a healthier organism (or superorganism when we consider the sub-groups that games can entail) than when it started. In sum, this means that the paradoxical features of games can potentially create and improve groups.

Concluding remarks

Conclusion

Interactive works share some of the philosophical issues that are standard to the more traditional arts, but it is clear that interactivity is a distinctive feature that introduces additional concerns and discussions within analytic aesthetics. Although Chapter 1 addresses that interactivity might be a standard rather than necessary condition for some categories of interactive art, it is certainly the case that if a work prescribes interactivity, the user's interactions are possible from the variability of the displays. Display variability is distinctive of interactive works and especially for interactive narratives, such as the kind we see in video games. While this dissertation does not endeavour to compel the reader that video games belong within the same established categories of art as the digitally interactive works in museums, it does aim to highlight the various aesthetic properties that we can appreciate. Since the algorithm, or what I call the complete game algorithm, is the principle property-bearing feature of digitally interactive works, I argued that there are similarities between these works and those such as performance works. However, the differences between interactive works and performance works warrants different ontologies and forms of engagement. This dissertation tries to fill in some of those gaps.

A Note About Avatars and Tragedy

One issue that arose from my research regarding chapters 9 and 10 relates to how players experience tragedy with their player-characters differently than with other narratives. This question did not fit within the scope of those chapters, but, as it warrants further research, I find it worth addressing.

When it comes to characters and games, there is more to say about how games affect our emotions in a different way than other narratives do. More importantly for this dissertation is, how player interactivity affects certain experiences of gameplay particularly when our characters meet tragic endings. When we read *Romeo & Juliet,* we may feel sad because we know ahead of time the characters die. But, if we were to read a particular version where the protagonists survive, we would most likely be upset by the changed ending. Gregory Currie refines this a bit and says what really is happening is the reader does not want the characters to survive but she imagines they do.[1] The deaths of Romeo and of Juliet might make us sad but, as the paradox states, there is (oddly) a sense of satisfaction in their dying. This paradox was briefly addressed in the previous chapter, however, with video games, there is a different curiosity to address.

The above points to a difference in how the protagonists meet their demise in books vs. games, or rather, the roles that the reader vs. player engage in with that demise. For the reader, although she may know the character will die, which makes her feel sad, she can distance herself from feeling any guilt. Janet Murray says that players can shut a game off in a similar way that readers can close a book, should they need to separate themselves

---

[1] Currie (2010).

from unpleasant occurrences in stories.[2] Jesper Juul and others argue, pace Murray, that unlike books, video games involve the player in a more critical way. Although readers can intensely engage with a character, they do not aid in that character's tragic ending. To expound on Robson and Meskin's SIIF argument, I can say that if a player is aware the protagonist will meet a tragic end, and the player is successful in reaching this goal, then the player is responsible for that outcome.

Does this make the player feel the tragedy more or less acutely than the passive reader? To test the effects of this, Juul worked with game developers to create *The Suicide Game*.[3] The goal of this two-player game is to take turns trying to kill yourself by either taking poison or stabbing yourself with a knife. These weapons are scattered around the room and it is the player's job to move their characters to them. The player then types a prompted string of letters into a text box, which represents your attempt to kill your character. The player must type the pattern at just the right time – too slow or too fast, your character fails the suicide attempt, your turn ends with a notification that an ambulance is on their way, and you have failed the game. What Juul wanted to achieve from this was to determine what affect a game has that required a player to strive in order to achieve harm to their character has. Juul's hypothesis was this. In order for a game to compare to a tragic novel, it would need to fulfil three characteristics[4]:

1. The protagonist undergoes many painful experiences.
2. The player is aware that their character meets a fateful demise.
3. *The player exerts effort to self-defeat.*

The Suicide Game is a striving self-defeating game, but interestingly, during his experiment, it did not generate any alignment between the emotions of the player and the character in the way we would expect from a tragic novel. If the character survived the attempt then that meant the player failed and they would typically show signs of frustration for their inadequacy instead of relief that their character was alive. If their character died, that meant the player succeeded and the responses matched those of a successful player, not the sadness of a character's death (although some degree of sadness registered in the players due to the content, the theme of the game was significantly mitigated by the goal of the game). As a tragedy, one would expect both the character and the player to mirror their emotions more closely.

Although it is possible for me to feel empathic sadness toward my character in the way I discussed in Chapter 9, it is not as common to experience the same paradox of tragedy with games the way we do with other tragedy narratives. In fact, Juul has argued that it is not possible to experience tragedy as acutely in games. Playing a tragic game makes it more difficult to mirror the emotions of a character than other narratives because it is in the player's interest to preserve the interests of their character, even in macabre situations like *The Suicide Game*. To clarify, think of it this way, if we play a game in which we know our character meets a tragic end, we will often feel a sense of accomplishment

[2] Murray (2016), p. 25.
[3] To play: http://www.jesperjuul.net/text/suicidegame (accessed March 2017).
[4] Juul (2013), p. 96.

because we have prioritised the overall *goal* of our character over the *wellbeing* of our character.[5] This emotional outcome differs from the *Romeo & Juliet* example where the reader and characters both experience some degree of suffering. This is not necessarily because tragedy games are impossible, it is largely to do with an awareness among game developers that most players do not want to strive in a game in which they know they will have to kill off their own character.

The Suicide Game failed at inducing the paradox we expect from tragedies for several reasons. Firstly, the messages that popup on the screen indicating you have failed or succeeded are cartoon-like (easing the severity of the subject matter).[6] Secondly, and probably more importantly, there are no psychological factors of the character that the player is aware of. This is in stark contrast to a novel where the author allows the reader to feel as though they know the character (and perhaps understand their actions).

Exceptions to the above are games that attempt to hide the character's demise from the players until they reach the end. Though the player-character alignment does not quite match that of the book-character, it gets closer than when a player expects their character to die. For many of the players the game content, although surprising, was not experienced as a game tragedy because they were trying to achieve something the character actually wanted. In other words, the task of the game allowed players to distance themselves enough from the morbid narrative.

The video game *Red Dead Redemption* presents us with another example, but one where players are not aware of the ending (spoiler alert).[7] In this game, the player's character is a male protagonist who, now a family man, formerly lived a life of crime. This comes back to haunt him years later when he is blackmailed into committing questionable missions in order to save his wife and son. If the player and protagonist are successful, the player-character returns home to his family to carry out tasks around the ranch. Although this portion of the game is typically described as boring, the daily (banal) tasks create a stronger connection between the player and the character's family. This all comes to a head when unsavoury characters from his previous life of crime arrive and attack his family. At this point, the player must complete the final mission, which is to help the player-character's family escape. If the player fails, the character dies and the game restarts from whence the attack began and, once again, the player can attempt to help the family escape. When the player is finally successful, i.e., the wife and son escape, the player-character is shot dead (this time, with no prompt or ability to restart). Essentially, this is the outcome of the game and the only way to win. If the player is unaware that their successful moves ultimately lead to the protagonist's death, then there is a closer alignment between the player and the player-character and the paradox of tragedy is closer to that of literature or film.

---

[5] Ibid., p. 93.

[6] In addition, there is nothing realistic about the features of this game. Though much of the art and mechanics are retro, like the *Kathy Rain* example mentioned earlier, the problem lies elsewhere. For me, it is the minimal focus on narrative description rather than the narrative action that sabotages player-character alignment.

[7] Rockstar Games 2010.

Both kinds of game tragedies, those that inform the player of their character's end and those that do not, still differ from other narratives. Games where players expect a tragic outcome do not usually consist of features that allow the player to witness harsh outcomes and, often times, these games allow the character to come back to life. Because these players are usually spared a degree of psychological reasons for a death, or the consequences, the player tends to focus more on the success of their gameplay than on the tragedy of their character. This seemed to be the case with *The Suicide Game*. On the other hand, players who are deceived by the game regarding their character's end might experience the paradox of tragedy to a greater degree than the former kind of games, but perhaps not as acutely as with other narratives. Although the player is not aware the protagonist is fated to die in *Red Dead Redemption*, the player also does not participate in him dying (it is the outcome of the player's final achievement). Even if only marginally, the player is allowed to focus on their competencies rather than solely on the tragedy of their character. This kind of distancing would be especially true if the player decided to replay the game knowing what tragedy was ahead of them.

Among other things, video games are dynamic sources for storytelling, but rarely do they make us feel the paradox of tragedy in the same manner as other narratives. Does this mean Roger Ebert was right all along in saying video games are not art because they cannot make us cry? Perhaps, it is not out of some limitation of video games that we rarely cry from playing them, but a recognition among developers that they are harder to create. Juul makes this point when he says books and film allow us a kind of plausible deniability in our control over the tragedy.[8] Romeo, as I said, will die with or without the reader but this is not the case in games. A great deal of control is handed over to the players, which is perhaps why there are not, for the moment, more game-tragedies out there. So, it is not that video games *cannot* make us cry, it is that they typically do not make us cry because they are not created to do so. More importantly, I think I have argued well enough that, whether we cry or not, video games (and mere games) can still make us *feel* something as a result of playing them. Using tears as the litmus test for video game's art status is misguided because it ignores its distinctive features, feature which have been covered throughout this dissertation.

Looking Ahead

The chapters in this dissertation represent only a portion of the philosophical discussions that computer art, interactivity, video games, and the algorithm could raise. In writing this, my approach was to let the preceding chapters determine the content of the proceeding ones. Questions that I would have liked to have addressed further, but ran out of time for, mainly concern distinctions between the performance actions and interactive actions of video game players. Differences and similarities between the action kinds are suggested in much of this dissertation, but only to make the point that video games belong to an interactive ontology, not one of performance.

Saltz stipulates a difference between the performing and interactive arts because, with each, the objects of appreciation are not the same. Similarly, in a recent publication in the *Journal of Aesthetics and Art Criticism* (2017), Grant Tavinor, after discussing video game

---

[8] Juul (2013), p. 118.

players as 'interpretive performers', says '[i]f we follow [David] Davies's lead, the interpretive performances under question here may not be a reason to think that video games are a performing art, but rather a feature that they have in virtue of being a form of art more generally. The specific role of performance in video games is a topic which clearly demands more work'.[9] I agree with Tavinor that players undertake a role that is performance-like, and, as I express in Chapter 6, that this does not indicate video games are performance works like music and theatre. Roleplaying is a key component of some gameplay. Although performative in nature, players interpret player-characters due to prescriptions that derive from interactivity and so, just *how* performance and interactivity are related in videogame play is a question I, like Tavinor, find interesting. VR, which includes physical movement in addition to interpretive performance, makes this question all the more pressing.

I am also interested in the differences between action narrative and descriptive narrative we normally find in games. It seems with SIIFs, the actions can both enmesh players with their player characters, and, conversely, it can distance the players, as described with *The Suicide Game*. I think more can be said about what causes this divide.

Finally, in the introduction to this dissertation, I note that we do not have to justify games by their instrumental purposes and outcomes. Digitally interactive works and video games can be appreciated for their own sake, and they need not make prosocial behaviour (and the like) necessary results. That being so, everything presented in this dissertation highlights significant aspects of video games (and digitally interactive works) in virtue of interactivity and outside of the boundary of purely enjoying a game for game's sake. The way in which we experience their responsiveness to user input, the distinctive manner in which they exist compared to particular, non-repeatable objects, and the epistemological (and emotional) affordances of video games all highlight the dynamic ability of the computer and digital technologies. On that note, I hope the pages within this dissertation have done justice to the ground-breaking philosophies that have preceded and that they will help to scratch the surface for new ones.

---

[9] Tavnior (2017), p. 27.

Bibliography

Aarseth, Espen. "Virtual worlds, real knowledge: towards a hermeneutics of virtuality." *European Review* 9, no. 02 (2001): 227-232.

Ablex, Norwood, NJ; Thorndike, E. L., & Woodworth, R. S. (1901). The influence of improvement in one mental function upon the efficacy of other functions. *Psychological Review*, 8, 247-261.

Anderson, Craig A., Akiko Shibuya, Nobuko Ihori, Edward L. Swing, Brad J. Bushman, Akira Sakamoto, Hannah R. Rothstein, and Muniba Saleem. "Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review." *Psychological bulletin* 136, no. 2 (2010): 151.

__. (2004). An update on the effects of violent video games. Journal of Adolescence, 27, 113–122.

___, Berkowitz, L., Donnerstein, E., Huesmann, L. R., Johnson, J., Linz, D., Wartella, E. (2003). The influence of media violence on youth. Psychological Science in the Public Interest, 4, 81–110.

____, & Bushman, B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. Psychological Science, 12, 353–359.

____, & Bushman, B. J. (2002). Human aggression. Annual Review of Psychology, 53, 27–51.

____, & Carnagey, N. L. (2004). Violent evil and the general aggression model. In A. Miller (Ed.), The social psychology of good and evil (pp. 168 –192). New York, NY: Guilford.

____, Carnagey, N. L., Flanagan, M., Benjamin, A. J., Eubanks, J., & Valentine, J. C. (2004). Violent video games: Specific effects of violent content on aggressive thoughts and behavior. Advances in Experimental Social Psychology, 36, 199 –249.

____, & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. Journal of Personality and Social Psychology, 78, 772–790.

____, Gentile, D. A., & Buckley, K. E. (2007). Violent video game effects on children and adolescents: Theory, research, and public policy. New York, NY: Oxford University Press.

____, & Huesmann, L. R. (2003). Human aggression: A social– cognitive view. In M. A. Hogg & J. Cooper (Eds.), Handbook of social psychology (pp. 296 –323). London, England: Sage. Anderson, C. A., Lindsay, J. J., & Bushman, B. J. (1999). Rese

Adorno, Theodor and Horkheimer, Max. "The Culture Industry: Enlightenment as Mass Deception." *The Dialectic of Enlightenment*. Trans. John Cumming. London: Verso, 1997.

Atencia-Linares, P. (2011). Pictures, Bytes and Values: An Interview with Dominic McIver Lopes. *Postgraduate Journal of Aesthetics*, *8*(2).

Bartle, Richard. "Hearts, clubs, diamonds, spades: Players who suit MUDs." *Journal of MUD research* 1, no. 1 (1996): 19.

Becker, Howard S. 1963. Outsiders. New York: Free Press.1982. Art Worlds. Berkeley and Los Angeles: University of California Press.

Belman, J. & Flanagan, M. "Designing Games to Foster Empathy." Cognitive Technology Journal 14(2) 2010, 5-15.

Benjamin, Walter. "The Work of Art in the Age of Mechanical Reproduction." *Illuminations*. London: Fontana, 1973. 219–53.

Berenguer, J. (2007) The effect of empathy in proenvironmental attitudes and behaviors. Environment and Behavior, 39(2), 269-283.

Best, Joel, and David Luckenbill. 1982. Organizing Deviance. Englewood Cliffs, N.J.: Prentice-Hall.

Binkley, Timothy. "The quickening of Galatea: Virtual creation without tools or media." *Art Journal* 49, no. 3 (1990): 233-240.

Blumenberg, Hans. *Paradigms for a Metaphorology*. Cornell University Press, 2010.

Boden, M. A. (2009). Computer models of creativity. *AI Magazine*, *30*(3), pp.23.

____. *The creative mind: Myths and mechanisms*. Psychology Press, 2004.

Caillois, Roger, and Meyer Barash. *Man, play, and games*. University of Illinois Press, 1961.

Castronova, Edward. "Real products in imaginary worlds." (2005).

____. *Synthetic worlds: The business and culture of online games*. University of Chicago press, 2008.

Chen, Jenova. Chat notes about Video Game, Art and Digital Medium. Jenova's Blog. 7 May 2008.

Clarke, Andy, and Grethe Mitchell. *Videogames and art*. Intellect books, 2007.

Connolly, Thomas M., Elizabeth A. Boyle, Ewan MacArthur, Thomas Hainey, and James M. Boyle. "A systematic literature review of empirical evidence on computer games and serious games." *Computers & Education* 59, no. 2 (2012): 661-686.

Currie, Gregory. "Tragedy." *Analysis 70* (2010): 632-638.

Curtis, Benjamin L., and Darrin Baines. "What Is an Antique?." *The Journal of Aesthetics and Art Criticism* 74, no. 1 (2016): 75-86.

Darwin, Charles. *The Descent of Man and Seletion in Relation to Sex*, 1883.

Davies, David. *Philosophy of the performing arts*. Vol. 3. John Wiley & Sons, 2011.

Davies, Stephen. "Philosophical perspectives on music's expressiveness." *Music and emotion: Theory and research* (2001).

___. *Musical works and performances: A philosophical exploration*. Clarendon Press, 2001.

____. *Themes in the Philosophy of Music*. Oxford University Press, 2003.

____. "Versions of musical works and literary translations" in Stock, Kathleen, ed. *Philosophers on music: experience, meaning, and work*. Oxford University Press, 2007.

D'cruz, Jason, and P. D. Magnus. "Are digital images allographic?." The Journal of Aesthetics and Art Criticism 72, no. 4 (2014): 417-427.

Detterman, D.K. & Sternberg, R.J. (Eds). 1993s. Transfer on Trial: Intelligence, Cognition, and Instruction.

De Koven, Bernard. *The well-played game: A player's philosophy*. MIT Press, 2013.

Devine, Theresa Claire, William Andrew Presnell, and Samuel Miller. "Games as Art and Kant's Moral Dilemma What Can Ethical Theory Reveal About the Role of the Game Designer as Artist?." *Games and Culture* 9, no. 4 (2014): 277-310.

Díaz, Carlos Mauricio Castaño, and Worawach Tungtjitcharoen. "Art Video Games Ritual Communication of Feelings in the Digital Era." *Games and Culture* 10, no. 1 (2015): 3-34.

Dickie, George. 'The Myth of the Aesthetic whatever. Attitude', American Philosophical Quarterly ' Michael McGhce, 'A Fat Worm of Error?', (1964) – as found in Zangwell (1992).

____. *The art circle: A theory of art*. Haven, 1984.

___. *Art and the Aesthetic: An Institutional Analysis*. Ithaca, NY: Cornell University Press, 1974.

Difede, Joann and Hunter G. Hoffman. Cyber Psychology & Behavior. July 2004, 5(6): 529-535.

Dipert, Randall R. "Artifacts, art works, and agency." (1993).

Dodd, Julian. "Musical works as eternal types." *British Journal of Aesthetics* 40, no. 4 (2000): 424- 440.

Eldakar, Omar Tonsi and David Sloan Wilson. "Selfishness as second-order altruism" *PNAS* (2008) 105: 6982-6986.

Feagin, Susan L. "Empathizing as Simulating." *Empathy–Philosophical and Psychological Perspectives, Oxford* (2011): 149-161.

Ferguson, C. J. (2007a). Evidence for publication bias in video game violence effects literature: A meta-analytic review. Aggression and Violent Behavior, 12, 470 – 482.

___. (2007b). The good, the bad and the ugly: A meta-analytic review of positive and negative effects of violent video games. Psychiatric Quarterly, 78, 309 –316.

Flusser, Vilem, and John Cullars. "On the word design: An etymological essay." *Design Issues* 11, no. 3 (1995): 50-53.

Franssen, Maarten, Lokhorst, Gert-Jan and van de Poel, Ibo, "Philosophy of Technology", *The Stanford Encyclopedia of Philosophy* (Fall 2015 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/fall2015/entries/technology/>. Accessed December 2017.

Friedman, Ted. "Making sense of software: Computer games and interactive textuality." *Cybersociety; Computer-Mediated Communication and Community. Thousand Oaks, Calif.: Sage Publications* (1995).

Friend, Stacie. "VIII—Fiction as a Genre." In *Proceedings of the Aristotelian Society (Hardback)*, vol. 112, no. 2pt2, pp. 179-209. Blackwell Publishing Ltd, 2012.

Frome, Jonathan. "The ontology of interactivity." In *Proceedings of the Philosophy of Computer Games Conference*. 2009.

Gaut, Berys. *A philosophy of cinematic art*. Cambridge University Press, 2010.

____. "The paradox of horror." *Arguing about art: contemporary philosophical debates* (2007): 317.

Goodman, Nelson. Languages of art: An approach to a theory of symbols. Hackett publishing, 1976.

Gracyk, Theodore. *Rhythm and noise: An aesthetics of rock*. IB Tauris, 1996.

Grau, Oliver. *Virtual Art: From Illusion to Immersion*. Trans. Gloria Custance. Cambridge, MA: MIT Press, 2003.

Hatfield, Daemon (19 July 2010). "Limbo Review" URL: http://www.ign.com/articles/2010/07/19/limbo-review-3. Accessed February 2017.

Hervey, Mary (1900). *Holbein's Ambassadors: The Picture and the Men*. London: George Bell and Sons.

Hocking, C. "Ludonarrative dissonance in Bioshock. Retrieved from h ttp." *clicknothing. typepad. com/click_nothing/2007/10/ludonarrative-d. html* (2007).

Hilpinen, Risto. "On artifacts and works of art." *Theoria* 58, no. 1 (1992): 58-82.

___."Artifact," The Stanford Encyclopedia of Philosophy (Fall 2004-Edition), ed. Edward N. Zalta, URL: http://plato.stanford.edu/archives/fall2004/entries/artifact). Accessed December 2017.

Huizinga, Johan (1938). Homo Ludens: Proeve Ener Bepaling Van Het Spelelement Der Cultuur. Groningen, Wolters-Noordhoff cop. 1985. Original Dutch edition.

____. (1955). Homo ludens; a study of the play-element in culture. Boston: Beacon Press.

Hurka, Thomas. "Suits on Games: Slightly Restricted, Slightly Revised." *Presentado en Games, Play, and Sports: After Suits, University of Toronto. https://www. humanities. utoronto. ca/uploaded_files/content/1630/file/Hurka_Suits_on_games. pdf* (2015).

Irvin, Sherri. *Installation art and performance: a shared ontology*. na, 2012.

Juul, Jesper. *The art of failure: An essay on the pain of playing video games*. Mit Press, 2013.

____. "Introduction to Game Time/Time to Play: An examination of game temporality." *First Person: New Media as Story, Performance and Game* (2004): 131-142.

Kania, Andrew. "Making tracks: The ontology of rock music." *The Journal of Aesthetics and Art Criticism* 64, no. 4 (2006): 401-414.

Johnson, Steven. *Everything bad is good for you: How today's popular culture is actually making us smarter*. Penguin, 2006.

Kamaraju, V., and R. L. Narasimham. *Linear Systems: Analysis And Applications*. IK International Pvt Ltd, 2009.

Kant, *Critique of Judgement* (Clarendon Press, 1928), pp. 42-43.

Kivy, Peter. "Platonism in Music." *Grazer Philosophische Studien* 19 (1983): 109-129.

Laetz, B. (2010). Kendall Walton's 'Categories of Art': A Critical Commentary. *The British Journal of Aesthetics*, *50*(3). Pp. 287-306.

Levinson, Jerrold. 'Indication, Abstraction, and Individuation', in, Mag Uidhir, Christy, ed. *Art and abstract objects*. Oxford University Press, 2013, 51.

____. 'What a Musical Work is, Again', in his *Music, art, and metaphysics: essays in philosophical aesthetics*. Ithaca, NY and London: Cornell University Press, 1990.

Ley, David, and Roman Cybriwsky. "Urban graffiti as territorial markers." *Annals of the association of American geographers* 64, no. 4 (1974): 491-505.

Lippard, Lucy R. *Six years: the dematerialization of the art object from 1966 to 1972...* Vol. 364. Univ of California Press, 1973.

Lopes, Dominic. *Beyond art*. Oxford University Press, 2014.

___. *An empathic eye*. Oxford: Oxford University Press, 2011.

____. *A philosophy of computer art*. Routledge, 2010.

____. "The ontology of interactive art." *Journal of Aesthetic Education* (2001): 65-81.

Maes, Hans. "Art or porn: clear division or false dilemma?." *Philosophy and literature* 35, no. 1 (2011): 51-64.

Maes, Hans, and Jerrold Levinson. "Art and Pornography: Philosophical Essays." (2015). Mag Uidhir, Christy. *Art and abstract objects*. Oxford University Press, 2012.

Manovich, L. (2002a). The language of new media. MIT press.

____. (2002b); New media from borges to html.

____. (2013). Software takes command. Bloomsbury USA Academic.

Matravers, Derek, 2000, "The Institutional Theory: A Protean Creature," *British Journal of Aesthetics*, 40: 242–250.

___. "Empathy as a Route to Knowledge." *Empathy: Philosophical and psychological perspectives* (2011).

McElroy, Justin. [Video Game Blogs](). Format Magazine - Pushing Play. 5 November 2008.

McNally, Louise. "Classification strategies and the semantics of gradable adjectives." In *Talk given at the 17th Amsterdam Colloquium*. 2007.

Melissinos, Chris, and Patrick O'Rourke. *The art of video games: From Pac-Man to mass effect*. New York, NY: Welcome Books, 2012.

Morton, Adam. "Empathy for the Devil." *Empathy: Philosophical and Psychological Perspectives* (2011): 318-330.
Newman, James. *Videogames*. Routledge, 2013, p. 134.

Nguyen, C. Thi. "Competition as Cooperation", *Journal of the Philosophy of Sport*, (2017). 44:1, 123-137.

Novitz, David. "Participatory art and appreciative practice." *The Journal of aesthetics and art criticism* 59, no. 2 (2001): 153-165.

Nowak, Martin A., ed. *Evolution, games, and god*. Harvard University Press, 2013.

Moynihan, Tim. "This Interactive Map of NYC is Made up of 180 Morphing Speakers." *Wired Magazine*. Oct. 2014.

Murray, Janet H. *Hamlet on the Holodeck*. Simon and Schuster, 2016.

Patridge, Stephanie. "Video Games and Imaginative Identification." *The Journal of Aesthetics and Art Criticism* 75, no. 2 (2017): 181-184.

Paul, Christiane. *Digital art*. London: Thames & Hudson, 2003.

Poole, Steven. *Trigger happy*. Skyhorse Publishing, Inc., 2013.

Preston, Dominic. "Some ontology of interactive art." *Philosophy & Technology* 27, no. 2 (2014): 267-278.

Prinz, Jesse. "Is empathy necessary for morality." *Empathy: Philosophical and psychological perspectives* 1 (2011): 211-229.

Robson, Jon, and Aaron Meskin. "Video Games as Self-Involving Interactive Fictions." *The Journal of Aesthetics and Art Criticism* 74, no. 2 (2016): 165-177.

Rossberg, Marcus. "Destroying Artworks." (2013) in Uidhir, Christy Mag, ed. *Art and abstract objects*. Oxford University Press, 2013, p.64-66.

Rothstein, H. R., Sutton, A. J., & Borenstein, M. (2005). Publication bias in meta-analysis: Prevention, assessment and adjustments: Chichester, England: Wiley.

Rough, Brock. "Are Videogames Art?" Ph.D. dissertation, Graduate School of the University of Maryland, College Park, 2016. DRUM DOI doi:10.13016/M2Q518.

___. "The Incompatibility of Games and Artworks." *Journal of the Philosophy of Games* 1, no. 1 (2017).

Rothbaum, Barbara O., Larry F. Hodges, David Ready, and Renato D. Alarcon. "Virtual reality exposure therapy for Vietnam veterans with posttraumatic stress disorder." *The Journal of clinical psychiatry* 62, no. 8 (2001): 617-622.

Rowlands, John (1985). *Holbein: The Paintings of Hans Holbein the Younger*. Boston: David R. Godine.

Runco M. Creativity. Annual Review of Psychology 2004; 55:657–87.

Saltz, David Z. "The art of interaction: Interactivity, performativity, and computers." *The Journal of Aesthetics and Art Criticism* 55, no. 2 (1997): 117-127.

Schummer, Joachim. "Aristotle on technology and nature." *Philosophia naturalis* 38, no. 1 (2001): 105-20.

Searle, John R. "Twenty-one years in the Chinese Room." (2002).

____. "Is the brain's mind a computer program." *Scientific American* 262, no. 1 (1990): 26-31.

Seel, Martin. *Aesthetics of appearing.* Stanford University Press, 2005.

Shannon, Claude E. "Communication theory of secrecy systems." *Bell Labs Technical Journal* 28, no. 4 (1949): 656-715.

Shapiro, J., Morrison, E., & Boker, J. (2004). Teaching Empathy to First Year Medical Students: Evaluation of an Elective Literature and Medicine Course. Education for Health: Change in Learning & Practice, 17(1), 73- 84.

Sherry, J. L. (2001). The effects of violent video games on aggression: A meta-analysis. Human Communication Research, 27, 409 – 431.

Sicart, Miguel. *Play matters.* MIT Press, 2014.

____. *The ethics of computer games*. MIT Press, 2011.

Silfer, Kyle. Applied Ludology: Art games and game art. Alibi. V.16, No.28. Feature Archive. July 12–18, 2007.

Simonton, Dean Keith. "Creative thought as blind-variation and selective-retention: Combinatorial models of exceptional creativity." *Physics of life reviews* 7, no. 2 (2010): 156-179.

Smith, Murray. "Empathy, expansionism, and the extended mind." *Empathy: Philosophical and psychological perspectives* (2011): 99-117.

Smuts, Aaron. "What is interactivity?." *The Journal of Aesthetic Education* 43, no. 4 (2009): 53-73.

____. 2007. The paradox of painful art. *The Journal of Aesthetic Education*, *41*(3), pp.59-76.

____. "Are Video Games Art?." *Contemporary Aesthetics* 3 (2005).

Stalker, Phillipa Jane. *Gaming In Art: A Case Study Of Two Examples Of The Artistic Appropriation Of Computer Games And The Mapping Of Historical Trajectories Of 'Art*

Games' Versus Mainstream Computer Games. University of the Witwatersrand, Johannesburg. 2005.

Squire, Kurt. "Cultural framing of computer/video games." *Game studies* 2, no. 1 (2002): 1-13.).

Suits, B. "1990." *The Grasshopper: Games, life and Utopia. Boston: David R. Godine* (1978).

___. "Games and their institutions in The grasshopper." *Journal of the Philosophy of Sport* 33, no. 1 (2006): 1-8.

Suits, Bernard. *The Grasshopper-: Games, Life and Utopia*. Broadview Press, 2014.

Sutton, J., Smith, P. & Swettenham, J. (1999). Bullying and theory of mind: A critique of the social skills deficit view of anti-social behavior. Social Development, 8(1), 117-127.

Tamblyn, Christine. "Computer art as conceptual art." *Art Journal* 49, no. 3 (1990): 253-256.

Tavinor, Grant. "What's My Motivation? Video Games and Interpretative Performance." (2017).

___. "Art and Aesthetics." *The Routledge Companion to Video Game Studies* (2014).

____."Video games as mass art." *Contemporary Aesthetics* 9 (2011).

____."Definition of videogames." *Contemporary Aesthetics* 6 (2008).

Thomasson, Amie. *The ontology of art*. Malden, MA: Blackwell, 2004.

Thomson-Jones, Katherine, "The Philosophy of Digital Art", The Stanford Encyclopedia of Philosophy (Spring 2015 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2015/entries/digital-art/>.

Verbeek, Peter-Paul, and Pieter E. Vermaas. *Technological artifacts*. Wiley-Blackwell, 2009.

Von Wright, Georg Henrik. "Norm and action: a logical enquiry." (1963).

Walton, K. L. (1970). Categories of art. *The philosophical review*. P.334-367.

Weimer, Steven. "Consent, context, and obligations: a response to Ciomaga." *Journal of the Philosophy of Sport* 41, no. 2 (2014): 233-245.

____. "Consent and right action in sport." *Journal of the Philosophy of Sport* 39, no. 1 (2012): 11-31.

Wentworth, D.R. & Lewis, D.R. (1973). A review of research on instructional games and simulations in social studies education. Social Education. p. 432-440.

Wilson, David Sloan. *Does altruism exist?: culture, genes, and the welfare of others*. Yale University Press, 2015.

Wilson, David Sloan, and Elliott Sober. "Reintroducing group selection to the human behavioral sciences." *Behavioral and brain sciences* 17, no. 04 (1994): 585-608.

Wimsatt, William K., and Monroe C. Beardsley. "The intentional fallacy." *The Sewanee Review* 54, no. 3 (1946): 468-488.

Wolf, Mark JP, and Bernard Perron, eds. *The Routledge Companion to Video Game Studies*. Routledge, 2014.

____. "Chapter 1: What Is a Video Game?." (2007).

Wolterstorff, Nicholas. "Toward an ontology of art works." *Nous* (1975): 115-142.

Young, Nora & Misener, Dan. Repeat of Spark 126 – October 16 & 19, 2011: Games as Art (Podcast available: Games as Art). Spark. 7 November 2010.

Zangwill, Nick. "The creative theory of art." *American Philosophical Quarterly* (1995): 307-323.

____. "UnKantian notions of disinterest." *British Journal of Aesthetics* 32, no. 2 (1992): 149-152.

Zeimbekis, John. "Digital pictures, sampling, and vagueness: The ontology of digital pictures." The Journal of Aesthetics and Art Criticism 70, no. 1 (2012): 43-53.

Zwingenberger, Jeanette (1999). *The Shadow of Death in the Work of Hans Holbein the Younger*. London: Parkstone Press.