

Title: An investigation of new musical potential in videogames

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(Honours).

## **Statement of Originality**

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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## Abstract

Unlike traditional artistic endeavours such as literature, painting or sculpture, videogames and their creation, according to Janet Murray, are still in an incunabular period<sup>i</sup>. Various efforts have been made to view videogames in light of other media such as film and narrative while few have yet to address, specifically, ways in which videogames present unique opportunities for expression. This thesis draws upon a number of authors to identify areas unique to videogames, and examines the implications for the employment of music within them. After examining the case for videogame uniqueness, the thesis looks to the current musical paradigm within videogames and, finding it somewhat lacking, offers a critique of the paradigm. A number of games that do, however, break from tradition and utilise music in exceptional ways are then discussed and their potential for adoption in future games is assessed. The final component of the thesis is an investigation into the use of music within the Xbox videogame *Halo 2* (2004) through discussion with the composer, Martin O'Donnell, and an analysis of the music and sound of the game. In the process I discover that the game uses music in a way similar to the dominant paradigm, while also exhibiting a musicality within the in-game sound effects and level ambience. The result is a 'soundscape' style approach well suited to attaining both the emotive power of linear compositions as well as a closer relationship between music and visuals, seemingly a 'best of both worlds' videogame musical approach.

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<sup>i</sup> Janet Murray, *Hamlet on the Holodeck : The Future of Narrative in Cyberspace*, New York: Free Press, 1997, p.28

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# Chapter 1 - Introduction

## 1.1 Introduction – Randy Balma: Municipal Abortionist

In late May of 2008 I downloaded a short, independently produced videogame by an artist named Messhof<sup>1</sup>. On playing it, my raucous laughter attracted the attention of my younger brother who was intrigued by my reactions to the game. I had to give him a turn at it, or perhaps more accurately inflict the game upon him. The message that Messhof was communicating through the game shone out especially clearly to me, and much as one does upon encountering great art, I couldn't resist evangelising it to others. Veteran games journalist Alec Meer describes the game as being 'aimed dead-centre at the brain's pain-spots'<sup>2</sup> and I am hard pressed to find a more apt description. Rapidly cycling primary colours blend together when flashed at speeds higher than normal computer monitors can handle resulting in a mess of jagged, broken visuals. On top of that, headache inducing sounds disconnected from their propagating sources add to the assault on the senses. It is clear that this is no ordinary, mainstream videogame. Part punishment, part surreal psychotic trip, the game is a test of the limits of player frustration and annoyance. It is also the very first game that I would point to when attempting to demonstrate the inimitable potential inherent within videogames as a medium for expression, and it is called *Randy Balma: Municipal Abortionist*.

It is a surreal mish-mash of a game that purposely emulates the aesthetic of titles from the 8-bit era of the early 90s and has more in common with tales of bad psychotic episodes than it does with media that depict controversial subject matter like abortion. I read the game as a unique abstraction of the life of the titular Randy Balma. At the beginning of the game the player is shown a short expository introduction scene in which presumably 'Randy' appears, depicted from the shoulders up in blocky, retro styled graphics, as a bright yellow man with balding white hair in front of an unsettled cyan and black background - the aesthetic style announcing itself loudly from the outset. Via the means of this grating aesthetic we, the player, are shown that

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<sup>1</sup> Real name Mark Essen.

<sup>2</sup> Alec Meer, 'Randy Balma: Municipal Abortionist', *Rock Paper Shotgun*, <http://www.rockpapershotgun.com/2008/05/26/randy-balma-municipal-abortionist/>, accessed May 26, 2008.

something is clearly wrong with Mr Balma, and this impression is further reinforced by a see-sawing stream of consciousness style exposition which proceeds across the screen in clashing red lettering,

‘i feel like i been awake before but i can’t be sure and i’m drugged up on drugs and i think they are affecting me’<sup>3</sup>

From the centre of the screen, spiralling outwards, comes a grey fog, which leaves to reveal the first level of the game. By this point there is a high chance that a first time player will have become confused or at the very least bewildered, especially if they are someone with limited previous experience with videogames. *What the hell was that?* I myself wondered as the brief introduction reached its conclusion. Immediately following, the player is given control of a bright yellow school bus in the midst of a river of scarlet cars. The player starts to drive, pointed in one direction by a white arrow, the only explicit instruction the player ever receives with the introduction lending few clues about what might be motivating this drug influenced man. There isn’t even an explanation for why he is driving a school bus along a crowded highway. Instead, we are plunged immediately into the game world from Randy Balma’s point of view and in so doing, are give an experience which seems singularly ‘videogamey’.

Inevitably at some stage the player will bump into one of the scarlet coloured cars at which point they will be confronted, not with the expected ‘crunch’ of bus-on-car, but instead a cacophony of cymbal crashes. *Is this what Randy Balma is actually hearing? Are the drugs in his system giving him these auditory hallucinations?* Crashed cars often slide off into oncoming traffic only to cause *more* audible mayhem. The way that the game manipulates cause and effect – often severing normal relationships or massively inflating one side of the equation – is just one method the game utilizes which hints at what I believe is unique about videogames, what Ian Bogost has described as *procedural rhetoric*, a topic which will be returned to and discussed in greater detail in Chapter 2. Randy Balma is, in my own view, an exceptional videogame.

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<sup>3</sup> Text taken from the Introduction to *Randy Balma: Municipal Abortionist*.

And yet, in spite of all of my claims of amazing originality and of its significance as a game, a number of aspects of the music in *Randy Balma* leave something to be desired. While the few tracks that the game employs adequately fulfil the stylistic and functional aims of the game, working to contribute to the general sense of unease and of sensory overload, the music remains strictly linear, employing none of the interactivity and potential for non-linearity that is so crucial a part of the medium. This seems to me the crux of the issue, and indeed the central question of this thesis stems from the following paradox; if game designers can make significantly interactive and non-linear games and indeed recognise that this is one of the medium's greatest strengths, why do videogames overwhelmingly still employ linear music in a way that functions by simply playing from A to B? What does this reveal about the current musical paradigm, and what are the alternatives? In this thesis I will outline why I believe that by changing the way games employ music, videogame artists and designers can substantially increase the potential impact that music has in videogames, by using music in a way that reflects the uniqueness of the medium. I will present a summary of musical approaches from a number of current videogames that break from the present paradigm and analyse the music of an exemplary game that is largely within the current paradigm. This process will hopefully provide new insights into how and why music can be used in videogames.

## 1.2 Aims of the Project and Overview of Chapters

The original conceit of this project is a belief that videogames are a new medium for creative expression, and as mentioned in the first section, I believe that *Randy Balma: Municipal Abortionist* is a particularly fine example of a game that has attained some of this potential. *Randy Balma* does and says things to a player which could not have been conveyed through a non-interactive medium; the game provides a potentially negative experience with which the player is forced to engage as part of the game. While it borrows heavily from concepts gleaned from other media – sound design arguably influenced by noise music<sup>4</sup>, the visual aesthetic influenced by psychotic episode film-tropes – its combination of these with the interactivity of videogames, I

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<sup>4</sup> L.B. Jeffries, 'Randy Balma: Municipal Abortionist', *PopMatters*,

<http://www.popmatters.com/pm/review/62190/andy-balma-municipal-abortionist/>, accessed August 22, 2008.

believe, combines into a uniquely effective concoction. Yet, as previously mentioned, *Randy Balma* does little to further the use of music in videogames as distinct from its use in other media. Outlining the space within which music can be employed within videogames in a way uniquely appropriate to the medium is the central aim of this thesis.

The issue will be approached from two sides – firstly through an examination of a number of current theories of the nature of videogames, with the aim of providing a solid understanding of the differences from other media. The writings of Ian Bogost whose work in engaging with critical approaches to videogames presents a rather unique approach to games *qua* games rather than merely games *qua* stories or narratives will take a central role in providing a frame for the project. His concepts of ‘unit operations’ and ‘simulation fever’ will be explored for what they contribute to our understanding to videogames. Additionally his assertion that games have within them the potential for a unique rhetorical method of persuasion, which he accordingly labels ‘procedural rhetoric’, also locates games in a space uniquely their own. The discussion contained within Marie-Laure Ryan’s book *Narrative as Virtual Reality* presents a number of interesting possibilities for the application of virtual reality theory to videogames, with a particular focus on games that employ a first person perspective. Of particular interest is a chapter on ‘The Text as World’ in which Ryan elaborates on the theory of ‘possible worlds’ as way of understanding literature. The metaphor of ‘Text as World’ seems almost serendipitously applicable to videogames at large, which often have at their core a representation of a relatively consistent three dimensional world. The influence that a number of these theories and conceptions of videogames have had on my own conclusions about the use of music should also be noted, with the initial investigation springing out of a belief in the uniqueness of videogames, leading to a desire to see this addressed within the sphere of music for videogames. However, game developers and composers themselves often view the paradox of a linear medium, such as music, used within a decidedly non-linear game as a ‘problem’ at all – after all videogames are hardly undergoing anything that could be called a crisis of identity or market-share. The proverb ‘If it ain’t broke, don’t fix it’ comes to mind.

This conflict between the linearity of music and the non-linearity of videogames will be explored in Chapter 3, and I begin by exposing the predominant paradigm shaping videogame music in the industry to date. I describe the paradigm as, at best, one that simply fails to take advantage of the full potential of the medium and at worst one that represents an unnatural ‘grafting in’ of a musical tradition that has itself attracted its own fair share of criticism and cultural baggage. I will apply a critique by questioning the conception of music revealed by the current videogame musical paradigm. I will make use of a brief survey of non-western musical traditions and their alternative understandings of music as a foil from which to demonstrate how skewed towards the western classical tradition the majority of videogames have been. Interleaved with this discussion are suggestions of areas of inspiration and potential alternatives that videogame developers and designers could borrow from, including the areas of live electronic music and aleatoric or process music.

Because the term ‘videogame’ is a very all-encompassing one, including an almost impossibly large range of games from a diverse number of genres, I will place the focus on what I have identified as the dominant model from which music in first person perspective videogames (more commonly identified as First Person Shooter or FPS) are used. I will then discuss three particular games which use music in ways that are novel for their difference from the current dominant paradigm and in ways that are largely unique to videogames. In other words, the experience created by the use of music in the games *Guitar Hero*<sup>5</sup>, *Audiosurf*<sup>6</sup> and *Everyday Shooter*<sup>7</sup> could not be replicated in other media.

In Chapter 4 I will detail the results of my research and musical analysis of the Xbox videogame *Halo 2*, a much more mainstream game than *Randy Balma*, but one which I also think is an exemplary candidate for utilising music in a uniquely videogame way. The research undertaken in this chapter involved both a close play through of the game and an interview with the composer, in an effort to pin down how *Halo 2* employs music, and to what ends. The ensuing conversation with the composer, Marty

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<sup>5</sup> Harmonix Music Systems, *Guitar Hero*, RedOctane, 2005.

<sup>6</sup> Dylan Fitterer, *Audiosurf*, Valve Corporation, 2008.

<sup>7</sup> Queasy Games, *Everyday Shooter*, Sony Computer Entertainment, 2007.

O'Donnell, revealed that his own personal musical philosophy has left its mark on the game and that while it may not be as 'non linear' as it seems at first glance, it raises some questions about the necessity for any more the current paradigm. However, in the process of analysing the music of the game, I discover that with redefined idea of what constitutes music, *Halo 2* presents an excitingly unique approach to employing music in games. Specifically by blurring the boundaries between music, location ambience and sound effects, and by imbuing the visually synchronised sound effects with inherent musicality a new relationship between audio and visuals is explored. This approach presents the most uniquely videogame approach to music and sound yet, and presents an interesting area for further investigation.

The final chapter will present a summary of the thesis's arguments for a new musical approach to videogames, drawing together the theoretical underpinnings and relating them to the practical examples given in Chapter 3. I will suggest that a new way of looking at music and sound within videogames is needed, in order to realise more fully the expressive potential of the medium.

## Chapter 2 - Game Theory

### 2.1 Chapter Overview

In this chapter I aim to provide a theoretical basis for the argument that videogames possess unique characteristics with implications for their use of music. The issue is not as straight forward as it may seem, as there is a very real dearth of critical writing addressing music in videogames at all and as the authors of one proposed critical framework for videogame analysis have said, “While it’s often necessary to focus on one area, everyone, regardless of discipline, will at some point need to consider issues outside that area”<sup>8</sup>. Consequently, a comprehensive overview of the subject area is not feasible with any discussion of the nature of videogames having to include the now infamous narratology/ludology argument, which in itself could easily be the subject of a whole book. And yet, I cannot ignore the fact that my own argument as to where music in videogames have been lacking stems from a particular understanding of the nature of videogames, one which has been heavily shaped by a very particular conception of videogames. In this chapter I aim to present the main works that have informed my notions of what a videogame is, in the hope that it will provide a solid platform on which to build my argument on in Chapter 3.

The authors from whom I will draw heavily come in pairs, the first of which are Ian Bogost and Gonzalo Frasca who have worked closely together in their efforts to define a space for videogames as a field of study separate from linear media such as film. I will introduce a number of concepts from Bogost’s first two books which target what Frasca has also hinted at inasmuch as it pertains to the nature of videogames, namely the issue of interactivity inherent within computational media and its associated implications. The second pair of authors is Marie-Laure Ryan and Espen Aarseth, who have separately addressed notions of interactivity and how they have affected literature. This discussion will provide a comparative basis for my later investigation into music and interactivity in Chapter 3, as many of the same issues facing interactive literature we will see are paralleled within music and discussions of

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<sup>8</sup> Hunicke, et al., ‘MDA: A Formal Approach to Game Design and Game Research’, Available at <http://www.cs.northwestern.edu/~hunicke/pubs/MDA.pdf>, accessed May 21, 2008, p.1

musical interactivity. In Chapter 3 these implications will be examined in the context of a number of current applications of music in videogames.

## 2.2 Gonzalo Frasca and Ian Bogost – Videogames as Simulation

Gonzalo Frasca is often credited with coining the term ‘ludology’ with his challenging journal article ‘Ludology meets Narratology: Similitude and differences between (video)games and narrative’<sup>9</sup> as a means of describing what was at the time, and in many ways still is, an emerging area of study. Frasca is certainly not without his critics<sup>10</sup>, but there are few others that could claim to have considered videogames as an area of independent study before him. Frasca writes in an essay for ‘*The Videogame Theory Reader*’ that “So far, the traditional –and most popular– research approach from both the industry and the academy has been to consider video games as extensions of drama and narrative.”<sup>11</sup> In order to highlight the uniqueness of a certain aspect of the nature of games, Frasca states that:

Representation is such a powerful and ubiquitous form that it has become transparent to our civilization. ... This is especially true with a particular form of structuring representation: narrative.<sup>12</sup>

He goes on to say that due to its ubiquity people have a very hard time accepting “that there is an alternative to representation and narrative: simulation.”<sup>13</sup> Simulation is by no means unique to videogames, however, and he provides some excellent examples of where simulation is present outside of computation. For example, in a children’s

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<sup>9</sup> Gonzalo Frasca, ‘Ludology meets Narratology’, *www.ludology.org*, Finnish version originally published in Parnasso#3, Helsinki, 1999, available at <http://www.ludology.org/articles/ludology.htm>, accessed June 11, 2008.

<sup>10</sup> Celia Pearce, ‘Theory Wars: An Argument Against Arguments in the so-called Ludology/Narratology Debate’, from the proceedings of DiGRA (Digital Games Research) 2005 Conference: Changing Views – Worlds in Play, <http://egg.lcc.gatech.edu/publications/PearceDiGRA05.pdf>, accessed October 10<sup>th</sup>, 2007.

<sup>11</sup> Frasca, ‘Simulation vs. Narrative: Introduction to Ludology’ in Mark J.P. Wolf and Bernard Perron, Eds., *The Video Game Theory Reader*, p.221, also available as a PDF at: [http://www.ludology.org/articles/VGT\\_final.pdf](http://www.ludology.org/articles/VGT_final.pdf)

<sup>12</sup> Ibid., p.222-223

<sup>13</sup> Ibid., p.223

game a toy plane *becomes* a plane in their imagination, rather than simply representing one. Frasca says that,

To simulate is to model a (source) system through a different system which maintains to somebody some of the behaviors of the original system.<sup>14</sup>

In the example of a child playing with a toy plane, the toy is modelling the behaviour of a real plane and while it may not actually fly, when the child is whooshing it through the air, to him or her it may as well be. Even if a story is created about what happens with the plane, the ‘game’ itself is still simulating a plane – an important distinction. The ‘*to somebody*’ part of Frasca’s definition in this case is obviously the child and indeed to someone not engaged in the simulation the toy remains just that – a toy. To contrast this idea and demonstrate its difference from narrative – Frasca says that

A film about a plane landing is a narrative: an observer could interpret it in different ways (i.e. “it’s a normal landing” or “it’s an emergency landing”) but she cannot manipulate it and influence how the plane will land since film sequences are fixed and unalterable. On the other hand, the flight simulator allows the player to perform actions that will modify the behavior of the system in a way that is similar to the behavior of the actual plane.<sup>15</sup>

In addition, it is also difficult to acknowledge the difference between simulation and narrative from outside the simulation. Frasca notes that

To an external observer, the sequence of signs produced by both the film and the simulation could look exactly the same. ...simulation cannot be understood just through its output.<sup>16</sup>

That is, a flight simulator cannot be judged and evaluated as a simulation by simply watching it run – the *experience* of controlling the simulation is entirely different from the experience of watching it. Frasca also notes the difference in experience from linear media that videogames provide. He proposes that while in linear media “Aristotelian closure” is the source of ‘the user’s pleasure’<sup>17</sup>, in a simulation,

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<sup>14</sup> Ibid.

<sup>15</sup> Ibid., p.224

<sup>16</sup> Ibid.

<sup>17</sup> Ibid., p.229

The gratification...is not the one of the professional actor but rather the one of the child who plays make-believe. The child is constantly adapting fantasy to different changes, without the grown-ups obsession with closure.<sup>18</sup>

As an interesting comparison think of the difference between something like *Hamlet* and your typical game of 'Theatresports'<sup>19</sup>. The former is a narrative and any attempts to incorporate interactivity would probably compromise its coherence, whereas the latter, if constrained by a script, loses much of the charm and appeal derived from its spontaneity. In Chapter 4 in conversation with the composer Marty O'Donnell, I will discuss what implications this uncertainty has on his music compositions, and how he deals with the issue.

Ian Bogost, a prolific writer on issues relating to the nature of videogames, has authored two books: *Unit operations: an approach to videogame criticism* and *Persuasive Games: The Expressive Power of Videogames*. In the former, Bogost coins the term 'unit operations' to describe a certain theoretical approach to game criticism, addressing what he sees as videogames intrinsic nature as a computational medium. He presents 'unit operations' as 'a general conceptual frame for discrete, compressed elements of fungible meaning'<sup>20</sup>, or 'modes of meaning-making that privilege discrete, disconnected actions over deterministic, progressive systems'<sup>21</sup>. In essence, Bogost is identifying the reductive, compartmentalised nature of videogames as 'simulations' and this idea goes hand in hand with the condition he labels 'simulation fever'. Simulation fever is itself the more useful concept, I believe it expands upon Frasca's ideas to further illuminate the unique nature of videogames. 'Simulation fever' is based upon Bogost's claim that 'objective simulation is a myth'<sup>22</sup>. In essence, he contends that, no matter the level of attention to detail paid by a simulation's designers, it will attain the complexity of the real world – indeed simulation is by

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<sup>18</sup> Ibid.

<sup>19</sup> Theatresports is an improvisational performance game along the lines of popular television series, 'Whose line is it anyway'. For a full definition, see <http://en.wikipedia.org/wiki/Theatresports>.

<sup>20</sup> Ian Bogost, *Unit Operations : An Approach to Videogame Criticism*, (Cambridge, Mass.: MIT Press, 2006), p.xiii

<sup>21</sup> Ibid, p.3

<sup>22</sup> Ibid, p.135

definition an abstraction by representation of something other – resulting in a dissatisfaction with the simulation. Simulation fever is described as the condition experienced by the player when they struggle, consciously or not, with ‘the omissions and inclusions of a source system’ and their ‘subjective response[s] to those decisions’<sup>23</sup>. Bogost says that games require a different approach when it comes to their analysis, as they ‘radically increase the importance of player response’<sup>24</sup>. He quotes the MIT professor and videogame author, Jesper Juul as saying that

...games disturb the relation between reader and story that narratives require. In a game, ‘the player inhabits a twilight zone where he/she is both an empirical subject outside the game *and* undertakes a role inside the game’...games implicate the player personally in the work.<sup>25</sup>

In his second, much longer book *Persuasive Games*, Bogost outlines the case for a similar facet of the nature of videogames and computational media. He asserts that the ‘ability to execute a series of rules fundamentally separates computers from other media’<sup>26</sup> and proposes that this ability gives them the potential to utilise a unique new form of rhetoric and expression that he calls ‘procedural rhetoric’. He suggests that an important characteristic of ‘procedural systems’ is the potential for them to ‘generate behaviours based on rule-based models’<sup>27</sup>. However, Bogost also makes the point that ‘procedure’ in and of itself is not monopolised by computers, saying that ‘when we do things, we do them according to some logic, and that logic constitutes a *process*’<sup>28</sup>. He says the uniqueness of computers and videogames resides in the ability for computational media to ‘[explain] process *with other processes*’<sup>29</sup>.

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<sup>23</sup> Ian Bogost, *Unit Operations*, (Cambridge, Mass.: MIT Press, 2006), p.132

<sup>24</sup> Bogost, *Unit Operations*, p.129

<sup>25</sup> Jesper Juul, “Games Telling Stories? A Brief Note on Games and Narratives”, *Game Studies* 1, no.1 (2001), <http://www.gamestudies.org/0101/juul-gts>, in Bogost, *Unit Operations*, p.67

<sup>26</sup> Bogost, *Persuasive Games: The Expressive Power of Videogames*, p.4

<sup>27</sup> *Ibid*, p.4

<sup>28</sup> *Ibid*, p.7

<sup>29</sup> *Ibid*, p.9

The writings of both Bogost and Frasca have significance for this discussion because they suggest that videogames have unique qualities that should be addressed in ways unique to them, and the following authors further this proposition.

### 2.3 Marie-Laurie Ryan and Espen Aarseth – Literature and Interactivity

One of the earliest academic texts to address issues of interactivity and indeed even videogames, from an academic perspective is Espen Aarseth and his oft cited book *Cybertext: Perspectives on Ergodic Literature*. Aarseth's thesis is an investigation of interactive literature, placing the concept of the Cybertext within a broader group of 'ergodic literature'. He says, 'In ergodic literature, nontrivial effort is required to allow the reader to traverse the text'<sup>30</sup> and throughout the book raises a number of important points about its differences from traditional texts such as linear literature. The important point of Aarseth's is the different positions that the reader (or user or player) occupies in a non-linear, or ergodic text, as opposed to in a straightforward narrative. He says,

A reader however strongly engaged in the unfolding of a narrative, is powerless. Like a spectator at a soccer game, he may speculate, conjecture, extrapolate, even shout abuse but he is not a player.<sup>31</sup>

In contrast, a Cybertext's reader is not "safe" and is instead engaged in the process of creating the text as he says it 'demands effort and energy... [raising] the stakes of interpretation to those of intervention'<sup>32</sup>. Aarseth says that some literary theorists have trouble grasping the inherent difference between literatures with an ambiguous meaning requiring reader interpretation (for example many *avant-garde* works) and the Cybertext with its requirement of direct intervention from the reader. He argues that they fail to 'perceive the difference between metaphorical structure and logical

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<sup>30</sup> Espen J. Aarseth, *Cybertext : Perspectives on Ergodic Literature*. Baltimore, Md.: Johns Hopkins University Press, 1997, p.1

<sup>31</sup> Aarseth, *Cybertext*, p.4

<sup>32</sup> Aarseth, *Cybertext*, p.4

structure<sup>33</sup>. This issue of an inability to perceive significant difference in the nature of a medium parallels Frasca's argument above.

In a slightly broader theoretical approach, in her book *Narrative as Virtual Reality* Marie-Laure Ryan discusses applying virtual reality concepts to textual media. Ryan discusses a project undertaken by Kendall Walton in his book *Mimesis as Make-Believe*. Ryan summarises his main points by describing them as a conception of how players treat objects of play, similar to Frasca and Bogost's ideas about simulation, and relates how they are worked out in a children's game. She says

...a group of children decide that stumps are to count as bears. The decision is arbitrary... In the game of make-believe, stumps do not signify absent bears, they are *seen as* present animals. ...Participating in the game means stepping into a world in which the real world proposition "There is a stump" is replaced by the fictional truth "There is a bear."<sup>34</sup> (Emphasis theirs)

This point highlights an important facet of the relationship between the 'game' and ourselves and it resonates with Frasca's earlier statement that simulations retain elements of a source system representative 'to somebody'. First person videogames can be treated as self contained virtual worlds with the same kind of "fictional truth" as any kind of children's game or written narrative world. However, the first person perspective game as a virtual differs from the narrative as virtual world. Specifically they are interactive to a degree that literature is not, (barring Aarseth's *ergodic* literature) and while many games may employ written text as a method of explicating a narrative, clearly the potential exists for telling stories in other ways.

*Half-Life 2* by Valve Software is a critically acclaimed first person shooter (FPS) game that gives the player a virtual self in which to move about and interact with the world. The game is also narrative-driven, with the player given a fictional role to enact, that of a MIT graduate Gordon Freeman, who survived the destruction of the fictional Black Mesa Research facility in the first *Half-Life* game. It attempts to simulate visually a cohesive world throughout and immerse the player within it. The point to be made here is that the *authoring* of the simulated world is quite different

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<sup>33</sup> Aarseth, *Cybertext*, p.4

<sup>34</sup> Marie-Laure Ryan, *Narrative as Virtual Reality : Immersion and Interactivity in Literature and Electronic Media*. Baltimore: Johns Hopkins University Press, 2001, p.107

from authoring a representational world. We can see this difference, and indeed its difficulty, as it was faced by the developers of *Half-Life*. They discuss how they integrate ‘teaching the player’ the rules of the simulation while structuring the game so that it still provides a narrative experience.

Robin Walker from Valve Software describes in an interview one example from very early on in *Half-Life 2* where the player is presumably still ‘learning’ how to interact with the world. At one point, the player’s progress is impeded by a metrocop, the *Half-Life* world’s version of a police officer, who tells the player to pick up an empty soft drink can before they can progress – thereby teaching the player how to pick up objects. The player cannot continue until they have picked up the can and put it in the garbage, however if you try and push past the cop, he palms you off, hitting the player with his stun baton. Walker says of this situation,

...we want you to press use, but at the same time you're [also] learning about the relationship between the Metro Cops and the players, and the way they use civilians. ...building this animosity between you and this character that eventually you'll be able to deal with when you get a weapon...<sup>35</sup>

The skilful blending of narrative and learning elements is an issue addressed by the author James Paul Gee in his book, *What videogames have to teach us about learning and literacy*. While this is a rich and interesting area of potential investigation, the more important implication for the current study is to note the fact that in *Half-Life*, the developers have essentially turned physical progression (in the above example, moving on past the metrocop) into narrative progression. This is a primary technique of many FPS games, including *Halo 2*, the object of analysis in chapter 4, where the implications of its narrative and musical pairing is investigated with relation to musical use in *Halo 2*.

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<sup>35</sup> Robin Walker quoted in Tom Bramwell, ‘Opening the Valve Interview’, *Eurogamer*, [http://www.eurogamer.net/article.php?article\\_id=65391](http://www.eurogamer.net/article.php?article_id=65391), accessed April 26<sup>th</sup>, 2008

## 2.4 Chapter Conclusion

Within this chapter I have discussed the writings of a number of authors who contribute to an understanding of games as a unique expressive medium. Bogost and Frasca have dealt with ways of analysing and discussing videogames as simulations and computational media, providing a number of important observations about their nature. Ryan and Aarseth, writing about the intersection of literature and interactivity, offer further suggestions that point toward videogames possessing and deserving unique critical approaches. I posit that, if as the preceding authors suggest, games are indeed in possession of qualities that set them apart other media which employ music, then it stands to reason that there exists the potential for music to address and utilise these qualities.

## Chapter 3 - A Videogame Music Overview

### 3.1 Chapter Overview

If I were to attempt to describe categorically the way music in videogames worked by describing and listing each instance, simply the task of identifying and describing every videogame ever made would render it a virtual impossibility. And yet in this chapter I am aiming to demonstrate what I have come to realise through both this research project and my own further experiences as a videogame player - that music in videogames has been characteristically underutilised. I will, however, add the caveat that there are some exceptions to what I present in the first section of this chapter as a general rule – and yet it is this approach, this dominant paradigm, and its critiquing that is the focus of this chapter. For clarity of focus and in order to better demonstrate this somewhat contentious claim, I am going to focus on one particular genre of videogames, the First-Person Shooter (FPS) genre, which is perhaps videogaming's most iconic and representative (even overrepresented) genre.

In the first section of the chapter I use a number of examples to outline what I perceive to be the predominant way in which the vast majority of first person shooter videogames utilise music and which I believe has been carried over from other media such as film and television. To describe the current typical use of music in videogames I will examine the 2006 videogame *The Elder Scrolls IV: Oblivion*, which highlights some of the bigger problems with this approach. I am here categorising *Oblivion* as a 'First-Person Perspective' videogame rather than strictly a 'First-Person Shooter', however in the majority of videogames the differences are semantic with little relevance to the use of music – the crucial factor is method of visual representation, which *Oblivion* shares with FPS games. A number of composers' views will be discussed to identify what is currently viewed as the 'progress' that has been made in regards to music for videogames, as well as to examine what they currently seen as being the future direction of the industry.

Following on closely from this discussion, I apply a critical eye to the previously discussed dominant FPS videogame musical paradigm, and elaborate on how narrow a picture of music it really presents by examining a number of potential alternative philosophical and cultural conceptions of music. Its heavy leanings towards the

Western Classical tradition will also be canvassed and a number of implications of this will be examined. I will also suggest that, given the nature of videogames as discussed in chapter 2, some of these other musical traditions may be more innately compatible with the interactivity that is an intrinsic component of videogames.

To gain an idea of some games that I believe more effectively break from the current paradigm, I will focus in the third section of this chapter on three games, *Guitar Hero*, *Audiosurf* and *Everyday Shooter* all of which combine music and interactivity in unique ways. Perhaps rather tellingly, none of these games are of the first person shooter genre, however I believe that the ideas prototyped by these games have the potential to be adapted to other videogame genres. The discussion of *Guitar Hero* will centre on the performative nature of the game while I suggest that *Audiosurf* and *Everyday Shooter* both intimate promising approaches for more explicitly combining interactivity and music. In the final section I will attempt to propose a new musical approach or paradigm which combines not only the lessons about music and interactivity learnt from the aforementioned games, but also the earlier critique of the current paradigm.

### 3.2 The Application of Music in First Person Perspective Videogames

The list of published works discussing music for videogames is heavily weighted towards technical manuals and how-to guides that focus on details of implementation. Few books or discussion papers exist that discuss musicological or other broad conceptual views of why and how music should be used in videogames, particularly those focusing on music specifically for videogames rather than music for media in general. Mark Grimshaw in his doctoral thesis *The Acoustic Ecology of the FPS*, focussing on the nature of sound relations in FPS games, says that in his own study he drew on

...concepts from disciplines that, so far, have not yet made an appearance in the Games Studies debate; disciplines such as sonification studies, autopoiesis and psychoacoustics, for example.<sup>36</sup>

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<sup>36</sup> Mark Grimshaw, *The Acoustic Ecology of the First-Person Shooter : The Player Experience of Sound in the First-Person Shooter Computer Game*. Saarbrücken, Germany: VDM Verlag, 2008, p.13

Similarly, I have found at best small sections of larger publications or unpublished articles written only for internet blogs or a small handful of industry websites. Without much critical attention I am forced to conclude that videogame designers and composers have largely worked with pre-existing ideas from other media and that there is quite a good chance that practices have grown largely without direction. This is a central concern of this thesis – addressing the lack of critical attention that has been paid to videogame music *qua* videogame music. Knowledge gained through studies of other media are useful and often applicable, as Zach Whalen notes in his own videogame music study<sup>37</sup>, however my own interest lies in those aspects that make videogames unique; in the intersection of previous ideas and paradigms with the new. This differentiates my own work from that of Whalen's which, as he says aims to provide 'a workable theory of videogame music that approaches the question of music as a part of the narrative component of games'<sup>38</sup>. I begin this discussion of the current paradigm for the production of videogame music by providing a brief overview of the industry landscape and by discussing the nature of the FPS.

In the 2007 calendar year there were approximately 828 videogames released by major publishers<sup>39</sup> and potentially countless more free to download independent games as well as many more fan made 'modifications' for games which are not included in that figure. According to a number of sources, the increasing cost to develop major titles is currently averaging around 10 million US dollars per game,<sup>40</sup> and studios now often employ teams of the hundreds. As a result, games present a significant financial risk to investors, with Sony Europe's former boss, Chris Deering, noting that 'less than 3 out of 10 games recover their money'<sup>41</sup>, one of the primary

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<sup>37</sup> Zach Whalen, 'Play Along - An Approach to Videogame Music', *Game Studies* 4, no.1, (2004), <http://gamestudies.org/0401/whalen/>, accessed June 13<sup>th</sup>, 2008.

<sup>38</sup> Ibid.

<sup>39</sup> Figure taken from Wikipedia's '2007 Videogames' category, [http://en.wikipedia.org/wiki/Category:2007\\_video\\_games](http://en.wikipedia.org/wiki/Category:2007_video_games), accessed July 2008.

<sup>40</sup> Matthew Kumar, Leigh Alexander 'EIF: Deering Says Only 3 Of 10 Games Recoup Costs', *Gamasutra*, [http://www.gamasutra.com/php-bin/news\\_index.php?story=19780](http://www.gamasutra.com/php-bin/news_index.php?story=19780), accessed August 11, 2008.

<sup>41</sup> Ibid.

methods used to offset the risk associated with high development costs is to fund the primarily 'safe' bets - sure fire sequels and spin-offs of popular games with the result being the cementing of certain genre conventions. In 'Halo and the Anatomy of the FPS' Aki Järvinen discusses the issue of genre and videogame convention, noting that while genres are accepted as being extant, 'the distinctions, continuums and variations within that cultural genre remain uncharted.'<sup>42</sup>

If classified strictly according to the 'first person' and 'shooting' schema of FPS's, many games that may not be included in the FPS genre such as *The Elder Scrolls IV: Oblivion* still share an identical method of visual representation and player engagement with the game via the use of the first person perspective. *Oblivion* can also be played from the third person perspective, and its gameplay is by no means limited to shooting, however as Leigh Alexander a videogame writer and critic has questioned, 'Does the gameplay really change much if you're in first-person versus over the shoulder? Do we even *have* genre anymore?'<sup>43</sup> All of which means that there is little to no general agreement on what exactly constitutes a First Person Shooter game, aside from it being presented in first person perspective and involving some element of shooting. Grimshaw again, in his study notes that

...the FPS game typically places the player in a hostile environment...which demands that the player be attentive to all available cues... for team success, character survival and individual glory.<sup>44</sup>

Järvinen also provides some basic ideas of his own, saying that the FPS is 'a genre defined by its audiovisual appearance' and that the name "first-person shooter" implies a certain visual orientation. Accordingly, I am interested in videogames that use the representational method of the first person perspective, whether they typify the FPS stereotype or not. The reason for this choice of focus relates to the application of Marie-Laure Ryan's ideas about Virtual Reality, such as 'The Text as World', which

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<sup>42</sup> Aki Järvinen, 'Halo and the Anatomy of the FPS', *Game Studies* 2, no.1, <http://www.gamestudies.org/0102/jarvinen/>, accessed May 20<sup>th</sup>, 2008.

<sup>43</sup> Leigh Alexander, 'The Japanese Renaissance', *Sexy Videogame Land*, <http://sexyvideogameland.blogspot.com/2008/09/japanese-renaissance.html>, accessed September 21, 2008.

<sup>44</sup> Grimshaw, *The Acoustic Ecology of the First-Person Shooter*, p.3

if applied to videogames provide a framework to examine the application of music to the virtual world. Ian Bogost writes in *unit operations* that ‘the first-person shooter is... for better or for worse, perhaps the mediums most common genre’<sup>45</sup>. It follows then that being the genre which attracts the most development attention, the biggest budgets and the biggest development studios that it would also possess the most highly developed and nuanced approach to music in videogames, reflecting the best understanding of the nature of videogames. This has not been entirely the case. Grimshaw says rather scathingly that,

Game developers have been quick to exploit increased graphics capabilities to create often stunning virtual, visual environments, but as yet seem leery of exploiting the potential of audio technology other than as a bit-part player to the visual star.<sup>46</sup>

To turn to *The Elder Scrolls IV: Oblivion*, the game is a useful example of what has been considered ‘progress’ within the area of music for games. Composed by BAFTA award winning composer Jeremy Soule,<sup>47</sup> the musical score is one of sweeping orchestral instruments on a grand scale. The music demonstrates production values comparable to a Hollywood production, with the quality of composition good enough to warrant its inclusion as part of both the *Videogames Live* series of concerts and the *Play! A Videogame Symphony* touring concert series which toured the United States and a number of other countries<sup>48</sup>. In *Oblivion*, organisation of musical tracks is based on the situation in which the player will hear the music, for example, if the player is in a city, one of 5 ‘public’ songs will play. All of the music in the game is non-diegetic meaning it is functioning to communicate only with the player, with no in-game characters ever hearing the music. While operating in this manner, it is essentially taking on the same role as film underscore, setting a mood or feeling for the game’s virtual spaces and gamestates. This is identical to the filmic role of music with one exception, and that is the element of uncertainty created by the interactivity of the

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<sup>45</sup> Bogost, *Unit Operations*, p.57

<sup>46</sup> Grimshaw, *The Acoustic Ecology of the First-Person Shooter*, p.25

<sup>47</sup> Won for the 2003 videogame ‘*Harry Potter and the Chamber of Secrets*’.  
<http://www.bafta.org/awards-database.html?year=2003&category=Games&award=Music>

<sup>48</sup> For a list of past tour dates and venues, see *Videogames Live* website;  
<http://www.videogameslive.com/index.php?s=dates>

game. For example, whenever a player enters combat with an enemy the track that was previously playing stops abruptly and is replaced by the music for combat. In effect, often the player will hear the battle music start before an enemy is spotted by the player, with enemy AI effectively spotting players through environmental features that would obscure the view of a regular player. This has been criticised by some players<sup>49</sup> for providing direct information about approaching enemies that would not have otherwise been received and thereby interfering with the music's role as 'underscore'. This example highlights the situation where ensuring smooth 'transitions' between tracks has been one of the areas that have received the majority of attention in videogame music, with variable 'layering of tracks or instruments' becoming 'interactivity' in the minds of some composers.

Videogame music veteran composer Tommy Tallarico, responsible for organising *Videogames Live* and who has worked in the games industry from the early 90s<sup>50</sup>, is an excellent candidate for an industry insider perspective, and reveals where the current focus of effort for videogame music is located. In an interview with Tom Kim for the Gamasutra.com podcast he described the process of implementing music in videogames, describing particularly how music for games differed from film music saying:

You have to let them [the music programmers] know that you want this version to play when there are a hundred guys on horseback and this other version when there's only one.<sup>51</sup>

Tallarico seems to be saying here that the extent of the differences between videogame music and music in film, for example, is the ability to decide 'what gets played when'. Certainly, Tallarico is correct in noting that this is a significant difference, yet this perception is endemic and represents the dominant musical

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<sup>49</sup> Contributors to 'Oblivion:Gripes/Miscellaneous', *The Unofficial Elder Scrolls Pages*, <http://www.uesp.net/wiki/Oblivion:Gripes/Miscellaneous>, accessed September 22<sup>nd</sup>, 2008.

<sup>50</sup> Tommy Tallarico, 'Biography', *www.tallarico.com*, <http://www.tallarico.com/index.php?s=biography>, accessed September 25, 2008.

<sup>51</sup> Tommy Tallarico quoted in Tom Kim, 'GDC Radio Presents: Gamasutra Podcast: Video Games Live Interview' *The Gamasutra Podcast*, [http://www.gdcradio.net/2006/08/gdc\\_radio\\_presents\\_gamasutra\\_p\\_3.html](http://www.gdcradio.net/2006/08/gdc_radio_presents_gamasutra_p_3.html), accessed April, 2008.

paradigm with regards to videogame music as seeing only *structural* changes to music as necessary for smooth integration into a non-linear and interactive videogame. The videogame industry has the processing power of multi-core CPU's at its disposal and increasingly large amounts of RAM since at least the start of this generation of videogame consoles<sup>52</sup>, but the best it has come up with is 'play this song now, and this one later'. That is essentially what it boils down to.

Videogame composer Richard Jacques said in a separate interview for *Gamasutra* about his own 'interactive' musical scores for well known videogames *Sonic R* and the upcoming *Highlander* videogame that

The way I want to do [music] interactively is have a musical transition, or rise or whatever that sounds very musical... rather than hard-cutting two tracks, because I think it can be done better than that.<sup>53</sup>

With all due respect to Jacques, I believe that the scope for musical interactivity goes beyond making transitions sound smooth and musically pleasing. He goes on to say later in the interview that the original *Outrun* game from 1986, in a move that seems to pre-empt current videogame musical interactivity, had a pseudo-interactive score, in the sense that the music was composed so that roughly around the time that a player reached branching sections at the end of a track the song would change, parallel what was happening on-screen.

It was actually composed so the music would change where an average player would do the branching at the end.

I mean, it wasn't interactive, but they timed the music so that when you went down the end of one course and you branched into the next course, the music would go into a different chorus or something like that.<sup>54</sup>

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<sup>52</sup> César A. Berardini, 'The Xbox 360 System Specifications', *Team Xbox*,  
<http://hardware.teamxbox.com/articles/xbox/1144/The-Xbox-360-System-Specifications/p1>,  
accessed October 7<sup>th</sup>, 2008.

<sup>53</sup> Richard Jaques quoted in Brandon Sheffield, 'Staying In Tune: Richard Jacques On Game Music's Past, Present, And Future', *Gamasutra*,  
[http://www.gamasutra.com/view/feature/3695/staying\\_in\\_tune\\_richard\\_jacques\\_.php](http://www.gamasutra.com/view/feature/3695/staying_in_tune_richard_jacques_.php), accessed June 17, 2008, p.5

<sup>54</sup> *Ibid*, p.9

If *Outrun* twenty-odd years ago could do music that in a way reflected what was happening on screen (in its own pre-determined and constricted way) and affected the change in music on a structural level within the song – I am asking why the best we can do today is make pleasant transitions between tracks.

Earlier I mentioned that videogame music problematises the musical approach typified by musical underscore, since the interactivity of videogames renders the visual elements of the game unpredictable in the way that a film never could be. Games like *Oblivion* have what Michael Chion calls a “forced marriage” of audio and visual elements. Chion says,

One very striking experiment which I can never recommend highly enough for studying an audiovisual scene is what I call *forced marriage* between sound and image. Take a sequence of film and also gather together a selection of diverse kinds of music that will serve as accompaniment... Success assured: in ten or so versions there will always be a few that create amazing points of synchronisations and moving or comical juxtapositions, which always come as a surprise.<sup>55</sup>

This phenomenon demonstrates that potentially even music composed with no regard for the visual elements will on occasion present a synchronisation with the image onscreen, and suggests that this is the main way that most videogames utilise music. My concern is with improving upon this forced marriage and identifying a musical system that is more deliberate. Chion notes that there are indeed certain ‘primary synch points that are crucial for meaning and dynamics’<sup>56</sup> and if this is the case, I see much potential in taking a musical approach that capitalises on this.

A central concern of a number of electronic musicians in recent times has become the marrying of music with visuals in order to better hold an audience’s attention, stemming primarily from the potentially non-engaging nature of ‘laptop’ musical performance<sup>57</sup>. These visuals can range along a spectrum from pre-rendered visuals to live generated ‘visualisations’. Developments in the areas of video tracking and real-

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<sup>55</sup> Michel Chion, Walter Murch, and Claudia Gorbman, *Audio-Vision : Sound on Screen*, New York: Columbia University Press, 1994, p.188

<sup>56</sup> Chion, et al. *Audio-Vision : Sound on Screen*, p.190

<sup>57</sup> There is a running joke in some circles of laptop musicians that says the performer behind their musical instrument, the laptop itself, could just be “checking their email”

time video manipulation have lead to significant progress in the areas of live audio-visual integration, with potential applications to videogame music. A significant difference from computer musicians, however, lies in the fact that videogames needn't worry about keeping an audience visually engrossed as the games visuals should theoretically have the player's attention anyway. However, I suggest that by integrating and adapting ideas from the live audio-visual integration of electronic musicians a more powerful and interesting relationship could be created between the music and other parts of a videogame. In essence, a reverse process would take place, and rather than the visuals being generated by musical information, the music could instead be generated from not only the visuals, but any appropriately abstracted level of information based on the visuals allowing for a richer and more engaging relationship.

### 3.3 A critique of the current musical paradigm – alternatives to the western classical tradition

The previous section established the basis of the current paradigm from which music for videogames is largely produced. I will now draw upon the work of a number of writers to critique the current paradigm and show that it is reflective of an outmoded philosophical view as well as being somewhat limiting to the current potential of videogame music. I will begin by referencing the writing of Marcia Citron on the subject of western music's tendencies towards canonicity. Intertwined with that discussion is a examination of the western art tradition which, by drawing upon a number of ethnomusicologists' perspectives on music with an emphasis on African and Indigenous Australian music, exposes through contrast a number of potential negatives or limiting aspects of the tradition. Finally I will discuss Murray Schaeffer's theoretical project contained within his book *The Tuning of the World* which locates itself as an attempt to regain the inherent musicality of natural sounds, and in the processes, further questions some of the assumptions about music and musicality inherent in the western musical tradition.

As noted in the previous section the paradigm from which the majority of music for videogames is produced is predominantly a western classical one. While this is understandably a natural occurrence given the social and cultural demographic of videogame producers – it should not remain unchallenged. If videogames are to

achieve their full potential as an expressive medium then I would argue they need to attempt a broadening of their cultural appeal.

In direct competition with this idea is the tendency, in western classical music, towards canons and canonicity, stemming perhaps from the western conception of art as ‘something separate and distinct’<sup>58</sup> from the everyday. David Beard and Kenneth Gloag say in *Musicology: The Key Concepts* that while ‘most cultures and cultural contexts reflect the presence of a canon and canonical values... it is most clearly defined and active within the Western Art music tradition.’<sup>59</sup> Marcia Citron in her book *Gender and the musical canon* addresses the tendency towards forming and maintaining canons in the western classical music tradition stating that,

At first glance the stakes in musical canonicity might seem less compelling. Music, after all, appears to be removed from debates about social relations and cultural identity; it deals with abstract sounds, not concrete issues. But music is indeed contingent and participates the dynamics of culture. *Which music is deemed canonic says a great deal about the image a society has of itself.* In the West the privileged position of art music of the European tradition is telling. It suggests a desire to hold fast to a venerated past. For the United States, especially, the association furnishes a means of affirming self worth.<sup>60</sup>

Citron’s main point about the affects of canons is that they are self-perpetuating and that, far from being ‘objective’ measures of quality and worth, instead,

They encode ideologies that are further legitimated through being canonized... This process of serialised privilege suggests that canons tend to resist change; privileged interests will wish to remain privileged.<sup>61</sup>

This notion of privileged position extends to the very idea of what constitutes music, as John Blacking notes,

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<sup>58</sup> John Miller Chernoff, *African Rhythm and African Sensibility : Aesthetics and Social Action in African Musical Idioms*, Chicago: University of Chicago Press, 1979, p.31 (emphasis mine)

<sup>59</sup> David Beard and Kenneth Gloag, *Musicology: The Key Concepts*, Abingdon, Oxfordshire ; New York, NY: Routledge, 2005, p.32

<sup>60</sup> Marcia J Citron, *Gender and the Musical Canon*, Cambridge [England] ; New York: Cambridge University Press, 1993, p.3

<sup>61</sup> Citron, *Gender and the Musical Canon*, p.19

A School of Music ...which establishes a subdepartment of ethnomusicology... has taken the first steps toward recognising its role in tomorrow's world of music. It has implicitly redefined its Music more modestly, as a system of musical theory and practice that emerged and developed during a certain period of European history.<sup>62</sup>

John Miller Chernoff in his study of African music in *African Rhythm and African Sensibility* makes an interesting observation about western readings of African music. Not simply content to observe differences in what the two cultures of Western and African consider to be “musical quality”, he says ‘we must be prepared to open our minds... to the possibility that they may have an entirely different conception of what music itself is.’<sup>63</sup> Chernoff even goes so far as to say that

When a Western friend for whom you might play some African music says in disgust, as he sits fidgeting in his chair, “That’s not music”, he is ironically both right and wrong. African music is not just different music but is something that is different from “music”.<sup>64</sup>

And yet, as musicologists we don't even have to go as far as a whole different culture to find alternatives to the western classical conception of music. A number of the more *avant-garde* approaches to music that developed during the twentieth century are also significantly different from the ‘A to B’ linear idea of music.

Murray Schafer in his landmark book ‘The Tuning of the World’ attempts to present what he terms ‘a theory of soundscape design’. Central to this project is a questioning of the nature of music – what can be actually called ‘music’ and what can be relegated to the role of ‘noise’ and safely ignored. Schafer takes an historical approach, describing the two most ancient origins of our modern conceptions of music in his opening chapter. He names the two views as Dionysian and Apollonian conceptions of music, deriving from separate Greek myths in which the former states that music was borne out of the emotional expression of one of the gods, with the latter stating it was instead conceived when a different god discovered the resonant properties of a tortoise shell<sup>65</sup>. Schafer says

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<sup>62</sup> John Blacking, *How Musical Is Man?*, London: Faber, 1976, p.3

<sup>63</sup> Chernoff, *African Rhythm and African Sensibility*, p.31

<sup>64</sup> *Ibid.*, p.33

<sup>65</sup> R. Murray Schafer, *The Tuning of the World*, 1st ed. New York: Knopf, 1977, p.6

In the Dionysian myth, music is conceived as internal sound breaking forth from the human breast; in the Apollonian it is external sound, God-sent to remind us of the harmony of the universe.<sup>66</sup>

Schafer describes his research as ‘a reaffirmation of music as a search for the harmonizing influence of sounds in the world about us’<sup>67</sup> and outlines western music’s progression through the twentieth century as an expanding of ‘musical sound’ beginning with orchestral percussion, continuing with aleatoric processes through the influence of composers like John Cage and his landmark work 4’33”, and finally into the realms of *musique concrète* and ‘electronic music’.

It is somewhat ironic then, that the creators of videogames would choose to ignore not only the culturally foreign conceptions of music but also many of the practices within our own western tradition. It is not the case, however, that there have been no attempts to use music interactively in videogames and it is this area to which I now turn.

### 3.4 Alternative applications of music in videogames

In this section I want to discuss a number of significant games that have eschewed videogame music tropes and have instead tackled the issue of using music in games from a number of fresh perspectives. I am choosing to focus on 3 games in particular - the first, in actuality a series of games, is *Guitar Hero* in which the core gameplay emulates the sensation of playing a guitar on a simplified, replica instrument. The second game is an independently developed and released title called *Audiosurf* which transforms the player’s entire music collection into potential material for play by applying spectral analysis algorithms to generate a virtual ‘track’ for each song. The third and final game, also an independently produced title, is *Everyday Shooter* which replaces the typical beeps and explosive sound effects of the ‘shoot-em up’ genre with musical guitar riffs, the result of which is a highly novel approach to the use of music in videogames. An important fact to note is that none of the games focussed upon in this section belong to the first-person shooter genre. This does not, however, render the innovations irrelevant for the largest genre of videogames, the FPS, as in the

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<sup>66</sup> Ibid., p.6

<sup>67</sup> Ibid.

section directly following I advocate not the adoption of these systems and mechanics directly but an adaptation of the core principles that these games suggest.

The first *Guitar Hero* game exploded onto the scene in 2005 for the PlayStation 2 videogame console<sup>68</sup>. Gameplay in *Guitar Hero* is heavily influenced by rhythm and dancing arcade games like *Dance*, *Dance Revolution* among others. It consists of an infinitely approaching 'fret board' upon which is displayed one of five possible fret keys which must be held down on the supplied plastic 'Guitar'. Performance is the name of the game in *Guitar Hero* with the player taking on the role of a guitarist in an up-and-coming rock band on their path from the obscurity of backyard gigs to the fame of super sold-out tours of the world. Rob Kay, a developer at Harmonix, notes in an interview that 'A big part of rock is showmanship, and we wanted to find a way to explore that in the gameplay.'<sup>69</sup> The player plays through the guitar part of individual songs, usually a selection of licensed popular rock songs scoring points based on how well they perform the song. Success is measured by how well players match timing of strums and pseudo-chord shapes on the *Guitar Hero* guitar controller with oncoming gems from the onscreen displayed fret board. When the player hits the note correctly, the game plays the guitar line along with the rest of the backing band and the player achieves a sense of 'performing' the song. There is little to no room for performative improvisation or variation, however, with the 'performance' boiling down to either hitting or missing the notes in a prescribed pattern and consequently the game becomes an exercise in concentration and memorizing complicated note patterns, especially at higher difficulty levels. Jesper Juul sums up *Guitar Hero* concisely saying 'you don't *play* the music, but you *perform* a choreographed sequence.

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<sup>68</sup> Taken from, 'Wikipedia contributors, "Guitar Hero (video game)," *Wikipedia, The Free Encyclopedia*,  
[http://en.wikipedia.org/w/index.php?title=Guitar\\_Hero\\_\(video\\_game\)&oldid=243514473](http://en.wikipedia.org/w/index.php?title=Guitar_Hero_(video_game)&oldid=243514473), accessed October 7, 2008.

<sup>69</sup> Rob Kay in Iain Simons, 'Book Excerpt: Inside Game Design: Harmonix Music Systems',  
*Gamasutra*,  
[http://www.gamasutra.com/view/feature/2801/book\\_excerpt\\_inside\\_game\\_design\\_php?page=3](http://www.gamasutra.com/view/feature/2801/book_excerpt_inside_game_design_php?page=3),  
accessed August 14, 2008.

Performing this sequence just makes the music play correctly.’<sup>70</sup> Juul also importantly notes that the correspondence between onscreen notes and the music that is played as a result of hitting them is not only extremely variable, but is also a major factor in whether or not the player feels like they are actually playing the song.

...there is something disconcerting about the relation between the “frets” (the colored buttons) and the notes that are actually played. On an actual instrument, frets or keys really do correspond to specific notes being played - hitting the A string with your finger on the 3rd fret will consistently play a C. In *Guitar Hero* the relation is, well, inconsistent.<sup>71</sup>

In each song certain strings of notes, if played successfully, charge up a “Star Power” meter which, when fully charged can be activated by tilting the guitar up vertically in a mock emulation of a popular rock guitar pose. Star Power, when engaged, modifies the score awarded for notes and also changes the sound of the song being played by adding further crowd noises such as loud cheering and clapping along to the beat. The effect is one of replicating the experience of being on stage performing while avoiding any real performative musical requirements, and it is arguably this sense of ‘rocking out’ that *Guitar Hero* aims to achieve. The developers have said as much in interview, stating that they ‘wanted to have tilt and [the] whammy bar, not so much as music inputs but as performance devices’<sup>72</sup>.

The second of the games I want to discuss is *Audiosurf*<sup>73</sup>. Developed by Invisible Handlebar, it was the work of primarily by one person, Dylan Fitterer, and was released on the Steam digital distribution platform in February 2008. *Audiosurf* requires music to play – it takes your music collection, and creates a 3D track based upon features of the music which is then navigated by the player and depending on the game-mode collect coloured blocks that visually correspond to the music. The game ostensibly provides a way to ‘ride your music’, as the game’s tag-line suggests<sup>74</sup>, a

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<sup>70</sup> Jesper Juul, ‘Guitar Hero II: Playing vs. Performing a Tune’, *The Ludologist*, <http://www.jesperjuul.net/ludologist/?p=312>, accessed August 14, 2008.

<sup>71</sup> Ibid.

<sup>72</sup> Rob Kay in Simons, ‘Book Excerpt: Inside Game Design: Harmonix Music Systems’.

<sup>73</sup> Dylan Fitterer, *Audiosurf*, Valve Corporation, 2008.

<sup>74</sup> Wikipedia contributors, “Audiosurf,” *Wikipedia, The Free Encyclopedia*, <http://en.wikipedia.org/w/index.php?title=Audiosurf&oldid=241996378>, accessed October 7, 2008.

feat of musical gameplay that is operating on a completely different level to the previous example of *Guitar Hero*. In my estimation, this is a great step towards overcoming some of the acknowledged problems with games like *Guitar Hero* - many critics have noted that the strength of any music game is largely subject to how good its track listings are<sup>75</sup>. Regarding the aspect of playing your own music, Alec Meer says,

...we were all playing Guitar Hero and wishing we could stick our favourite music into it. Audiosurf says “fuck it, why not?” and provides the scaffolding of a game around it<sup>76</sup>

*Audiosurf*'s particular implementation of representing and performing music in a game does however come with a number of its own disadvantages. Firstly, the way the three dimensional track is generated by the program is fixed and determined by a set algorithm<sup>77</sup>. In an interview with Ars Technica, the developer Dylan Fitterer commented on the way that the algorithm turns the song into a three dimensional track, saying;

...when the music is at its most intense, that's when you're on a really steep downward slope, like you're flying down a rollercoaster in a tunnel. When the music is calmer, that's when you're chugging your way up the hill, watching that peak in the distance you're going to reach.<sup>78</sup>

The experience of playing the game itself is where I find the major innovations of *Audiosurf* as well as its major problems. As previously mentioned, when ‘surfing’ a song the game’s analysis algorithm has pre-determined the majority of the course’s parameters from the musical elements contained within the recording. Some aspects of the course are determined from relatively transparent musical parameters – the

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<sup>75</sup> See for example, Mitch Krpata, ‘Rock Band 2: Why now?’, *Insult Swordfighting*, <http://insultswordfighting.blogspot.com/2008/07/rock-band-2-why-now.html>, accessed October 7<sup>th</sup>, 2008.

<sup>76</sup> Alec Meer in ‘The RPS Verdict: Audiosurf’, *Rock, Paper, Shotgun*, <http://www.rockpapershotgun.com/2008/03/03/the-rps-verdict-audiosurf/>, accessed March 3, 2008.

<sup>77</sup> Thomas Wilburn, ‘Catching Waveforms: Audiosurf Creator Dylan Fitterer speaks’, *Ars Technica*, <http://arstechnica.com/journals/thumbs.ars/2008/03/11/catching-waveforms-audiosurf-creator-dylan-speaks>, accessed

<sup>78</sup> Dylan Fitterer in Thomas Wilburn, ‘Catching Waveforms: Audiosurf Creator Dylan Fitterer speaks’.

tracks length corresponds directly to the length of the song and the contours of the course are derived from aspects such as volume and dynamics. In music with a strong steady beat, the track will often appear to undulate beneath the player's character in time. The comprehensible translation of the music into visuals, or lack thereof, is where I believe I encounter the main problem of *Audiosurf*.

In the examples outlined above, the relationship between music and the visuals (the track environment) is clear and direct, making sense to the player and allowing for a pleasurable and organic merging of knowledge of the song with knowledge of the corresponding *Audiosurf* track. This seems to be a significant aspect of the appeal of the game as much community discussion goes on about the suitability of tracks for surfing<sup>79</sup>. The process does indeed work effectively on the macro structural scale, however *Audiosurf* also involves a 'match 3' type block collection element, with the block placement – called 'traffic' – generated by rather more musically ambiguous "volume spikes". The developer, Dylan Fitterer, describes the process saying

...whenever there's a spike in the music, the intensity of that spike determines the block's color. So the most distinct spikes, like a snare drum, that would tend to be a red block, a really hot block. If something is a little more subtle, like a quiet high hat, that would be a purple block, which is worth less points.<sup>80</sup>

This kind of relationship between music and visuals or environment becomes, musically at least, increasingly murky on this micro level as a sheer 'spike' in volume is no guarantee that a listener would make the corresponding connection to what they are hearing. Indeed the issue of what a listener actually perceives about a song when listening to it is much, much more complicated. Albert S. Bregman, author of the comprehensive text *Auditory Scene Analysis: The perceptual organisation of sound* coined the term "stream" for what he identified as an audible cognitive process which was lacking adequate terminology. Bregman's research noted a significant distinction

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<sup>79</sup> See the comments section of any *Rock, Paper, Shotgun* Post tagged 'Audiosurf' – every single one involves readers suggesting songs that others should try:  
<http://www.rockpapershotgun.com/tag/audiosurf/>

<sup>80</sup> Dylan Fitterer in Wilburn, 'Catching Waveforms: Audiosurf Creator Dylan Fitterer speaks'.

between the cognitive process of the grouping of sounds that ‘go together’<sup>81</sup> from what might be distinguished as pure ‘sounds’. He notes that, ‘A series of footsteps, for instance, can form a single experienced event, despite the fact that each footstep is a separate sound.’ He also makes a musical comparison, saying that,

A soprano singing with a piano accompaniment is also heard as a coherent happening, despite being composed of distinct sounds (notes). Furthermore, the singer and piano together form a perceptual entity – the “performance” – that is distinct from other sounds that are occurring.<sup>82</sup>

Kieron Gillen writing for *Rock, Paper, Shotgun* says that

The problem with Audiosurf is that the concentration you take to really make the block game work is entirely the opposite of what you need to do to feel the music. The two parts of the game can tug at each other a little, at least at first. On one hand, a zone game. On the other, a high-speed sorting puzzle.<sup>83</sup>

What I believe that Gillen has identified here is the inherent disjunction between what the musical listener focuses on when listening to the song, and what the game makes the player focus on. I suggest that this phenomenon is somewhat analogous to Ian Bogost’s term ‘simulation fever’. The concentration Gillen identifies as being necessary for successful play means that the player is acutely aware of block placement, largely determined by the volume spikes mentioned earlier. I would argue that simply focussing on volume spikes is not adequately representative of the music to withstand the scrutiny that a player applies to it. I propose that, in a situation of high concentration on music, a more complex system is needed, one which addresses the issue of how a listener perceives a song. Admittedly, this is a daunting prospect and one inevitably encounters certain barriers to rendering onscreen what any one particular person is most likely to concentrate on within a song at any one time, as it would likely need to take into account personal differences and background as well as musical training amongst other variables. However, the fact remains that this process *is* undertaken by humans themselves leads me to believe that a more accurate model is

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<sup>81</sup> Albert S Bregman, *Auditory Scene Analysis : The Perceptual Organization of Sound*, 2nd MIT Press paperback ed., Cambridge, Mass.: MIT Press, 1999, p.9

<sup>82</sup> Ibid, p.10

<sup>83</sup> Kieron Gillen in “The RPS Verdict: Audiosurf”, *Rock, Paper, Shotgun*, <http://www.rockpapershotgun.com/2008/03/03/the-rps-verdict-audiosurf/>, accessed March 3, 2008.

possible – indeed *Guitar Hero* sidesteps some of these problems through both its position as a guitar game (and hence the player’s concentration is already on the guitar within the song) and by having a human pre-define the on screen actions the player has to undertake to ‘perform’ the song.

The last videogame that I wish to discuss for its novel use of music is *Everyday Shooter* by Jonathan Mak. *Everyday Shooter* is a game within the ‘shoot em up’ genre, a precursor to the FPS genre which typically employs a top down visualisation of the player’s avatar and a propensity towards indiscriminately shooting everything on screen. *Everyday Shooter* is notable however for being perhaps one of the first games to replace generic sound effects such as gunshots and explosions with musical motifs. Each level in *Everyday Shooter* is of a predetermined length based on a certain song that plays on that level. Each level, of which there are eight, is a new song and contains enemies with a unique appearance and musical motif that they produce on their destruction. Mak, a guitarist, wrote all the songs for solo guitar and the entirety of the musical motifs are designed to blend well with each song. Describing the overall effect, L.B. Jeffries writes,

The basic premise is that rather than to have every explosion or hit create the same generic ‘thud’ or ‘beep’, *Everyday Shooter* coordinates those sounds with its background music. The player has complete control over what he shoots and kills, but the sounds manage to combine in such a way that you feel like you’re contributing to a collective whole.<sup>84</sup>

Importantly, none of the musical motifs that replace generic sound effects are beat-matched to the background song, and yet the overall effect remains remarkably cohesive. Key to achieving such a remarkable level of musical coherence is the fact that all the sounds are produced by the developer on his electric guitar. As a result all the sounds are remarkably similar in timbre, key and their rather fluid rhythm. The background ‘songs’ themselves, unique to each level, are also remarkably *espressivo* with rarely a strong sense of pulse, further avoiding problems of having musical effects clash with the rhythm of the music.

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<sup>84</sup> L.B. Jeffries, ‘Everyday Shooter’, *PopMatters*,

<http://www.popmatters.com/pm/review/60146/everyday-shooter/>, accessed June 26, 2008.

The developer, Jonathan Mak describes the musical aesthetic of the game as being about ‘chance in music and everyday soundscapes’<sup>85</sup>. Citing influences such as ‘children playing in the school yard...the left and right window wipers on buses that weave in and out of phase, and the old style Chinese dim sum restaurants’<sup>86</sup>, Mak describes his thinking in developing the game, saying;

In the game, all the sound effects are notes from the song or guitar riffs, and none of it is beat synced. Despite this, the soundscape doesn't turn out to be some sort of random mess. This is because, much like everyday soundscapes, there is an order to the way sounds are triggered, and the order is directly correlated with the game.<sup>87</sup>

This attitude reflects an appreciation for music that is not strictly notated and linear, and opens up the range of sound material beyond the merely instrumental. This approach reflects the musical concerns of both Murray Schafer<sup>88</sup> and Pierre Schaeffer and the *musique concrete*<sup>89</sup> school. Iroquois Pliskin in an internet blog post titled ‘Every Day is a Shooter’ writes that Mak’s statement with his game is that soundscapes are more a part of daily life than more ‘traditional’ music,

...I think Mak means [to] say...*Everyday is a shooter*. Beneath the hostile welter of sound and vision there is a hidden, beauty-making logic to be discovered.<sup>90</sup>

If videogames have historically been about escapism; the heroic and the *un*-everyday – then in *Everyday Shooter* this is most certainly not the case, and it portends to an opening up and broadening of the types of music videogames can employ. Once

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<sup>85</sup> Jonathan Mak in Alistair Wallis, ‘Road To The IGF: Queasy Games’ *Everyday Shooter*’, *Gamasutra*, [http://www.gamasutra.com/php-bin/news\\_index.php?story=11254](http://www.gamasutra.com/php-bin/news_index.php?story=11254), accessed August 14, 2008.

<sup>86</sup> Ibid.

<sup>87</sup> Ibid.

<sup>88</sup> Schafer, *The Tuning of the World*.

<sup>89</sup> Grove Music Online, ‘Electro-acoustic music’, <http://www.oxfordmusiconline.com.ezproxy.uws.edu.au/subscriber/article/grove/music/08695>, accessed October 9, 2008.

<sup>90</sup> Iroquois Pliskin, ‘Everyday is a Shooter’, *Versus CluClu Land*, <http://versusclucluland.blogspot.com/2008/07/everyday-is-shooter.html>, accessed July 9, 2008.

again, it is not without its own share of issues. L.B. Jeffries in the same review as mentioned above notes that there is still an issue of focus, much as with *Audiosurf*,

You really can't relax and enjoy the music when you're dodging so many enemies, a trait that shortchanges the musical aspect of the game.<sup>91</sup>

*Everyday Shooter* is seemingly still held hostage by its genre conventions or gameplay requirements. In the following section I will take much of the criticism I have levelled at both the dominant paradigm and at the previous three games which I believe point out new and interesting, even more inherently videogame specific implementations of music.

### 3.5 Chapter Conclusion

In this chapter I have pointed to the existence of a paradigm from which most if not all music is produced for first person perspective videogames. I have said that it is a paradigm that sees the linearity of music as a barrier to using music in videogames in ways other than those dictated by previous notions of music from other media such as film and television. It is also a paradigm that holds fast to notions of music that are a product of the western classical tradition and which may or may not be always desirable for music in videogames as it brings with it a significant body of criticism in regards to its claims of authority and legitimacy. I also pointed out that the majority of videogame music uses a rigidly linear music approach, another aspect of western classical music's focus on authorial control and absolutes, and which neglects alternative music traditions, both non-western and certain *avant-garde* western music, that would seem to be more compatible with non-linear musical approaches.

In contrast, the three games, *Guitar Hero*, *Audiosurf* and *Everyday Shooter*, discussed in this chapter have displayed novel approaches to using and implementing music in a videogame. All of these games show that a greater level of musical/visual inter-relation is possible, allowing for more than what Michael Chion calls the "forced marriage" of image and sound. It has also been seen that different styles of music are possible, as *Everyday Shooter* showed clearly by basing its musical approach on 'soundscape' ideals, and by generating elements of the music in response to visual

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<sup>91</sup> Jeffries, 'Everyday Shooter', *PopMatters*.

action onscreen. The reverse is also possible, as *Audiosurf* shows, by generating live visuals from the music.

All of the examples given so far, however, have shown that these approaches come with their own limitations. In the case of *Everyday Shooter*, for the sake of maintaining musical coherence and intelligibility certain musical parameters are restricted, namely the length of the music, as well as the pitches and timbre of the music. This problem runs parallel to Frasca's notions of the problems with authorial intent and in the following chapter I examine the use of music in the Xbox game *Halo 2* to discover the answers that the composer and audio director Marty O'Donnell came up with as solutions to these problems.

## Chapter 4 - A Musical Analysis of Halo 2

### 4.1 Chapter Overview

In this chapter we reach the heart of the thesis, in which I outline my research and analysis of the music of *Halo 2*, which involved both a close play-through of the game as well as an interview with Marty O'Donnell, the audio director and composer of the music of *Halo 2*. I will examine the way music is used within the game, with the aim of discovering if it employs music in a way that takes advantage of the uniqueness of videogames. In the previous chapter I examined what I believe is the dominant musical paradigm from which most games employ music, and examined some alternative approaches to the musical-visual relationship circumscribed by this approach. This chapter contains extracts from a discussion with the composer and explores his conception of music which informs the methods and motivations for his use of music in games.

In the first section I will provide a brief rationale for choosing *Halo 2* as the centre of this musical study, based upon its cultural significance, following which I will discuss *Halo 2's* musical implementation, beginning by examining how it structures music in a traditionally linear manner. This approach, chosen by O'Donnell for its ability to further his compositional aims, will be explored in conversation with the composer, specifically by examining what O'Donnell finds is most effective in the approach and his rationale for choosing it. In the interview I asked the composer for his views on a number of issues, recording the conversation and transcribing selected quotes for inclusion in this chapter. A full recording of the interview is included on the audio CD, attached to this thesis. Due to some small recording errors, occasionally some of the questions I asked O'Donnell are cut off on the recording, however O'Donnell's responses are free of this and were all recorded successfully.

The view presented in section 4.3, however, presents only one example and not the full picture of how *Halo 2* uses music as part of the game and is by no means its most important or revolutionary, as will be discussed. Applying the ideas from my earlier critique by redefining my own conception of 'music' beyond a narrow western-centric view to include any sounds with potential musical qualities, I discover that a new way of understanding the role of music and sound in *Halo 2* emerges. By employing close

listening to audio examples from *Halo 2*, this broader view examines the designed musicality inherent in the diegetic sounds of the game, such as weapon and footstep sound effects as well as location ambiances, all of which would more conventionally be called sound effects. I will outline the case for viewing all the audio within *Halo 2* in this way, and suggest that within this area lies the most potential for a uniquely videogame audio approach – an approach which both problematises the strictly western classical appreciation of the nature of music and redefines the relationships between the audio elements of *Halo 2*. By examining the musicality of sound effects through close listening

#### 4.2 Why choose *Halo 2* for a musical case study?

Before delving into my musical analysis of *Halo 2*, it may be prudent at this point to explain my rationale for choosing to focus on the music of this game in particular. Foremost in my mind, it is a game with which I have had much personal experience – I have played the campaign through on each of its 4 difficult settings, from ‘Easy’ to ‘Legendary’, both on my own and in co-operative, two player mode. As such I have a large pool of first-hand experience with the music of *Halo 2* in its original context upon which to draw, experience which should not be discounted as irrelevant simply because I may not have been objectively studying it at the time. I have also spent much time listening to both of the officially released CD soundtrack’s which for the purpose of this study have performed a similar role to a score or listening guide in a more classical music reading, as no definitive score has ever been released.

In her article on practice based research, Barbara Bolt describes the art historian David Hockney’s line of inquiry into the drawing practice of a number of ‘great’ artists from the 14<sup>th</sup> to 18<sup>th</sup> century. She notes the importance of the fact that Hockney was himself a practitioner, saying

The specificity of Hockney’s experience as an artist and particularly a drawer, fashioned the nature of the question, the methodology and the types of realisations that emerged from the investigation.<sup>92</sup>

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<sup>92</sup> Barbara Bolt, ‘A Non Standard Deviation: Handlability, Praxical Knowledge and Practice-led Research’: *Speculation and Innovation: Applying Practice Led Research in the Creative Industries*

While this study is not producing a videogame, or even music for a videogame, as Ian Bogost noted earlier in Chapter 2, ‘videogames radically increase the importance of player response,’<sup>93</sup> and I have, by spending much time playing this game, generated a history of my own responses to the game which have both consciously and unconsciously influenced the formulation of ideas in and about this project.

*Halo 2* is also an important videogame culturally, and its status as such lends weight to its relevance for study. When planning the marketing strategy for its sequel, *Halo 3*, marketers tasked with the job described their efforts being about making the game ‘part of pop culture’ and a part of the cultural consciousness.<sup>94</sup> However they noted that even before beginning their campaign there was already a very high level of awareness of the game, which could only be a result of the success of the previous two games. Such was its popularity that they went as far as saying, ‘We didn’t have an awareness problem – people knew *Halo 3* was coming out.’<sup>95</sup> The New York Times, in one of the first reviews of *Halo 3*, said of the series, ‘[it’s] not just a game: it is a phenomenon.’<sup>96</sup> Undoubtedly much of this has to do with the fact that *Halo 2* in its lifetime sold approximately 8 million copies of the game, earning it the title of the ‘best-selling first-generation Xbox game worldwide’<sup>97</sup> and cementing the series place

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*Conference RealTime Arts*, Vol 74, August-September, Queensland University of Technology, Australia, <http://www.speculation2005.qut.edu.au/papers/Bolt.pdf>, p.2

<sup>93</sup> Bogost, *Unit Operations*, p.129

<sup>94</sup> N. Evan Van Zelfden, ‘MI6: Halo 3 ‘Transcended Pop Culture’’, *Game Daily*, <http://www.gamedaily.com/articles/news/mi6-halo-3-transcended-pop-culture/?biz=1>, accessed April 14, 2008.

<sup>95</sup> Chris Lee in, *ibid.*

<sup>96</sup> Charles Herold, ‘Halo 3 Mimics Halo 2, With Some Improved Graphics’, *The New York Times*, <http://www.nytimes.com/2007/09/27/technology/circuits/27games.html>, accessed September 27, 2007.

<sup>97</sup> *The Sydney Morning Herald*, ‘Prepare for all-out war – BizTech – Technology – smh.com.au’, <http://www.smh.com.au/news/biztech/prepare-for-allout-war/2007/08/30/1188067256196.html>, accessed May 31, 2008.

as the “killer app”<sup>98</sup> for the Xbox console. There is even a Guinness World Record for the fastest single completion of the *Halo 2* campaign on the hardest difficulty, without a single death<sup>99</sup> – a feat completed by Cody Miller in 2005 and available on the internet as a video download. All of these points establish *Halo 2* as a culturally significant and normative exemplar of the FPS video game, and therefore an ideal candidate for further examination.

#### 4.3 *Halo 2: Music the Halo way – An apologia for tradition*

In this section I will compare the implementation of music in *Halo 2* to that described as the dominant paradigm in Chapter 3. Half of my research for this chapter consisted of a ‘close play through’ of the game in which I attempted to ascertain the general rules governing how *Halo 2* uses music, drawing upon what the composer of the music, Martin O’Donnell, has said in interviews. The other half of the research was conducting my own interview with the composer in order to find out why he decided upon his particular approach and some of the wider implications this has for music in games.

In *Halo 2*, songs are triggered by cues which are designed and placed by hand and which can be anything from reaching a certain location to having a certain set of enemies ‘spawn’<sup>100</sup> to attack the enemy. O’Donnell, in a separate interview with Music4Games.net, spoke of the process for determining these triggers, saying,

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<sup>98</sup> For a useful definition see: Wikipedia contributors, "Killer application," *Wikipedia, The Free Encyclopedia*, [http://en.wikipedia.org/w/index.php?title=Killer\\_application&oldid=243447419](http://en.wikipedia.org/w/index.php?title=Killer_application&oldid=243447419), accessed October 7, 2008.

<sup>99</sup> Ross Miller, ‘Halo 2 speed trial becomes Guinness world record’, *Joystiq*, <http://www.joystiq.com/2006/08/16/halo-2-feat-becomes-guinness-world-record/>, accessed April 11, 2008.

<sup>100</sup> For a useful definition see: Wikipedia contributors, "Spawning (computer gaming)," *Wikipedia, The Free Encyclopedia*, [http://en.wikipedia.org/w/index.php?title=Spawning\\_\(computer\\_gaming\)&oldid=236939913](http://en.wikipedia.org/w/index.php?title=Spawning_(computer_gaming)&oldid=236939913), accessed October 7, 2008.

I sat with the level designers and "spotted" the level as though it was a movie, with the knowledge that the music would have to be malleable rather than static.<sup>101</sup>

In my own interview with O'Donnell, he told me that 'the majority of the music is written because of...what's happening in the levels'<sup>102</sup> and that he worked closely with the level designers to determine 'the emotional journey [they wanted] the player to have,'<sup>103</sup> composing the majority of the music in response to that goal.

O'Donnell's conception of music is unashamedly a traditional one, and if the critical success of the *Halo* series is any guide, it obviously works. When talking about the western classical tradition, O'Donnell stated that 'I don't like walking away from something that has a giant history of success.'<sup>104</sup> His philosophy about the music that he wants to create, and is most inspired to compose, 'tells basically linear stories'<sup>105</sup> and he has yet to be convinced of the potential success of any approach that omits the composer as the primary source of musical decisions. He mentioned to me that, 'I think the composer still makes better choices than just a combination of random events'<sup>106</sup> and when asked about this reluctance to hand control over to either a computer or the player themselves, he explained his position, saying,

What happens with gamers is they tend to think, well this is an interactive medium and that means that as the player I should have control over everything... and to me I'm thinking, you know what, no, not really... the game designer is making a game and trying to make a cool experience for you.<sup>107</sup>

He clarified further with an example, saying that, 'it's like Calvinism... in the game universe, the game designer is basically like God, but we want the player to believe

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<sup>101</sup> Martin O'Donnell, in Aaron Marks, Martin O'Donnell, 'The use and effectiveness of music in *Halo*: Game Music evolved', *Music4Games.net*, [http://www.music4games.net/Features\\_Display.aspx?id=24](http://www.music4games.net/Features_Display.aspx?id=24), accessed May 28, 2008.

<sup>102</sup> Recording of authors personal interview with Martin O'Donnell, Timecode approximately 44:56

<sup>103</sup> *Ibid.*, 46:20

<sup>104</sup> *Ibid.*, 31:14

<sup>105</sup> *Ibid.*, 61:04

<sup>106</sup> *Ibid.*, 19:16

<sup>107</sup> *Ibid.*, 56:30

they have free will'<sup>108</sup>. His philosophy could perhaps be described as a desire to maintain the composer's authorial control within the interactive, and this is reflective of his belief in some people simply being better entertainers than others,

Just because we say 'hey, here's a game and you can tell your own story'...people don't really want that because... probably most people tell kind of boring stories... to be entertained you have to have someone who's entertaining behind it.<sup>109</sup>

It would seem then that the paradox of linear music in a non-linear medium remains, and I also asked O'Donnell how he deals with the issue. He said that the biggest problem he has with scoring music for games is that, 'Because it's a game and there's a human being interacting with it – what I don't have any perfect knowledge of is exactly how long the entire experience is going to last.'<sup>110</sup> O'Donnell says that after a person has played the game, despite its interactivity, has inevitably had,

...a linear experience because that *is* all you have, when you play a game you are having a linear experience... you're playing for 10m you have a 10m experience.<sup>111</sup>

This then, goes some way to explaining why the focus of the dominant musical paradigm is squarely upon 'what plays when' – interactivity means indeterminacy, and in musical compositions the traditional strategies are obviously problematic. For O'Donnell then, since duration is largely the most uncontrollable factor he places much importance upon being able to successfully manage this aspect of a piece. O'Donnell notes that, for him 'the most important moment is how it begins and then how it ends,'<sup>112</sup> and by making these sections rather 'fixed' he can extend or contract the middle.

What I need to do is keep the middle section malleable. And if I can do that without people knowing that it's being malleable...then I feel successful.<sup>113</sup>

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<sup>108</sup> Ibid., 56:30

<sup>109</sup> Ibid., 59:01

<sup>110</sup> Ibid., 31:36

<sup>111</sup> Ibid., 19:16

<sup>112</sup> Ibid., 31:36

<sup>113</sup> Ibid., 32:02

His philosophy also extends to the players awareness of the interactive dimension in the music, stating that ‘...If they are aware that they are changing the music then I think I’ve failed’<sup>114</sup>, which would sadly seem to preclude the kinds of audiovisual relationships that I discussed as possible and unique to videogames in Chapter 3. Throughout the interview however, O’Donnell stressed the point that this was just his opinion, and by no means the only approach. When pressed further about the nature of music’s relationship to the visuals of a game, O’Donnell pointed out the success of the synaesthesia game *Rez*, which places the emphasis on music being generated by the player’s actions and the corollary visual information. He agreed that attempts to find a similar approach that would work within a more traditional FPS game is ‘a great place to explore’<sup>115</sup> but had reservations, saying,

What I find is that... it works great for electronica and that sort of genre. It’s like it’s just tailor made for that kind of thing... but... if this needs to have a more orchestrally scored epic feel you struggle with that.<sup>116</sup>

The end result of O’Donnell’s musical philosophy and implementation is that music in *Halo 2* is linked with game narrative, as predetermined by O’Donnell and the levels designers. Viewed this way it appears as though the music has only a static relationship with visuals, one which is preset, controlled and further reliant on Chion’s “forced marriage” phenomenon. The relationship between music and the game is one that O’Donnell based upon what emotion he wanted to convey to the player, employing only broad audio-visual synchronization techniques, such as tying music to specific locations or narrative moments.

This was not what I was hoping to find when I initially began my investigation and analysis. I personally desired to discover areas in which *Halo 2* broke the mold and used music in ways that I had not realised, yet O’Donnell says that much of what I initially thought would be effective in music for games results in the removal of too much control from the composer.

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<sup>114</sup> Ibid., 19:16

<sup>115</sup> Ibid., 42:53

<sup>116</sup> Ibid., 42:53

A further influencing factor in this is, as O'Donnell noted earlier, if the player notices that the music is changing in response to them, he feels that he has failed in his job as a composer. He told me that, 'it's probably somewhat difficult to disassemble [the music in] Halo just by playing it'<sup>117</sup> and this is consistent with his stated goals. In his defense, the hardware restrictions placed upon O'Donnell when implementing the music of *Halo 2* have been eased off by the latest generation of videogame consoles and he mentioned that in the sequel released in September of last year he was able to achieve a much more nuanced control of the music in *Halo 3*.

As previously mentioned earlier, however, while undertaking the analysis, I had an illuminating realization – that despite my own criticism of a western-centric musical conception, I myself was perpetuating the same view in the focus of my analysis. In the immediately following section, I redefine my focus to include the entire audio-spectrum of *Halo 2* and examine the musicality inherent in the previously disregarded synchronized sound effects and background ambient sounds.

#### 4.4 *Halo 2: The integration of music and diegetic sound*

By my own admission, I have criticised the videogame industry's overly western-centric view of music, the kind of thinking that says music is performed in a concert-hall according to the rigid instructions of a score. In my early thinking about the music of *Halo 2*, I myself was guilty of a similar perception and of viewing *Halo 2* through a similar lens. In this section I present the thesis that within *Halo 2* the music, ambient, and diegetic sound effects all possess an infusion of musicality, with the result being that individual elements are often indistinctly delineated from one another. This blurring of the lines between music and sound effects results in a musical approach unique to videogames that is well situated to potentially capitalise on the best of both worlds. Through structured and planned compositions the desirable authorial control over composition is maintained, and by maintaining a non-traditional, more synchronised relationship between the 'musical' sound effects and ambience (in this case acting somewhat similar to a *musique concrète* soundscape composition) and the visuals. In this section I will examine some of the causes for this approach and present evidence for why I believe that it is indeed existent.

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<sup>117</sup> Ibid., 17:38

Stop and listen at any point within a *Halo 2* level and there is always sound. Even if music is not playing, there is still an underlying ambient location track and a range of potentially thousands of individual synchronised sound effects ready to be triggered by everything from weapons fire, to vehicle noises, to the player characters own footsteps. In soundscape composition, these are all potential musical elements, and within videogames there is a uniquely affecting factor in their production that means, potentially, these sounds can be purposely more musical than they would ordinarily be. In talking with O'Donnell, he noted that in videogames, unlike film and other media,

...everything is virtual so we have no source to begin with... there's not live action that we shot, [to] listen to what we recorded and implement that... everything is virtual... character models and weapons and vehicles and you name it are all completely virtual so they have absolutely no sound, there's no sound at all.<sup>118</sup>

Since there is no original source for the things that require sound within *Halo 2*, O'Donnell and his team of sound designers are forced to design everything that is ever heard throughout the course of playing the game. Some sounds, particularly the human weapons and vehicle sounds were designed to 'sound close to what real world sounds might be,<sup>119</sup> that is there was an element of aiming for realism, however he noted that particularly with the alien sounds, they were more synthetic and freely created,

We used more of our musical instruments to create the sounds of the aliens so that they— that whole suite of sounds sits in a different place from the human sounds.<sup>120</sup>

The fact that certain sound effects were actually created with musical instruments is an important point, and it is my contention that as a result a number of sound effects end up sounding similar to their musical counterparts, whether intentionally or not.

While this may not seem that dissimilar to regular videogame sound-effect production, as Mark Grimshaw in his book *The Acoustic Ecology of the FPS* notes,

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<sup>118</sup> Ibid., 14:33

<sup>119</sup> Ibid., 7:33

<sup>120</sup> Ibid., 7:33

‘sound is *designed* for the FPS game’<sup>121</sup>, however it is my belief that by creating the sound effects so as to contain within them a level of musicality not traditionally present in synchronized sound effects, *Halo 2* has pioneered a potentially new musical paradigm for videogames. The fact that the music and the diegetic sounds are musical, even possessing similar timbres due to their often being produced on the same musical instruments, serves as an aural connection between the in-game sounds and the music. Together they present a single ‘alien’ sound palette. A similarly important factor contributing to the infusion of musicality into diegetic sounds is the role that O’Donnell himself plays in development. He says about working in videogame development that,

I could be an audio *director*, which means I was able to say, look, there should be nothing that ever comes out of speakers in these games that I didn’t approve or create... that’s something you don’t necessarily get to do when you’re part of a team making a film or a commercial or a TV show or something...[they] have a lot of different roles and sometimes there’s no singular audio vision for the whole project and...games gave me the opportunity to do that.<sup>122</sup>

O’Donnell’s position of overall control in providing a single ‘audio vision’ is perhaps instrumental in helping explain why the sound effects have such a musicality about them – as a professional composer for a number of years, O’Donnell undoubtedly developed a keen musical sense and this, I believe, turns up within all areas of sound in *Halo 2*. For instance, in an article discussing sound for the first *Halo* game, O’Donnell even states that,

The background stereo ambiences in Halo were created in a similar manner to the music. All ambient soundlooping tags were assembled identically to the music files.<sup>123</sup>

He indicated to me that this was also the case in *Halo 2*, with background level ambiences working in a manner not dissimilar from the music. O’Donnell describes them as ‘ambient tracks that have...lots of different random looping elements in them

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<sup>121</sup> Grimshaw, *The Acoustic Ecology of the FPS*, p.20

<sup>122</sup> Recording of authors personal interview with Martin O’Donnell, Timecode approximately 9:18

<sup>123</sup> Martin O’Donnell and Jay Weinland, ‘A Direct Sound Case Study for *Halo*’ in eds. Todd M. Fay, Scott Selfon, and Todor J. Fay, *Directx 9 Audio Exposed : Interactive Audio Development*, Wordware Game Developer's Library, (Plano, Tex.: Wordware Pub., 2004), p.422

that I can overlap, which causes entirely different pieces to play.<sup>124</sup> While these ambient sounds may not be consciously focussed upon, they are heard when there is no music, providing an area with a feeling of space. Additionally, O'Donnell refers to them as “glue” because of their usefulness in providing a smooth way of connecting separate pieces of music.

I call it glue because I know I can glue more traditionally linear pieces together on either end with some of these more ‘gluey’ kinds of pieces that tend to be less rhythmic.<sup>125</sup>

So while they may not function explicitly in the same role as the musical underscore, they are acting, via their implementation, rather like music and these ambiences often contain musical qualities themselves.

For an example of the musicality inherent in the sound effects, let us examine the covenant carbine rifle, a common weapon and one which the player often begins the level with when playing as The Arbiter.<sup>126</sup> When the player activates the scope zoom by clicking on the controller the right analogue stick, an ‘alien’ like zoom sound effect is heard and the screen is correspondingly zoomed in to the scope’s zoom distance. When clicked again, the scope zooms out and the player’s field of vision is returned to normal. The sound effect that plays upon zooming in is nearly identically in timbre as zooming out, however the pitch of the sound changes. Furthermore, while the timbre of the sound is a complex one it contains a fundamental low synthesizer tone which, to my ear, is near identical to the synthesizer sound used in the music track ‘Ancient Machine’, a particularly ‘alien’ piece of music which plays during the first level in which the player assumes control of the Arbiter. Additionally, these low synthesizer tones, contained in the covenant carbine zoom sound, seem pitched at ‘Gb’ for the zoom in tone, and a lower ‘Db’ tone upon zooming out – creating a musical interval of a perfect fourth.

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<sup>124</sup> Recording of authors personal interview with Martin O'Donnell, Timecode approximately 35:40

<sup>125</sup> Ibid. 35:40

<sup>126</sup> The Arbiter is a character that the player assumes control of on certain levels in Halo 2 who is a member of the aliens known as ‘The Covenant’. See, [http://en.wikipedia.org/wiki/The\\_Arbiter](http://en.wikipedia.org/wiki/The_Arbiter)

This example is by no means the only one and it is indeed indicative of a general trend; the plasma pistol in its charge-up mode sounds as a rising hum that reaches a pitch of ‘Bb’ when fully charged; the sentinel beam weapon fires a constant stream of energy at a pitch of an ‘A’ and upon releasing the trigger this rises up to a short ‘Bb’, the ‘A’ note acting like the ‘sustain’ portion of a musical synthesizer envelope and the ‘Bb’ the ‘release’. The actual pitches, however, are not the focus – more important is the fact that they can be pitched, with many such sounds possessing a fundamental tone, often despite their timbral complexity. Furthermore, a number of actions, such as reloading weapons, will trigger a short string of sounds which will play back at the same rate each time, and which possess a certain rhythm about them. Through their repetition, these strings of sounds become familiar to the player adding a further rhythmic dimension to them.

Part of the effectiveness of the Sound Effects/Ambience/Music relationship is also to do with the ‘mix’ of sound levels between audio elements, something that O’Donnell laboured to control and believes to be necessary for the kind of audio experience he wishes to give the player. He notes its importance saying ‘Content is probably only half of what is important; the other half is how all the music and sound effects are manipulated in real time.’<sup>127</sup> O’Donnell says,

The mix isn’t something you set, it’s that you allow the game to mix based upon what’s happening. If dialogue happens to come in, then whatever music is playing is going to be ducked 6db or whatever ... playing around with all of those; attenuation and EQ and all the rest of it.<sup>128</sup>

The relationship between audio elements in *Halo 2* is then determined by this mix, and the mix is dynamic. Below I present a table of a cross-section of the audio content in the opening few minutes of the *Halo 2* level “Sacred Icon”, a level in which the player controls The Arbiter and in which musical ‘alien’ sounds predominate.

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<sup>127</sup> Recording of authors personal interview with Martin O’Donnell, Timecode approximately 11:54

<sup>128</sup> Ibid., 73:14

To listen to the relevant recording that goes along with the table, the accompanying CD contains an MP3 file named 'SacredIcon.mp3'. In the far right column of the second table is the approximate timecode at which the major sound events occur. I recommend listening and reading along a number of times. Unfortunately, while doing this listening exercise with only audio allows for the listener to more actively focus on the sounds, it does mean that it is difficult to know which sounds are visually synchronized, however take note that sounds in the column 'SFX' are generally closely synchronized with on screen action, with the exception of a small amount of spoken dialogue at the end.

**Table of Audible Elements and their Musical Qualities in a section of *Halo 2*,  
from the level ‘Sacred Icon’**

<b>Music</b>	<b>Ambience</b>	<b>SFX</b>	<b>Time on Recording</b>
No music	Low howling <b>ambience</b> – presages “opera wails” from intro to ‘ <u>Veins of Stone</u> ’ (General pitch area of ambience in this area is Gb-G)	<b>Repair robots</b> using welding lasers	0:04-0:08
	Continues...	‘ <b>Weapon readying</b> ’ sound – player pulls out plasma pistol; synchronized SFX	0:06
	Continues...	- Clomping of <b>Arbiter</b> hooves (footsteps) is distinct and varied	0:09 onwards.
	Low Freq <b>Ambience</b> becomes prominent.		0:12-0:18
	Low rumbling continues...	<b>Repair robots</b> flying around (variable pitched whine, based on their speed)	0:20-0:30
	Continues...	<b>Piston:</b> Steam sound, Raising the pillar (ascending <i>gliss.</i> sound)	0:34
The “ <b>opera wails</b> ” in the music track ‘ <u>Veins of Stone</u> ’ rise out of the ambient background almost as if the ambience morphed into the music: <i>Cf. O’Donnell’s “ambience as glue” statement.</i>	Fades out underneath music (dynamic mix adjustment), then returns.		0:50
Continues...	Continues...	<b>Repair Robot</b> shoots his beam at a piston, raising it	1:12-1:21
	Continues...	Flying <b>Sentinels</b> spawn on a distinctive ascending <i>gliss.</i> sound	1:34

	Continues...	<b>Sentinels</b> flying have a G-Gb pitch range	1:38 onwards
	Ambience becomes almost throbbing	<b>Sentinel</b> beam has ~A when it shoots, up to a Bb when it releases	1:41
	Continues...	<b>Player Character exclamation:</b> a grunt of pain after being hit with laser	1:59
	Continues...	<b>Warning tone</b> indicates player character's personal shield is low: an Ab staccato pattern (This is the same throughout the game)	1:59
	Continues...	<b>Sentinel's</b> robotic utterance, rhythmic, somewhat C pitched	2:06
	Continues...	<b>Plasma Pistol</b> Ascending <i>gliss.</i> up to Bb when fully charged	2:07
	Low rumble increases.	<b>Sentinel</b> death sound: explosion, then falls to the ground.	2:09-2:13
	New <b>Ambient</b> element: a ' <b>whoop</b> ' kind of noise – F~Gb	<b>Distant Shooting:</b> the ' <b>needler</b> ' alien weapon – rhythmic pattern	2:25
	Continues...	<b>Grunt</b> (friendly character) utterance 'Arbiter our savior...' upon seeing the player character.	2:43
	Continues...	<b>Covenant Carbine</b> shooting and reloads,	2:56, 2:58
	Continues...	<b>Jackal</b> (friendly character) utterance.	3:12
	Continues...	Communication with <b>Tartarus</b> (player characters commander)	3:16
Rapid computer/electronic bleeps section in ' <b>veins of stone</b> ' (Interesting contrast in that this piece is so atonal, almost <i>un</i> pitched)	Continues...		3:26

A number of individual samples of particularly musical weapon sounds are also included on the CD, with examples of sounds isolated as much as possible from other in-game noises. Below is a list of the individual sounds available on the listening CD under the heading of “Sound Effects” with comments to help guide the listener, explaining what the particular sound is and the nature of its musicality.

**Table of individual sound effects**

<b>Sound:</b>	<b>Filename</b>	<b>Comments</b>
<b>Plasma Pistol</b> ‘Charge firing’.	PlasmaPistol1.mp3	Note the glissando ‘charge up’ sound effect of the plasma pistol.
<b>Plasma Pistol</b> regular firing & charge firing	PlasmaPistol2.mp3	Compare normal shooting at first to the ‘charge up’ sound.
<b>Carbine Scope</b> zoom	CarbineScope.mp3	Listen for the Perfect 4 <sup>th</sup> interval as the carbine scope zooms in & out.
<b>Carbine Weapon</b> fire & <b>Personal Shield</b> recharge	PersonalShield.mp3	Shooting a barrel w/ the carbine results in damage to the player’s health, prompting the ‘shield warning’ tone. Note it’s Ab staccato pattern
<b>Sentinel Beam Weapon</b> fire	SentinelBeam.mp3	The sentinel beam is fired numerous times, in short bursts and for longer durations.

Firstly, this listening exercise shows that, of the 19 sound effects identified in the ‘Sacred Icon’ level listening exercise, 12 of them are musical either in pitch, or in rhythm. A specific musicality in timbre is harder to identify, however I believe that most if not all of the remaining sounds have a timbre that is similar to some other element in a musical track. Secondly, the ambience is shown as always present, and that is largely the case in any level of *Halo 2* unless it is being ‘ducked’ by an amount to make an explosion sound louder, or dialogue more audible. The ambience is always there to provide a sense of audio consistency and space rarely ever being a major sonic focus in itself. Listening to the level ambience and sound effects with a focus on musicality reveals that it is present in nearly every aspect of *Halo 2*’s audio.

To sum up my argument, I believe that the diegetic sound effects of *Halo 2* are infused with a musicality that both adds to their effectiveness as sonic identifiers, making them potent and distinct, as well as allowing them to contribute to an overall *musical* ‘acoustic ecology’, to borrow Mark Grimshaw’s term. Grimshaw steers clear of discussing non-diegetic music in his work<sup>129</sup>, however I believe that in *Halo 2* the musicality of the sound effects work to bridge the gap between music and sound effects and is centrally important because of how it changes the relationship between music and visuals. Sound effects are largely synchronised with image, and this thesis has been aimed at discovering ways of changing the traditional musical-visual relationship from a static one, to a dynamic and responsive one. *Halo 2*’s music-infused sound effects and ambiences present a picture of one unique way for music, in the broadest sense, to operate within videogames that is unique to the medium. This finding is significantly different from past ones, including Zach Whalen’s study of videogame music, because it is specifically applicable and targeted to first person perspective videogames. While other genres of videogame have employed ‘musical’ sound effects to good use, the FPS genre has traditionally been focussed on “realism” and the accurate representation of image and sound.

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<sup>129</sup> Grimshaw, *The Acoustic Ecology of the FPS*, p.28

#### 4.5 Conclusions

In this chapter I argued the merit of choosing *Halo 2* for a musical study, and indeed it has proved to be a fruitful exercise, revealing how from one perspective the ‘music’ within the game is a part of the dominant paradigm, while from a perspective that, in the words of Blacking, views western music more simply as ‘a system of musical theory and practice that emerged and developed during a certain period of European history’,<sup>130</sup> a rather different picture emerges. While O’Donnell himself notes that he tends to ‘write and produce linear music,’<sup>131</sup> he does so out of a belief in the evocative power of the tradition, and not because of any failure to try and capitalise on the potential of the medium. Because of a number of reasons, including his overall position of control over the entirety of the sound within the game as well as the nature of videogame sound itself as entirely created, I have demonstrated that music has crept into certain areas of the synchronised sound effects leading to a blurring of the lines between sound and music. This approach, I believe, represents an interesting dimension in videogame content and one that is rich for future study.

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<sup>130</sup> Blacking, *How Musical Is Man?*, p.3

<sup>131</sup> O’Donnell in Aaron Marks and Martin O’Donnell, ‘The use and effectiveness of music in *Halo*: Game Music evolved’, *Music4Games.net*.

## Chapter 5 - Summary and Final Conclusions

In this thesis I set out to identify and elaborate on some of the areas for potential new uses of using music in videogames. I began by building an argument for games uniqueness and the necessity for analysing and discussing them in ways that are directed at and tailored to their nature. I discussed the work of Ian Bogost and Gonzalo Frasca who have written numerous works to this end, as well as the writing of both Marie-Laure Ryan and Espen Aarseth who deal with issues of interactivity as they pertain to literature and, by extension, to videogames. I concluded that if as these writers seem to suggest, that videogames possess unique attributes and capabilities, then it also seems prudent to believe that music could also potentially be used in these games in a unique way.

This thesis then addressed what I see as the ‘dominant musical paradigm’ from which a large majority of games have been produced, one which sees little that needs undertaking to be able to accommodate a linear media, such as music, within a distinctly non-linear format. I then applied a critique to the paradigm, pointing out the western-centric bias within this dominant view of music and suggesting that other traditions, even certain subsections of the western *avant-garde* tradition, possess notions of music that are more compatible with interactivity and non-linearity. Additionally I suggested that the dominant paradigm was missing an important opportunity by not taking advantage of a deeper level of relationship between audio and visuals, shown to be possible by a number of current videogames that do break from the traditional musical paradigm, noting both the musical-visual potential and the musical-interactive possibilities that these games point to.

Finally, I examined the music of *Halo 2*, both a critical and financial success, for its use of music. I conducted an analysis of how it chose to employ music and to what ends, and I spoke with the composer, Marty O’Donnell, to ascertain his personal musical philosophy and discover his rationale for the musical choices he made. I also discovered that, with a significantly redirected focus of analysis, reflecting a musical conception discussed in the earlier critique, a new musical paradigm emerges. This paradigm treats all sound as potential music within a soundscape of musicality, and is

revealed in *Halo 2* by attentive listening to and eventual familiarity with the synchronised sound effects and the background level ambiences. I attribute its existence to a number of factors, but certainly high up on the list is the influence of Marty O'Donnell himself. Interestingly, he says that, 'We share a philosophy here at Bungie that we like to call "Audio the Bungie Way."' <sup>132</sup> Perhaps more accurately it should be called "Audio the Marty O'Donnell Way" since, in his position as both composer and audio director, O'Donnell by having such a strong creative vision for the entirety of sound in *Halo 2*, resulted in the imbuing of musicality into more traditional sound effects. The effect is a somewhat unique employment of music, and the musical, within the videogame *Halo 2*; one which presents a fascinating area for further study and analysis.

To come full circle, I want to again briefly examine *Randy Balma: Municipal Abortinist*, which I said in the introduction was an exemplary videogame, with the new found insights from my analysis of *Halo 2*. Using the same standard, if we examine the sound effects of *Randy Balma* we also find a level of musicality. Cymbal and drum crashes replace typical car-crash sounds in a more explicitly 'musical' coopting of sound effects than even *Halo 2* and these sounds also works toward the same aesthetic goals as the music. In conclusion, while the use of music in videogames has come a long way from the simple sawtooth and square-wave tones of the 8-bit era, Martin O'Donnell sums up effectively why he is excited about the medium,

Music in games still I think has a huge unknown path before it, I have no idea where it's really going to go. Games as a medium in general are still potentially in their infancy. <sup>133</sup>

I believe that this thesis has shown just how much further there remains to go, and has raised a number of important issues that will need to be addressed in the future for the medium to attain its full potential.

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<sup>132</sup> O'Donnell and Weinland, 'A Direct Sound Case Study for *Halo*' in Fay, et al. *DirectX 9 Audio Exposed : Interactive Audio Development*, Wordware Game Developer's Library, (Plano, Tex.: Wordware Pub., 2004), p.417

<sup>133</sup> Recording of authors personal interview with Martin O'Donnell, Timecode approximately 85:04

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## List of files on the attached listening CD

- Recording of interview with Martin O'Donnell – 'O'Donnell Interview.mp3'
- Recording of a section of the level 'Sacred Icon' – 'Sacred Icon.mp3'
- Recordings of sound effects
  - Plasma Pistol charge shot – 'PlasmaPistol1.mp3'
  - Plasma Pistol normal/charge comparison – 'PlasmaPistol2.mp3'
  - Carbine Scope recording – 'CarbineScope.mp3'
  - Personal Shield warning tone – 'PersonalShield.mp3'
  - Sentinel Beam weapon fire – 'SentinelBeam.mp3'