Computer Game Music - A Multifunctional Medium

by Cian Furlong

Contents

Introduction

Computer games are played by young and old, but one could say that generally, they belong in the domain of the under thirties. In most developed countries, especially in the West, computer games are a daily part of life for teenagers, although the average age of a game player in the United States is twenty-eight. Games can be played alone, or with others. They can thus isolate and bring people together, in a manner of speaking. Multiplayer games can be played with someone while in their presence, or, more popularly, over the internet. These games have the power to give a person in say, China the ability to go to war with someone from South America in a realistic World War II environment.

This dissertation is an attempt to come to terms with the phenomenon that is computer game music. There is not a great amount of literature written on the subject; computer game music discourse is a relatively new discipline, as many people tend to view it as an extension of film music studies, especially in academic circles. In this dissertation I will outline some of the reasons why computer game music differs significantly from film musics, the most prevalent factor being game music's non-linearity, as opposed to the fixed content of a film score. Reasons as to why universities have waited until now to tackle the subject are examined in one of the later sections in the work. Thus many of the articles referenced in this dissertation are not completely 'musical' per se. However, I have endeavoured to include as much of the available discourse that is available on the subject from game music composers, film music authors, game music enthusiasts and anyone else who has written anything worthy of mention. The title of the essay alludes to the fact that game music acts on many different

levels in many different ways, and of course, is also a reference to modern game music's non-linearity. It is divided up into fifteen different sections or chapters, which are outlined below.

Music in computer games cannot be examined without first examining the history of computer game audio. This is mainly a technological history, and forms the first chapter of my work. Since the limitations of this music are usually controlled by the technology which frames it, the history section will show how game music has progressed with the audio capabilities of different cards and chipsets, and also how its functions have changed and expanded over time.

The relationship of music with this technology must also be examined and I have looked at this in my second chapter. Here, I examine the role music plays in our lives today, both as commodity, and as a purely functional medium. The effects of the relationship between technology and music can be seen in certain social systems, and this section deals with these effects.

My third chapter will deal with language particular to computer game music. Since a terminology of computer game music has not yet been established, and because the scope of the technology which controls it is ever-widening, I have tried to briefly outline a simple few phrases describing at what points and how certain musics can occur within a game. The small amount of existing game music theory is also utilised.

My fourth chapter will look at theory of computer game music. In this section I draw on a small body of literature published online by Zach Whalen and Matthew Belinkie. Although Whalen and Belinkie have only written one essay each on the subject, their input is quite

valuable to this section. I also examine widely accepted reasons for game music's existence, as well as whether music is actually needed in games at all.

The fifth chapter evaluates the effects of musics on players of games, in both the computer game world and on quiz shows. This will give a general insight into what music adds to a game. However, since game music has had different roles throughout its relatively short history, the sixth chapter deals with these different functions, as well as different trends which have existed. There I examine several games from different periods in game music, from the early 1980's up to the 1990's.

Since the number of functions of music in games today is expanding rapidly, my seventh chapter will examine these new functions with regard to two relatively new titles, *Metal Gear Solid 3* and *Ghostmaster*. Here I use these examples to show how modern game music can be programmed in different ways, distancing it from musics which appear in other media.

This leads neatly into my eighth chapter, which deals with the differences between game music and film music. Here I look at the basic differences between films and games, and hence the reasons why some film music theory is not sufficient to use when discussing game music. I will look also analyse what the two types of music have in common, and how both musics function as 'meaning-making systems'. This has led some analysts to ascribe film music rules to game music (see Whalen, 2004). The conventions used by game music nowadays may have their roots in film music, but what game music has in store for the future is an entirely different matter, and thus this section is devoted to distinguishing game music from film music.

In the commercial world, game music has become a major way for companies to cash in on games; this subject has become a large part of my work. Recently, the profits of the games industry have exceeded that of the film industry.[1] The multi-interactions between the games, record and the film industries have made this possible. In my ninth chapter, on the subject of the marketing of game music, I examine the recent usage of pre-existing music in games, in terms of both its commercial appeal and it's suitability for the games in which it appears. Also examined here are new trends in its marketing, such as game music concerts.

My tenth chapter examines the formation of a subculture by a generation who have grown up with the phenomenon of game music. Here I look at how the changing role of music in our society has given birth to a new generation of game music fans who fan the flames of its marketability. This culture is one which exists for the most part on the internet. Since a lot of my research was conducted on the internet, this chapter is seminal within the work, firstly by examining the people for whom game music is important, but also to establish where much of the material used in this dissertation was dug up. I also look at whether game music can come forward and be accepted as "cultural" and not just an element of pop-culture.

In the next chapter I speak to the gamers themselves about game music on an Irish website forum. I ask an open ended question, and display some of the answers which were posted on the site. Here I pose the question of whether a "genre" of computer game music exists, and if there is any one element which makes a particular game music memorable or striking. Here I wanted to establish if any shared criteria in this subculture exists for what represents a "good"

---

[1] see article at http://www.cnn.com/2005/TECH/fun.games/08/10/video.game.music. ap/index.html

game soundtrack. Also, conversing with the gamers to find why certain musics are better than others shows the subject from an ethnomusicological standpoint.

In chapter twelve I change focus and turn to composers of game music. I look at some trends within the field of game composing Here I also interview James Hannigan, an accomplished game music composer. He calls for new ways of thinking about how to use music in-game, given the technology which is available.

The thirteenth chapter looks at game music at university level, and the reasons why it warrants study. Subjects which are entrenched in computers are typically not studied in Arts departments due to the fast-paced nature of technological change. However, game music should not be ignored just because it is technological or has been regarded as a "novelty" by some. Here I also draw parallels between games and music, and show what can be gained by establishing an academic language for future discourse on game music.

My fourteenth chapter is a case study of the *Super Mario Bros*.music, a tune which has been reinvented many times by the culture, or subculture, mentioned above. The section includes a transcription of the "Overworld" theme from the game, written by Japanese composer Koji Kondo. It will conlude a lot more information about the culture themselves, since I was able to contact some of the authors of the examples looked at here. There are seventeen versions of the Mario Bros.Overworld theme here. This will hopefully show how deep the game music phenomenon goes. This chapter is followed by my conclusion.

Throughout each chapter, I outline some techniques of situating and analysing this music, as well as situating it in a wider social context by conducting the case study and an interview

with actual game composer. In this way I hope to gain an insight into how game music does function, and indeed, on what levels it does this. I am drawing on some film music theory in this dissertation, as well as from some ethnomusicological and musicological ways of thinking, while attempting to incorporate the few current theories on computer game music that exist. The purpose of this dissertation is to try to add to and develop these theories.

Throughout the essay I reference many different computer games which might be unfamiliar to some people reading it. Thus I have included a short appendix (a 'game-ography', if you will) at the end of the games mentioned in the dissertation. It has pictures which should provide an insight into what the different games look like, and the technology and thought processes that went into their creation.

Two compact discs are included with the dissertation. The first is a compilation of some audio clips taken from certain mentioned games, and a marking in the main body of text will signify when a clip is to be listened to. These game musics are an important reference and the tracks should be listened to as one reads the dissertation. A second disc is for use with the case study, and is comprised of the Mario Bros. *Overworld* theme versions and remixes.

CHAPTER 1

Technologies - a History

To properly understand the role and function of computer game music (or 'video game' music, which refers specifically to console games) one must first look at the history of computer game audio. This is a history which has moved hand-in-hand with technology. Technological progress leads to better looking and sounding computer games. Indeed, "progress" in computer games in general depends on technology, if here we understand computer game progress as being that which makes the gaming experience more believable.[3]

Since the early 1980's, there have been two ways of playing computer games at home. The first option was on a console, which was a dedicated game machine for which one would buy cartridges (nowadays DVDs) with the game information on. Today's equivalent of these machines would be a Playstation 2 or a Nintendo Gamecube. The second option was on a Personal Computer, or PC. PCs (spawned from IBM's PC) have moved forward tremendously in terms of memory size and CPU power, and use similar technology to a MAC. In this section I will look at the history of PC audio, and follow it up with a look at

---

[3] Of course this is not the only criteria for creating a successful computer game. Nowadays, even with existing technology which can mimic three-dimensional environments, most people argue that the "best" computer games are those which command continuous attention, even if they do not represent reality at all. Indeed, most of the more successful games are based on pure fantasy.

.

how different consoles used sound. Arcade games in the 1970s often contained music of some sort, but it was typically monotonous. There were some exceptions however, with some arcade games sampling full soundtracks from tapes.

The PC speaker (or beeper) was the first sound system to be used in IBM compatible PCs. It is unable to play more than one tone at the same time, thus truly polyphonic music was impossible on a PC for many years. This was the reason it was often nicknamed a 'beeper'. However, some innovations on the part of composers and audio programmers meant aural polyphony could be achieved. This was done by using minute gaps in between each 'beep' resulting in an aural polyphonic effect. This technology led to some games being able to mimic speech. Today the PC speaker is used to show basic errors or warnings on a computer, though it can still be used to its full potential should the need arise.

The beeper was followed by the introduction of "sound cards" to computers. These were expansion cards to the existing technology of a PC, that could be installed by the PC owner. The first computer to feature a digital sound processor was the Commodore Amiga released in 1985. Before 1988, sound cards for PCs were rare. The cards were introduced specifically for audio software such as music composition tools or speech synthesis, and could play either one or the other. *AdLib* was one of the first companies to produce a card with two modes. One mode used nine pre-programmable voices and the other used three voices to produce five independent voices giving a total of eleven. However, it was a monophonic card. *Creative Labs* brought out a stereo audio card around the same time called the "Creative Music System". It had twelve voices, but the basic technology behind it was essentially a square-wave generator. It sounded like twelve simultaneous PC speakers, and so it never caught on the way the AdLibs audio card did. Creative Labs then produced the Sound Blaster card. This

was basically an AdLib clone, but it added the ability to interface to MIDI equipment, such as synthesizers, a sound coprocessor to record and play back digital audio, and a game port for adding a joystick. The Sound Blaster eventually dominated the market. This line of cards led to technology which could add recorded dialogue to computer games and even reproduce reduced quality motion video. When games company Sierra On-Line chose to make music for add-on hardware instead of the built in PC-speaker, the concept of PC music changed in a huge way. Sierra opted to make in-game music (for King's Quest 4), for both Roland and Adlib synthesizers. The popularity of Roland's synthesizer (the MT-32) lead the way for the adoption of both General Midi and MPU-401 standards as the definitive means of playing in-game music until the mid-1990s. Examples of Midi music being can be found in games such as Doom. (example given on CD). General Midi systems allow a computer to hold a fixed number of sounds, like a synthesizer, and basically map out which part is to play where in the given music.[4]

All the computer game music from earlier times (that is, the 1980's) especially on PCs was monophonic, as you can hear from the examples given on the CD. The birth of 'Midi' changed all that, as games like Doom came along and utilised PC synthesizers to full effect. 'Doom' uses silence in it's music to great effect, the music surprising the player in a game where creatures attack the player out of nowhere. [see doom audio examples].

---

[4] MIDI can be defined as an industry-standard electronic language that defines each musical note in an electronic musical instrument such as a synthesizer, precisely and concisely, permitting electronic musical instruments and computers to exchange data with each other.

Today sound cards have evolved way beyond just Midi performance. They can play audio at up to CD quality, as is evident from the *Hitman 2* and *Call of Duty* audio examples. [see audio examples 2 & 3]

While consoles today have a similar audio qualitative capacity, this was not always the case.

Companies such as Nintendo and Atari produced the first successful video game consoles in the early eighties, and usually included expansion packs such as keyboards to compete with PCs which were (and still are) more powerful and versatile than dedicated games consoles. The music for many console games was produced on 8 bit music chips and was quite monotonous, that is, until the release of certain games for the Commodore 64 and the Nintendo Entertainment System (NES). The NES was capable of playing four different sounds at the same time.

The audio capabilities of the two afore-mentioned 8-bit machines eventually gave composers the ability to compose music polyphonically. Composers such as Rob Hubbard and Martin Galway are revered for their musical work on certain games for the Commodore 64. One of the most important composers for NES games was Koji Kondo, who wrote themes for *Super Mario Bros*. and *Legend of Zelda,* the former of which will be the case study for this dissertation.

The Sega Mega Drive's sound quality was a huge step forward from previous game console systems, but it was Nintendo's SNES (a 'Super NES', released in the 1991) which brought game console music to a new level. Using a Sony sound chip, the SNES brought digitized sound effects to game consoles. It was the first game console capable of producing sequenced audio which could convince listeners it had been recorded live.

More recently, sequenced music has helped improve systems as sound chips improve and storage space increases. CD-based consoles permit some games to include exceptionally impressive music, such as that featured in Final Fantasy VII on the Sony PlayStation.

Today, much video game music comes in the form of loops; audio which repeats continually without interruption. This idea is thought of as necessary by many game designers, due to the unfixed timeframe in which a game will be played. However with the the popularity of CD-based game systems, looping has seen a particular decline of late.

CHAPTER 2

Musical and Technological Issues

Since the level of technology here is directly linked to the increase in quality of music or audio in computer games, it is worth having a brief look then at whether or not, technology and music work together, and if so, how. Timothy Taylor in the introduction to his Strange Sounds (2001: p.7) below describes how technology tends to work:

"music technology- any technology - is not simply an artifact or a collection of artifacts; it is, rather, always bound up in a social system..."

Thus technology is only technology due to the people around it using it. They create it, they employ it, and Taylor also asserts that it is only technology for as long as it is socially accepted as being "new" (2001:10). People must use it and it in turn affects or becomes part of their social systems.

"Any music technology, then, both acts on its users and is continually acted on by them" (Taylor 2001: 38).

To situate Taylor's words in the realm of computer game music, music is here part of a technological system, but one designed primarily for entertainment. Music and technology are very much bound up with the entertainment industry as well. I will delve into this subject later in the dissertation. We have also seen, from the history of PC and console audio, and my discussions below will show, how computer game music has evolved in terms of its

actual sound and audio capabilities into what people nowadays are used to hearing and expect to hear. Therefore the social aspect of computer game music is an important perspective from which to examine the subject, due to its being bound up in technology. This is why, in the second part of the dissertation, I have chosen to include public discussion of computer game music, as well as to present a case study into the dissemination of one particularly well-known computer game 'tune', the *Overworld* theme from *Super Mario Bros*.

Large issues in the musical world which most will agree are important topics are "music as art" performance, and musical meaning. I will now address these with regard to my dissertation. In the same book, Taylor (2001: 45) writes:

"Pierre Schaeffer noted the two possible paths art could take in an era of high technology: either technology could come to the rescue of art (his position) or the ideas of science and technology could be adopted for use in making art".

Within this dissertation I am going to avoid using the word "art" as much as I can in relation to computer game music. I am here looking at computer game music as a purely functional music, and at its function on a mass-cultural level. This is not to say I am avoiding the issue of whether it is "art" or not, but I just do not believe that the argument applies. The social networks in which computer game music exists as a large interest do not even consider the issue of it being art. This is a good example of how technology has changed the nature of the concept of art itself. It has also blurred the distinctions between 'high' and 'low' art, as will be visible in the 'Culture' section discussed later below.

Claudia Gorbman has written:

"The age of mechanical/electronic reproduction, and of the commodification of music, has fundamentally changed the meaning of music, the ways in which we listen to it and hear it".

(Gorbman 1987: 56)

Here Gorbman is addressing film music, but her argument is to look at the music as something which is purely functional. This means that in this day and age there are many more than just one mode of listening. She equates film music with "easy-listening" music. In a similar way, I will equate certain computer game musics with "background music" and "ambient music" in my fourth chapter.

In computer games also, it is technology in the end which dictates where and when the specific music plays within a game. True, these must be programmed to an extent, but the game music is always in the hands of the machine. It is up to the machine to play the right music at the right times. Performance practice of computer game music is still in its embryonic stages. Thus even though computer game music performance does exist, its most active and most functional form is how it is manifested while playing in a machine accompanying a game, and not live. This is not to say I am ignoring performance: my case study addresses it directly.

So, in conclusion to this section, musics in computer games are inextricably bound up in social systems due to the games technological roots. Here, certain Western musical

conventions, such as 'music as art', are not shared by the people in these systems. One cannot then discuss a music or indeed any cultural concept in terms which simply do not apply, or are not used by the people within that system. This is a standard approach to studying music ethnomusicologically, and I will be applying this outlook to the subject matter of this dissertation.

CHAPTER 3

Terminology and Classification

In this section I will look at the different places in a game where music can be heard, and attempt to categorise them.

Generally speaking, there are three prevalent moments where one can hear music in a computer game, if it is a recent release.

One occurs at the title screen, which is usually the opening sequence of a game, or an options menu. This is usually the first important music one hears. Its importance will be elaborated below. (I am ignoring the music which sometimes accompanies the logos of the developers which appear before this screen).

In-game music is the second type. It is this that forms the basis of most of this dissertation. It accompanies, and is usually connected to, the action of the game. The third type is music which may accompany any cut-scenes in the game. Cut-scenes are usually pieces of "film", which further the plot of a games narrative. They usually involve a dramatic scene between two or more people, and are commonly accompanied by music. Using film music language, this music is usually non-diegetic, [5] that is to say, it is music that has an invisible source. Because cut-scenes generally occur during gameplay, they can then be seen as part of the in-game music as well. Whalen has argued that cut scene music does not warrant serious study,

---

[5] 'Diegesis' and 'non-diegesis' are terms referring to music which occurs in film. Diegetic music has a visible source, such as a radio or a musical group visible on the screen at some point. Non-diegetic music, on the other hand, has an invisible source, and is typefied by an orchestral score heard while watching a film, for example.

but it is my view that cut scenes are as much a part of the game as the gameplay itself. The music which plays in these scenes is almost always related to the other in-game music. I am here taking the same view expressed by Anahid Kassabin in her "Hearing Film" that:

"Any one instance of music has various relationships, to other music, both within the film and more generally". (Kassabian: 2001)

 Again, this statement can be applied to game music aswell. One cannot look at music in games only from the "in-game" music standpoint; all musics must be considered.

Other musics may appear, but they are the type that might come from radios or have a visible source within a game, and are considered diegetic. However, as Whalen has observed, music can also form part of the action, as in Super Mario Bros. or Digger. In these cases, musical motifs can be used as accompaniment to certain specific actions, such as jumping. This is a subtle method of letting the player know that they are succeeding in musical as opposed to lingual or visual ways.

From a developers point of view, the title screen music is very important. This is the first music one hears when playing the game. For example, when playing *Hitman 2: SIlent Assassin*, Jesper Kyds rousing choral work accompanies the title screen. It makes a big impact on the player. An image of Hitmans head on the screen is visible, with darkened eyes, and wielding a gun. [see audio example 2] The music itself sounds not unlike Carl Orff's *O Fortuna*. These two elements, the music and image, together create a tension, and one which infuses the Hitman character with power, and since the player will be controlling Hitman, the feeling of power transfers to the player. It is not uncommon for the same music to appear in

the game at some point. This happens in *Hitman 2*. Since the power of the Hitman figure has been established, this music can now be played at certain points in the game where his power has been shown, typically after he has succeeded in a major part of a mission. Thus the title music is important due to it being the first music the player hears, its usual re-occurence within the game and the fact that it can establish something hitherto unknown about the games narrative, tone and atmosphere.

In-game music usually consists of cued musics (this applies to more recent titles), or in older games, as background music. Both are usually looped in some way due to the uncertain time restrictions of the game. Cued music is music which is triggered after a specific event in the action of the game occurs.

There are many ways in which game developers can choose to use these musics. There can be cued and non-cued background musics and cued action musics. Another type is ambient or atmospheric music, and it can be put under the heading of background musics. On top of this, we have music as action mentioned above, and cut-scene music. The last category is music as theme. *Legend of Zelda: The Ocarina of Time* demonstrates this well. This also occurs in games where the aim is to make music. Using terms like in-game music however, do not help, when the main focus of study here is the in-game music. So, I will break them down further.

Here is a brief classification system I have devised to clearly classify each situation where music can play, and each type of music which can occur in a game.

Music In Game

Background music - This sets up an atmosphere or ambience. It can be cued or non-cued and is usually looped. It usually makes up the largest amount of music, and will be what the player hears most of the time. 'Levels' in games refers to different worlds or stages, the difference usually being an increased difficulty and changes in atmosphere and surroundings. Different levels usually have different musical themes, although in many recent games, certain themes appear in all.

Cued action musics- These are always triggered by a certain event. The most common use of it would be when when fighting a Boss in certain games. In fighting games, a "Boss" is an enemy that must be defeated, usually at the end of a level. A Boss is usually a larger enemy than normal ones and is harder to defeat. [see resident evil boss audio example, final fantasy boss music, and metal gear solid 3 alert audio example]. The lines between action and background musics can sometimes be hard to spot.

Cut-Scene Music - This is usually related somehow to the main 'in-game' music (see above). It works in a similar way to film music. It can usually can be heard at the last cut-scene in a game, if nowhere else. [see bunny theme from doom audio example - The clip here played at the end of the first episode of Doom levels, whereupon one firstly is shown rabbits frolicking in a field, until the camera pans away to reveal a post-apocalyptic earth].

Music as Subject

Music as action - Certain actions are accompanied by certain musical figures. This could also be under the heading Sound Effects.

Music as theme - Music here becomes central to the gameplay, if it wasn't before. *Parappa the Rapper* and *Dance Dance Revolution* are good examples of games which employ this technique. Here, usually the player's quick reactions make either the rhythm or other parts of the music. The aim of these games is to help with the creation of the actual music. Thus the console or computer could actually be seen as a musical instrument. These games form a genre of game known as 'rhythm games'.

Other musics - These can be played during closing credits or appear at the peripheries of the game. Nowadays this is a way for some less known acts to get themselves recognised. [see ″Way to Fall″ by starsailor from MGS3 audio example]

Game soundtrack: This term is used usually to refer to the commercial release of a collection of songs or a score that features in a game.

All of the above musics can be and have been pre-existing musics.

CHAPTER 4

Theory of Computer Game Music

In order to study computer game music, one cannot use only established means of studying music, like those that exist for studying the Western Classical genre. Computer game music has more in common with film music. It is music that is functional. However film music language is not entirely sufficient either. *Diegesis* and *non-diegesis* are not terms which one can use comprehensively with regards to computer game music, apart from in those games which feature actual music-making by the player.

"Furthermore, the problems of identifying diegetic and non-diegetic music in videogames demonstrates the complexity of videogame space and its importance to the play experience and the involvement of the avatar and the player."

(Whalen: 2004)

Modern game design plays with these conventions. For example, in *Need for Speed: Most Wanted*, as well as in the *Grand Theft Auto* series, music plays on car radios and can therefore be considered 'diegetic'. However, this music has been pre-selected by the developers as music which will fit well with the action of a speeding car. Thus it is working as traditional 'non-diegetic' music has done, that is, to back up the action. Nowadays, game music is non-linear, unlike film music, and I will elaborate on this in a later section.

With the exception of these and a few other more recent titles, music has had a non-diegetic role in games in the past. However, much game music is programmatic. In these cases,

although the music is not part of the action *per se*, the action can dictate how the music will sound. Many newer games feature music that matches a certain scenario. For example in *Metal Gear Solid 3*, if the enemies are chasing the player, a chase theme will kick in, which is a busy fast-tempo piece of music, whereas a less 'frantic' piece of music plays as the enemies level of alertness dies down. This game will be looked at in more detail later, but suffice to say that non-diegetic music used in games has mostly followed programmatic film music rules.

The next section will briefly look at the main functions of these different musics and two widely accepted reasons for why they exist in games.

Background music

Earlier games included the use of purely "background music". The music had no immediate ties to the action or (narrative, if any), in the game. It occurs during the main gameplay, and not during title screens or cut-scenes. This music works in just the same way as the music which accompanied the earliest silent films worked. It was usually an attempt to mirror the mood of the gameplay, and would typically be lighthearted, such as that in *Carnival*, which was the very first game to feature continuous background music. Games were for play, and so the original music mirrored this: play is a lighthearted activity. Another example worth noting is Super Mario Bros. (The huge success of this particular background music has become a sort of internet phenomenon, which I will be examining in my case study). As has been proven, certain musics elicit certain reactions from listeners[6], and there is a general concensus as to what type of music may refer to what emotion.

---

[6] see Prologue to Anahid KASSABIAN, Hearing Film: Tracking Identifications in Contemporary Hollywood Film Music, (Routledge Ltd. 2000) and Claudia Gorbmans essay "Why Music? The Sound Film and Its Spectator" from Unheard Melodies, 1987.

Ambience

Computer game music can, on top of being background music, also create an ambience, an underlying feel to the action. It can set a scene. By using the musical conventions mentioned above, newer games seek to accentuate the action in a game. Music in this way not only parallels the action, as programmatic music will, but also helps create the actual environment in which the games narrative is set. For example, the game *Timesplitters 2* for the Playstation 2 uses different musics for each level, each of which are set in different points in history (and the future). The 1920's Chicago level employs music with a muted trumpet and sounds blues influenced, while the Space-Age futuristic level uses techno music, equating technology and the future with dance music, as many films also do. The Chicago level uses music influenced by actual music from the time in which the level is set. This a) creates an ambience, thus "setting the scene" b) brings a lot of connotative information to the level, exploiting people's preconceived associative notions about jazz, blues and gangsters and c) acts as background music.

Sometimes in games, the lines between music and background sounds can become blurred. Zach Whalen has examined the game *Silent Hill* as a good example of the dissolution of this distinction. (Whalen: 2001) The game uses atonal industrial music which could also be construed as just being industrial noise.

Absence of Music

Music however is not a necessity in computer games. Just as some films do not use music, such as documentaries, some games do not either. The absence of music does not necessarily retract from a games "atmosphere" however. It's absence can usually be a source of tension, especially when a player knows that the music *does* exist somewhere in the gameplay, such as in Metal Gear Solid. In this game, the music only plays when you are playing the game badly. The object of the game is not to be seen by anyone, and the music plays when an enemy spots you.

Another worthy example here is Call of Duty in Multiplayer Mode. This game allows different people to play online on teams against other teams in a World War II environment. These games are hugely popular and do not use any music whatsoever. The only sounds heard are the shouts of the different players (each soldier can shout comments to his comrades) and the guns and grenades going off.

Many games today also feature an options menu at which one can turn off the music in a game. Many player find music to be a distraction in games, especially one which requires quick reflex-action on their part. Simply put, some games just do not need music.

CHAPTER 5

Musics many functions within a game

Computer game music exists for many reasons. If we were to examine only recent games,
then we would see that it was there for 'emotional' reasons:

"Music enters to satisfy a need to compensate for, fill in the emotional depth not
  verbally representable"

<div align="right">(Gorbman 1987:67)</div>

Although Gorbman was discussing music in film here, this last statement can be applied to
game music, if we change one term.In place of the term "verbally" we can substitute
"visually" or even "mentally". Music in a game adds to the emotional impact of the actual
gameplay, the 'emotion' commonly being fear, panic or excitement. If we look at music
which features in games outside of those on computer, we can see this tension already being
brought about by music. Television also employs these techniques on game shows. On the
UKs Channel 4 quiz show "Countdown", two opposing players are asked to create words out
of randomly selected letters. They are given thirty seconds in which to fulfill this task. This
task is accompanied by music whose beat is meant to sound like the seconds ticking away.
Here, the sound of a clock adds to the tension and excitement for both the players and the
audience, and this is a more literal representation of what the above quote refers to. [see
audio example 8] Many other quiz shows use music, especially this kind of tense music as an
accompaniment to 'important decision-making' on the part of the player. Another good
example is the music from "Who wants to be a Millionaire", which employs a heartbeat

sound as rhythm accompanying the questions on which a large amount of money is at stake. [see audio example 9] Since there is no perceived time limit in this game, there would probably be quite a heavy silence here.

Let us take an audio example here. It is from a fairly recent game, *Metal Gear Solid 3,* from 2005. [see audio example 5] This music plays once an enemy has been alerted to the player's presence. It plays for 99 seconds, after which the enemy cancels the alert. It is made up of flute, James Bond-esque electric guitar and drums. This is the first music we hear, then after the man shouts "I see him!" and starts shooting, the music's rhythm doubles and a synthesizer is added to the mix. How this happens will be looked at later on, but the fact that the rhythm increases here adds a heightened sense of urgency to the task which must be carried out, which is, to alleviate that status, and hide the character.

 "the musical work... substitutes for experience and produces the pleasurable illusion that contradictions can be overcome, and difficulties resolved".

(Levi Strauss in Gorbman 1987:60)

Levi-Strauss here was stating that it is music's mythic status that brings about an emotional response in the listener. The game already has the player involved, but, a state of emergency is evoked by the music. Just before the new music plays, there is a sudden upward chromatic-sounding musical figure, before the new music begins. This is also meant to add to the surprise and to shock the player. But at the time of writing, this is a very recent game. These musics are programmed to think. Older games did not quite work in the same way, and to establish how they function, it is necessary to construct a function timeline of sorts. To do this we must first examine certain trends in the history of computer game music.

CHAPTER 6

Different times and trends

In this chapter I will analyse various trends in the history of game music, starting with a

phenomenon which has been there from the birth of games themselves: usage of music which

already existed. I will here analyse its effects. The first example here is *Digger,* a 1983 PC

game. It used as its music a looped tune which was actually not written for the game.[see

audio example 10] It is an upbeat jaunty piece of music in a minor key, a cover of a synthpop

instrumental piece called "Popcorn", released by Gershon Kingsley in 1969. [see audio

example 11] It was probably picked due to the original song's repetitiveness. It is basically

the same eight-bar phrase repeated in many gradually ascending registers and keys. It is a lot

easier to program eight bars of music than sixteen. But, it might also have been picked due

simply to its implicit jauntiness. It works as a piece of computer game music on many levels.

The wheels of Digger itself even move to the beat of the music, which lends an inherent

cartoonishness to the game. This could be termed "mickey-mousing".[8] Thus, although it is

background music, it evokes a certain mood. It also is synchronised with the action of the

game. As this plays we can also hear what was exemplified in Whalen's essay when he talks

about musicality in *Super Mario Bros.* (see Whalen 2004) In it he talked about how there are

discreet musical sounds (based on Western music of course) within the game to signal that

the player is doing well or not. In a similar way in *Digger,* diamonds play the notes of an

upwards major scale as they are eaten. When objects fall one can hear a downwards

_____

[8] In the early animated films of Walt Disney in the 1930s, Mickey Mouse and the other

Disney characters often moved in exact synchronization with music, even when they were not

dancing. This phenomenon eventually coined the phrase "Mickey Mousing"

chromatic scale, and when Digger dies, we hear the slow movement of Chopin's Piano Sonata No. 2 in B minor, typically associated with funerals

Another older title, *Elite* from the following year used Johann Strauss junior's "Blue Danube Waltz" as title music. [see audio example 12] This however had already been made famous to new generations by Stanley Kubrick for the docking sequence of his 1968 film *2001: A Space Odyssey*. In the *Elite* version of the music there is no polyphony, which is quite essential to this music for it to keep its character.[see audio example 13] This music depends on its contrasts between piano and forte, and *accelerando* passages, which are just not possible to emulate on a PC bleeper. Here, the music is there for purely representational reasons. It is doubtful that this music would be in *Elite* were it not for Stanley Kubrick. It occured while the player attempted to 'dock' the spaceship in the game, as well as at the title screen. It signalled that the docking was working, and that the player could relax, in contrast to the *Metal Gear Solid 3* music, which does the exact opposite.

3-Demon is a third example of early "recycled" computer game music. The game itself was a very early wireframe 3 dimensional game (1983) which used Scott Joplin's "Maple-Leaf Rag" as its title screen music, and high scores screen music.[see audio example 15] No music played during actual gameplay.

The version used in the game lacks many of the elements needed for it to sound like actual ragtime, since the original requires syncopation on a large scale. Still, it is recognisable and this is its function here, in that it provides a well-known and recognisable musical theme. Like the *Digger* disco music, ragtime brings with it connotations of novelty, and hence "fun". ("Novelty Piano" was a post WWI version of ragtime). It is something many players of

games could relate to, and brings expectations of enjoyment to the game. [see audio example 14]

Of course not all earlier games used pre-existing music, as my case-study will show, but by using older music written by long dead composers this avoided any copyright or legal issues. It was a common and easy way for programmers to acquire music which people could easily identify with.

Next came the games whose music tried to emulate the setting of the game, such as *Doom* (1993) or *Prince of Persia* (1989). In *Doom*, MIDI technology was used to great effect to provide a dark rock accompaniment to a game which is set in a satanic dimension. The composer, Robert Price has stated the following with regard to its composition:

 "The id Software development team originally wanted me to do nothing but metal songs for DOOM. I did not think that this type of music would be appropriate throughout the game, but I roughed out several original songs and also created MIDI sequences of some cover material..."

(Robert Prince at http://www.doomworld.com/classicdoom/info/music.php)

Although no cover material made it into the finished game, the fact that Prince had considered using older material shows that the trend had not ended, even by this stage. [see audio example 1]

Prince of Persia, on the other hand, featured music which showed some Eastern musical influences. This game was set in a series of underground dungeons in Persia. The main body

of music did not occur during gameplay however, it only played at the title screen as it tells a story and a very short musical figure played at certain stages in the game when the player encountered a Boss. The music is in a minor mode and tries to emulate music from the Middle-East, in a fairly stereotypical way. Here the music is acting as a catalyst, to help provide the illusion that the dungeons are actually set in a certain country. [see audio example 16] Besides the dress of the occasional enemy, the opening musical figure is the only indication that the dungeons are actually in "Persia", audible when the Prince is thrown into the dungeons, and a small musical figure is heard.

Id Softwares *Wolfenstein 3D* (1992) employs title music which is actually a Nazi-hymn called "*Horst Wessel Lied*". [see audio example 21] It was the official Nazi party anthem. (Initially the game was banned in Germany due to it's association with the Holocaust). This game was set in a Nazi jail during the second World War, from which the main character escapes. This music played at one of the title screens. [see audio example 22].

Games which are based on films commonly use parts of the films soundtrack, or at least it's main themes. Virgin's *Aladdin*, (1992) based on Disney's film of the same name, or the now defunct Data East's arcade game *Robocop* (1988) have both done this. The same music used in the games had been written for the films. This is a very common occurrence.

Therefore pre-existing music in games has always existed, as well as newly composed music. In both cases it usually tried to mirror the action in some way, but was not able to parallel the action directly. *Digger* did play a certain music once the character died, but this was not a very common occurence in games. Many games from the earlier periods did not feature any

music at all. The above trends are still prevalent in games music today, as the later sections will illustrate. I will now look at how music in computer games works today.

CHAPTER 7

Game music today

"The distinguishing feature of game music is that it responds to the player to some

  extent".

(Belinkie: 1999)

"Background music branches, often without noticeably stopping or pausing, and matches the

overall game state. Sometimes branching tracks are stacked up as layers. One difficulty is in

arranging content to keep the underlying process reasonably transparent, and the music

seemingly continuous."[9]

(Hannigan: 2002)

The quotes above show how some of today's game musics are programmed to respond to the

players actions. Sometimes this response is a change in the overall "feeling" or "mood" of the

music. In many of today's games such as the afore-mentioned *Legend of Zelda: The Ocarina

of Time* or *Metal Gear Solid 3*, this change from one music into another during gameplay is

---

[9] taken from Interview with James Hannigan at http://republic.strategyplanet.gamespy.

com/interviewjamesh.shtml

perfectly seamless. The following is a brief look at two recent games, including *Metal Gear Solid 3,* that employ programmed music using slightly different techniques in each case.

***Ghostmaster* (2002)**

Paul Weir is a British composer, sound designer and director with almost ten years experience working in video games. Here, we will examine his music for the recent title *Ghostmaster* (2002). The music itself is built from hundreds of small musical figures which are classified according to musical function, tempo and key. [see audio example The figures are separated into two different groupings: one for lower fear level, and one for higher fear level. Each one of these has two banks of melodies, one bank of chords and one of percussion. Weir explains on his website here exactly how the game music engine works:

"As the fear level increases, the samples are increasingly taken from the higher fear level group, at first creating a mix between the two groups then finally consisting of just the higher level sounds. The lower fear level sounds uses mostly solo instruments playing phrases with plenty of space whereas the higher level uses orchestral groupings with denser phrasing. Curiously some people perceive the ever changing music as reacting to individual events. Due to its fragmentary nature the player makes connections that don't actually exist, in the same way as a piece of random music placed against a movie will appear to synchronize in places".

(Weir: 2003)

Thus here the number of different combinations that can occur within the music help to synchronise it with the action of the game. It is a conventional musical format: solo

instruments represent a low level of fear, while more densely packed and "busy" music helps parallel with chaotic and high fear situations in the game.

Metal Gear Solid 3: Snake Eater **(2004)**

Since *Metal Gear Solid* is a sneaking game, the music works to show the enemy's different levels of awareness of the player's presence. Each alertness level has it's own music. When there is no alert status the music does not play. We hear only ambient sounds, such as jungle cicadas, or machinery, depending on the location. If the main character has been hiding for a while, the status (visible at the top of the screen) will decrease from 'Alert' to 'Evasion', with a loss of volume. Thus tension here is built through the use of different musical motives. Once all the enemies are dead or have given up searching for "Snake" (usually lasting about 99 seconds), the music fades out rapidly. These states are also displayed at the top of the screen. The following are two different states of emergency:

Caution:A muted electric guitar plays here along with what sounds like a snare and some synthesiser. Pizzicato strings and the occassional flute figure are also to be heard. [see audio example 17]

Evasion: Electric guitar now plays only the crotchets of the 4/4 rhythm, along with the drums (timpani). Flute still plays, but sounds more organised. [see MGS3 audio example 5] An interruption occurs at 0:11 and the status, along with the music, changes to 'Alert', which is even faster-paced.

Alert: Highest state of emergency. The music is at its loudest here. The music is fast paced with predominantly synthesized drums playing a semiquaver rhythm in both 3/4 time and 4/4 with brass, an electric guitar, and some sort of synthesized flute.

As James Hannigan has noted about the Metal Gear Solid games:

" In Metal Gear Solid 2, for example, music actually provides players with information they need to play the game effectively (for instance, signifying impending danger when little else does) and also features convincing transitions as music follows events moment by moment, significantly intensifying the action or a sense of urgency".

(Hannigan: 2004)

The *Final Fantasy VII* Boss Battle music has a lot in common with the Alert status music from *MGS3*. Both pieces have a fast tempo and are pieces in which the rhythm drives the piece - the drums play a large part in both pieces as well. Boss musics typically are fast-paced and rhythm-driven. [see FFVII boss audio example] The *Final Fantasy* excerpt is also comparable to some of the *Doom* level musics. The aim of this music is to get the player's adrenalin pumping and increase their level of immersion in the game. (In contrast to these, the opposite effect can be attained, when music is used to calm the player, such as that featured in *Resident Evil* in the 'Safe House'. The player knows they are safe from harm, and can save their progress in a special room where this music plays.[see audio example 20])
This is essentially trying to mimic the way a film-score works, but due to the uncertainty of

the outcome of a game, the music must be able to "choose" which path to take after the player makes a certain decision. The differences between film music and computer game music however separate the two, rather than bring them together, as the next section shows. These musics are prgrammed to play at different stages of the game, and the way they are programmed was apparently pioneered by LucasArts. They produced a series of *Dark Forces* games in 1995 that had two different levels, "Dramatic" and "Standby", each level including different loops of music. The two levels os music had two different 'feels'. This is essentially trying to mimic the way a film-score works, but due to the uncertainty of the outcome of a game, the music must be able to "choose" which path to take after the player makes a certain decision. The differences between film music and computer game music however separate the two, rather than bring them together, as the next section shows.

CHAPTER 8

Film music versus Computer game music

Some film music theory can be successfully applied to computer game music. Anahid Kassabian's *composed* and *compiled* scores would seem to be one of them. As mentioned above, many games use pre-existing music, which will bring their *affiliating* identifications. Others use their own music, and offer assimilating identifications. See the example of 'Elite' above. [see audio example 13] People who are familiar with Kubrik's *2001: A Space Odyssey* will immediately be reminded of the film when they see a 3d object (a spaceship) spinning and hear the beeper title music playing Johann Strauss' The Blue Danube Waltz. This is obviously intentional on the part of the programmers. Luckily, when discussing computer games from that era, the composer was usually the programmer, and so *intention* is not such a problematic issue. Others however, who never knew about the original, will only associate that music with that game, and identify it primarily this way. The music here has changed to suit the technology which plays it, here the PC speaker or "beeper", which is a far cry from the orchestral version. Here Kassabian's "immediate threat of history" which compiled scores may bring to players (she applied it to *viewers*) might not be so blatant, given the separation of the original music from it's PC speaker facsimile. No harmonies are possible here, and pauses in the orchestral version do not appear in the PC version. As Kassabian states in her prologue to *Hearing Film*:

"Film music, while born out of the traditions of nineteenth century European symphonic music, was never meant to be an absolute; it has always been considered a meaning-making system by its producers"

<div align="right">(Kassabian: 2000)</div>

This is completely applicable to computer game music. Additionally, the actual film music she was talking about did succeed in making those meanings, and these meanings were later transferred over to computer games. The examples quoted above attest to this fact. When the player loses a life in *Digger*, we hear stereotypical funeral music, the slow movement of Chopin's Piano Sonata No. 2 in B minor. [see audio example 10] They thus exploit already formed conceptions about musical meaning. Gorbman outlines an experiment performed by Philip Tagg and Bob Clarida whereby listeners were asked to write down their responses to certain types of musics.[11] The results showed that certain types of musics are associated with certain ideas, moods or situations. (see Gorbman:1987) Thus they were programmatic.

However, some game music composers have voiced serious concerns over the issue of using film music terms when describing game music. Others critics have voiced concerns over game music's stylistic similarity to that of film. The main problem here is that computer game music is commonly likened to film music, especially in the media industry. However, the two formats are quite different.

At the most fundamental level, to the active participant in listening to music, watching film or playing games, music is aural, film is visual, and games are cerebral.

Film is traditionally watched on a large screen, games are typically played on a smaller one. Thus the cinema is usually a "spectacle" of sorts, whereas gaming does not necessarily need to be. The most obvious difference is in the levels of interactivity. Watching film is not an interactive experience, whereas gaming is, thus the participant is situated within the latter

---

[11] For more texts by Tagg see http://www.mediastudies.net

psychologically, and outside of the former, to a certain extent. A game is a puzzle in which the player plays an active role. Interactivity does not play a primary part when listening to music or watching film. This does not mean a film or a piece of music cannot represent a mental challenge to the listener. However, a game represents first and foremost a challenge to the participant, and it cannot and does not exist without the player, just as music cannot exist without the listener. Here, of course, I am taking the view that a piece of music is not its score, but its aural manifestation. The participant cannot complete a film, whereas this is usually the purpose of playing a game. Playing and watching are two completely different things. One cannot however deny the far reaching influence of film on games:

" The answer may be that games borrow from both the "filmic" and the "3D gameworld" models simultaneously. Players are neither sealed in a game nor solely watching it. The dichotomy of music and sound supporting the "reality" depicted on the screen, as in film, and the gameworld model in which the participant/player can motivate changes in the soundtrack dulls the distinction. The 'two-way traffic' of information between player and game renders it difficult to identify the boundaries of the gameworld in the way we might a film's story world. Metaphorically speaking, in games, the screen itself ceases to be a barrier between the world of screen characters and that of the audience."

(Hannigan: 2004)

So, the fact that film has a narrativity which is only "one-way" separates it from a game, which ultimately has an unknown outcome and thus an unknown narrative. Music in film usually helps the narrative, being employed at sections to inform the viewer of what someone might be thinking, feeling or trying to communicate, or merely echoing the nature of their actions with preconceived musical conventions.

Film music is usually seen as a starting point from which to write music for games:

The following is taken from Matthew Belinkie's insightful look at game music composing, "Video Game Music: Not Just Kid Stuff":

"We want to take the experience that everybody has at the movies and make it into something that you control," says Liam Byrne. "You're playing through your own adventure. We're used to constant soundtracks in your entertainment. The more exactly the video game soundtrack matches your experience, the more involving that experience is going to be."

(Byrne in Belinkie: 1999)

Liam Byrne is, or was at Belinkie's time of writing, a sound technician at Creative Labs, a company who were pioneers in sound card production. He goes on to posit that someday, computer game music technology should be able to compose the actual music as the game is played. That has not happened yet, but as is visible above, the technology is at least breaking the music up now, and able to fuse different musics together. This is the major difference between game and film music. This will never happen in film music. And computer game music is becoming more and more intelligent as technology evolves. Thus the future of game music is a future which looks nothing like that of film music.

James Hannigan, composer for Eidos Interactive's 2003 Republic: The Revolution, has written at length about the problems inherent in approaching game music and indeed, games

in general from a filmic perspective. The following is from an interview with him undertaken by the online computer game magazine, 'Gamespy':

"... I do concede the two mediums are visually led and, in some ways, share a similar purpose for sound and music. Having said that, I see no reason why some styles can't be shared by both industries. Part of me feels that by deriving ideas from film we are enforcing the perception that games are secondary in some way, and mere spin-off material generated by another, more senior entertainment industry. Overall, I would say the future quality of soundtracks in general depends partly on how much developers are willing or able to spend on them and how seriously they take the implementation of sound and music in games".

(Hannigan: 2002)

With new technology game music is managing to do this. Still, many are still under the mistaken impression that computer game music and film music are the same. This is also due, in part, to the media's portrayal of certain games which mimic film. The television advertisement for *Grand Theft Auto: San Andreas* featured stylish camera moves, rock music and explosions. Also shown were cut scenes from the game. Cut scenes are usually the only purely cinematic aspects of a game. Thus the media, or the people promoting the game, promote it in such a way as to make it emulate cinema. This is a common way of promoting games and is down to marketing departments of games companies, which today are closely tied to that of the film industry, as the next section will show.

CHAPTER 9

Marketing of Game Music

Technology is at the heart of game music. As technology moves forward, so does the gaming experience.

"..the role of capital must be considered in the face of new technologies"

(Taylor 2001: 28)

It is no secret that the computer game industry is a huge business. James Hannigan's article "The Business of Music for Games" illustrates just how much money is invested in it:

"The big picture in the realm of videogames is big indeed: global revenue from computer game titles is projected to approach $40 billion by 2006, making it larger than the film industry in terms of receipts. (A good thing, too - the cost of producing a top-tier game title can approach $30 million or more, as much as many feature films)"

(Hannigan: 2005)

As sleeker and more 'stylish' games begin to dominate the market, one must look how this affects game music, and how the music is being marketed with the game.

Computer games are thus first and foremost a product. At least, they are to their manufacturers. New computer games will not sell if they do not a) look good b) include good gameplay. Films will sell more readily as the buyer knows they will not be totally immersed in the product. One rarely watches a new film for four or five hours after buying it. This is usual however, for a gamer after buying a new release. Most story-based games are designed nowadays to include at least six hours of solid gameplay[12]. If one buys a game one knows that if the game is bad, the experience, or lack of it, will be worse.

Game music does not renounce commercialism. It depends on it for soundtracks to sell. Perhaps Michael Giacchino's short stint composing the score for Call of Duty is an honest reflection of how the game music world works. If the game exists only to make money, is there an "art" of creating computer game music, or is it something (as in the case of Call of Duty) that can be churned out in less than three weeks?[13] No, of course not, but this is the reason I have avoided talking about it as an art.

Matthew Belinkie did not see computer game soundtracks as having any commercial value in the United States. Seven years on from his article, however, this trend is starting to change. A search for "Video Game Soundtracks" on www.amazon.com brings up 329 results. They are lumped into the same category as "Anime Soundtracks" but still, a considerable number of those 329 are video game soundtracks. Number one on this list (the bestseller of the moment) is the 'Halo 2' soundtrack, which incidentally I had been told about when casually talking with someone about my project recently. An editorial review under it reads:

_____

[12] The average time taken to finish Metal Gear Solid 3 is seven hours.

[13] see Michael Giacchino interview at http://music.ign.com/articles/568/568108p1.html

"Further proof that the 15-year-old male[14] is the nexus of contemporary popular entertainment this anthology of music from and "inspired by" the sequel to the earth-conquering Halo saga also showcases how capably the video game industry can trump even Hollywood's vaunted production values."[16]

(McCulley: 2006)

This quote characterises what many games players are saying about the computer game industry at the moment: money is taking over, and corporations are going for style over content in their games, just as the film business started doing about 10 years ago. They are marketed the same way, with "teaser" trailers available on the internet which showcase the game's best parts just as films do before the 'real' trailer is released in cinemas. For example, the 'Halo 2' soundtrack, composed by Martin O' Donnell is made up of 2 different volumes. It features Steve Vai on some tracks, a famous rock guitarist. Incidentally the following was found on BBC's website:

"Oscar-winning film director Peter Jackson and his team will produce the forthcoming
 film based on popular video game Halo"[17].

The video game is being made into a film. The Wikipedia article on Steve Vai states:

---

[14] Research has shown however that 15 year old males are not the target audience of these games. The average age of an American gamer is 33 years old

[16] This quote is taken from a review of the Halo 2 soundtrack at www.amazon.com by Jerry McCulley

[17] Source: BBC news story at http://news.bbc.co.uk/1/hi/technology/4311756.stm

"Steve is being considered to perform on Halo 3 [a new game] and on Halo movie, that is actually in stage of pre-production by Peter Jackson.[sic] "[18]

Here, music is being used to sell the game. The game is trying to sell the music. The game is being made into a film. The music will bring both the game and the film together. Time will tell if the movie is a success, but with Peter Jackson on-board, people will surely go to see it. Hannigan has already noted this trend:

> "But as the stakes edge towards the triple-digit billions of dollars, the realm of the game developer is going to bump heads with marketing departments and mega-corporations that will seek to use one content platform as one more strategy to sell other content – games to sell music, music to sell games, both to sell movies and clothing."
>
> (Hannigan: 2005)

Like the games mentioned earlier, today's games also recycle music.

All of the music for *Grand Theft Auto: San Andreas* (126 songs in all for only $46.99 on www.amazon.com) is older material, produced by bands from the early nineties and before. There are eight soundtrack albums available to buy from this game, all taken from the eight different radio stations which one can listen to in cars the game. Each station seems to have

---

[18] see http://en.wikipedia.org/wiki/Steve_Vai

it's own genre. There is a country and western one[22], a hard rock one, a softer rock one, a rap

and hip-hop station, an R&B/soul one, a funk station, a 'gangsta rap' one and one which mixes

the last four genres together. One of the DJs on one of the stations is Charlie Murphy, aka

'Axl Rose', of Guns 'n' Roses, a very popular early nineties rock band. Not surprisingly, the

Guns and Roses song "Welcome to the Jungle" features on one of these radio stations. This

track also featured on the advertisement mentioned in the film section. Guns and Roses have

now reformed and are touring. The fact that all these bands appear in the game may be a way

for programmers to try to convince the player that the game world they are playing in is real,

but it is doubtful that programmers know that many rock bands. The associations the gamers

have with the musics are what make the game more attractive. This marketing technique is

already used in films:

" [musics] function across the film is through the use of 'readymades'; readily recognisable

musical forms with specific qualities and associations for Western audiences"

(Donnelly 2001: 155)

Here Kevin Donnelly was discussing the film "Performance" (1970) starring Mick Jagger, but

in his essay he posits that each song used in the film (and there were many songs by many

well-known artists) worked in much the same way as "readymades" in the art world. People

simply like to recognise facets and objects from their real-life in their art. So, too, it is in

_____

[22] Some of these musics can be seen as being ironic. The fact that a violent car robbery in this

game can be followed by "All my Exes live in Texas" on the radio in that stolen car does have

absurd connotations, and may be there for humourous purposes.

games. Here, the readily recognisable forms are being sold, in contrast to music used in *Elite*, which was used probably because it was free. Music in games is now a commodity.

Computer game music is first and foremost a functional music. Here it is being used to sell the product. Its function, on a global scale is to maximise sales of the game. If we are to take Adorno's view in his "Philosophy of Modern Music" (Adorno:1949) that all good music renounces commercialism altogether, then computer game music is not 'good' music at all. A pessimistic viewpoint might be that it is possibly the worst kind of music, being as it were, not even the main focus of the commercial product. At the moment, it exists to reinforce action. The product is the game, and the music is an addition or enhancement to the game.

CHAPTER 9

Game music culture

Technology has an overriding influence on the features and flexibility of game music. The influence of technology on culture has been documented:

"...the protective parapet that has long kept high art and popular art mutually exclusive seems to be showing signs of vulnerability. It seems we are about to enter a new cultural architecture that we cannot yet describe; yet we are aware that technology is changing the world, and that it will also change the world of computer music"

(Joel Chadabe in Neill 2002:386)

The effect of this is that music becomes less an "art" and exists as something tangible. It has been taken down from its pedestal:

"...in the electronic age the art of music will become much more viably a part of our lives, much less an ornament to them, and that it will consequently change them much more profoundly"

(Gould: 1984)

The effects of technology, especially digital technology, on the musical world have been manifesting for the last quarter of a decade it seems:

"The advent of digital technology in the early 1980s marks the beginning of what may be the most fundamental change in the history of Western music since the invention of music notation in the ninth century"

(Taylor 2001: 3)

This coincides neatly with the introduction of computer games to the public domain, that is, in people's homes. Over the last fifteen years, there has been some sort of "games box" in many homes in Japan, America and Europe. It also coincides with my life, meaning that this new phenomenon started around the same time that I was born. My generation, meaning many of the people I knew as a child had some sort of either console or computer in their house. Some didn't, and they were the ones who valued it even more. For all of us, it represented a bizarre but fascinating new toy. I remember the first Sound Blaster we ever got. We had been playing computer games with a PC bleeper for 5 or 6 years, so when our father finally acquired a computer for us that had good sound capabilities, we were overjoyed. All our existing games (and there were many of them) now sounded much better. *Doom* and *Wolfenstein 3d* mentioned earlier were two of the best sounding new games that I can remember playing with the new soundcard. My point here is that my generation has grown up with digital technology. My generation, and the ones following it, seem to be the ones who have an active interest in this music. The disemmination and discourse of the subject does not exist at university level yet, but there are other places where it has grown considerably:

"Over the past decade, the internet has helped spawn a new movement in digital music. It is not academically-based, and for the most part the composers are self-taught...unfortunately, cultural exchange between non-academic artists and research centers has been lacking"

The internet is the only forum that currently exists for game music afficionados to show examples of their work, and discuss computer game music theory. The majority of paper literature on computer game music usually consists of 'How-To' guides, as opposed to examinations of the phenomenon itself. Many of the articles referenced in this dissertation are web-based, and are not published elsewhere.

Certain websites, such as www.ocremix.org, are devoted to hosting people's remixes of computer game musics. Thus now computer game music, and the remodelling of it has formed a new subculture. There are not many advertisements on mainstream media for computer game soundtracks yet, but the internet is teeming with personal webpages devoted to it, and as seen in the 'Marketing' section above, the popularity of the music itself is huge. It is much more popular in Japan than in the West but this is gradually changing over time.

By 1999, Japan had accepted computer game music as a pop culture. The following quote is taken from Belinkie's essay, and is a Japanese games composer called Mr. Pummell speaking about games music as culture:

"Mr. Pummell explains: "We have a pretty wide distinction here [Japan] between pop culture and culture. I think the distinction over there [America] is even greater. Everyone accepts [game music] for what it is: pop culture, fun. When it's time to get serious, they get very serious...In the United States, however, the public is not prepared to accept game music even as pop culture.

Soundtracks are practically nonexistent".

<div align="right">(Belinkie: 1999)</div>

This is not true anymore. This was written seven years ago. The number of game soundtracks now available on www.amazon.com is in the hundreds. (This is a website which has most of its stockists in America - thus they supply to Americans). This subculture is finally starting to approach a pop culture in the United States.

"In the 21st Century, pop culture is culture; this is healthy and desirable, and computer technology is facilitating this important progression"

<div align="right">(Neill: 2004)</div>

To actually understand the culture who have this large interest in game music, we must first examine the 'gamers' themselves. A European survey has not been carried out yet on the subject, so, taking the United States as an alternative example, here are some statistics about the main body of people playing the games. The following are statistics from a 2006 survey undertaken by the ESA[24] (Entertainment Software Association). These apply to the gaming culture, a large proportion of which are buying the soundtracks, remixing the music and performing the music :

"Fifty percent of all Americans play video games."

This is a staggering amount of people. Of the current population at time of writing, (295,734, 134) half were playing games in 2006.

---

[24] Facts available at http://www.theesa.com/facts/gamer_data.php

"The average age of a game player is 33 years old."

This is surprising, as games have a reputation of being played mostly by children and adolescents.

Another trend showing the reaches of game music is the professional performances of it. This phenomenon was spawned in Japan nearly twenty years ago. The first game music concert was called "*Dragon Quest* in Concert (Family Classic Concert)" and was held on August 20, 1987 at Suntory Hall, Tokyo, Japan. The music had been composed by and conducted by Koichi Sugiyama. (The game was known as *Dragon Warrior* in America). Since then, the *Dragon Quest* music has been performed by various orchestras, including the Tokyo Philharmonic Orchestra, NHK Symphony, and London Philharmonic Orchestra. Between 1991 and 1996 five different Orchestral Game Music Concerts were held in Japan.

A European Symphonic Game Music Concert series took place at the Gewandhaus zu Leipzig in Germany in August 2003 at which the Czech National Symphony Orchestra. performed   It was a sell-out concert and was the first games music event to occur outside of Japan. It was repeated in 2004 and 2005 as part of the Leipzig Games Conference.

Two tours of video game music have recently been launched in the United States. On May 10 2004 a *Final Fantasy* concert was performed by the Los Angeles Philharmonic Orchestra at Walt Disney Concert Hall in California. It was a one-day sell-out. This led to a tour called "Dear Friends: Music from Final Fantasy", to be performed at various cities across the United

States. On July 6, 2005, the Los Angeles Philharmonic Orchestra also held a "Video Games Live" concert at the Hollywood Bowl. This concert featured a plethora of computer game music performances and also incorporated real-time video feeds which were synchronised to the music, as well as laser and light special effects. Twenty four dates for this to tour the States were announced, however, most of the announced concerts were cancelled

A more recent (and more successful) games music tour has been launched .The world tour of "Play! A Video Game Symphony" premiered in Chicago on Saturday, May 27th, 2006. At the time of writing, these concerts seemed to still be in full swing.[25]

Game music is now considered in awards ceremonies usually kept for film. The 'BAFTA Games Awards' were recently set up, at which Jesper Kyd's soundtrack to *Hitman: Contracts*, was awarded best "Original Music" in 2005. [26]

---

[25] For recent news, see http://www.play-symphony.com/

[26] see http://www.bafta.org/site/page20.html

CHAPTER 10

What's Good About Computer Game Music?

In this section I will be examining the opinions of the cultural group who play computer

games. I ask them what appeals to them musically in a game and why. Since this is the

culture buying the games and hence hearing this music, their opinion is the one that counts,

both to myself, and to games producers. This section shows how integral music is in the game

for which it is composed, and that a good game soundtrack will stay with people for many

different reasons It shows what appeals to each person, and what they look for in computer

game music.[27]

I visited an Irish website (www.boards.ie) and asked a games forum what exactly was the

members favourite or least favourite game music and why. Thus, the following are a cross-

section of random comments from Irish computer game players on computer game

soundtracks which were memorable for them for any reason whatsoever. It shows what

appeals to each person, and what they look for in computer game music. The small excerpts

shown below consist of the forum member's nickname, followed by their comment.

Ruu: Dont know if its much help, I like the GTA Vice City soundtrack. The game has the

songs on the radio, most of them are 80s tunes and I like listening to them, very retro

_____

[27] Timothy Taylor has used similar methods in his analysis of the remix album entitled

"Métamorphose", a collection of remixes of Pierre Henry's work. [see Chapter 3 of his

'Strange Sounds']

John2: The first Metal Gear Solid game for Playstation (not the first ever one mind) had a really good cinematic soundtrack. Went with the whole movie quality of the game. It was released on its own, maybe have a look at that (also has a song in Irish (the main title theme) so that's pretty cool).

Cremo: seriously check out the soundtracks to the final fantasy series of games.
nothing comes close to them in sheer brilliance and musical bliss.
Nobuo Uematsu (spelling) is one of the composers and also has a band that does 'rock' versions of the songs called "the black mages"

- bo -: That Gran Turismo game with the couple of songs by Feeder in it, especially Just A Day. Think the other song was Buck Rogers. Pretty damn cool.

Sauce: The music in Super Mario Bros has to be one of the most recognisable computer game music ever. As sinecurea said, tetriis is easilly recognisable also

Flankerb: Gran Turismo series has always had great soundtracks. They used a mix of known and unknown artist to add intensity to all the games. The intro sequences are always amazing especially GT4 the operatic Moon Over The Castle(I think) cutting into Kasabians Reason is Treason is brilliant.:D

...from childhood it has to be the theme music from the Monkey Island games.
..Ohh and all the Mario music rocks.

spacecoyote:well all the grand theft auto games, since the 1st one have always had cool soundtracks. And i especially like the music and sound effects used in the Worms games. bubble bobble was also great (game and music, esp. when you were running out of time and the sinister music came on and the bad guy started chasing you!)

projectmayhem: mario and sonic music especially. but in more modern terms i guess the metal gear solid music really emphasises the switch from 8-bit michael jackson music (sonic people should get that!) to full on orchestral movie soundtrack style

In recent memory, I can't think of a PC game that has had a memorable soundtrack. Command and Conquer, maybe. Some had good title tracks (Max Payne, Tomb Raider), but lacklustre ingame music. On the PS2, We Love Katamari has an insane soundtrack (its funny because its so stupid, but in a good way). Guitar Heroes has a great soundtrack too (but thats because you're playing it!). A few years ago, I really liked Prince of Persia Sands of Time... it had great arabian style rock/dance music and suited the game perfectly.

improv: I can't believe the music from Speedball II on the Amiga has not been mentioned in this thread yet, or the Xenon 2 theme tune from the same platform. Class.

monkeyfudge: The music from R-Type will always be a favourite of mine.
It really brings you into the game and the way it shifts gear into the boss music at the end of a level is really well done.
Shadow of the Beast on the Amiga had some great tunes as well.

eo980: Vib Ribbon came out on the original Playstation towards the end of it's life and it had a crazy Japanese Pop soundtrack. Really upbeat, electronic and weird.

The Medal of Honour Series on the original playstation was also notable for the quality of it's music by Michael Giacchino who went on to do some music for films and currently for the TV series Lost.

Johnny M: check out the music in the game 'Crime Fighters' ...an old capcom arcade game..u can get it on MAME now...great soundtrack ! also Streetfighter 2 music was pretty good, of course mario as has been mentioned...if it sticks in your head its done its job..

Here we are presented with some of the various reasons why some soundtracks appeal to different people. These include reputation of composer, being 'weird', electronic and upbeat, how it shifts gear into boss music at the end, it's good suitability for the game, the fact that you're playing the actual music, the music sounding like an orchestral movie soundtrack, the intensity arising from the known and unknown artists appearing together, its familiarity, and sounding retro.

As is visible from the above, there is no one element that makes certain game musics stay in peoples minds. Cinematic game soundtracks seem to be quite popular here; suitability is mentioned in the context of where the game is set; being able to play the actual music is mentioned, as in the case of *Parappa the Rapper* [see audio example 19], how cued musics

work (Boss music kicking in), and being 'retro' is a novelty in itself. And just plain "weird". This large variety of reasons for remembering a soundtrack can be extrapolated to mean that there is no such 'genre' as computer game music. There might have been in the past: a mainly Japanese-influenced music, but nowadays soundtracks to games are as varied as people's reasons for liking them. The technology is not as limited as it once was, and now that CD quality music is possible, any styles of music are also possible.

If film and its music can change their status from pop culture to "high" art then surely games and their music can too. And with the technological advances we have at the moment, we can be sure that at least, pop culture and culture are growing closer, and this spells good news for those who would like to study game music in the future.

CHAPTER 11

Composers

Up until very recently, game composers were ignored:

"Like pop composers who write songs for famous singers, game musicians never get publicity."

(Belinkie: 1999)

Many of the earlier PC titles I have named in this dissertation were actually created in Europe and America, so the music was usually programmed in those respective places. However, most of the earlier games for the major Japanese console makers such as Nintendo, Atari and Sega had music programmed by Japanese composers. This trend has continued, for the most part in the console industry. However, composers mentioned in this dissertation are from America, Denmark, the United Kingdom as well as Japan. Thus game composers these days are not only Japanese.

Being a game music composer has changed considerably over the last few years. It used to be that game composers would have to have some technical knowledge about programming. These days however, the technicians and the composer work together, with the composer usually doing just what his title says. Belinkie confirms this:

"It requires much less technical know-how, so now you have room to just be a composer. You don't have to be a computer expert." (Belinkie 1999)

Belinkie's essay was written seven years ago, a very long time in technological terms. It was written before the Playstation 2 was released, which can store a huge amount of musical data on it's DVD format games. Game musicians now get considerable attention.

In order to get a modern-day insight into how game music composing works, I emailed questionnaires to various games composers around the world. I was quite pleased to receive a reply from composer, James Hannigan, whose work I was already very familiar with. Before quoting the interview, here is a brief summary of his work to date.

James Hannigan first started composing professionally in 1992, writing compositions for games such as *Warhammer*. In 1995, James took on the role of composer for Electronic Arts where he stayed for a number of years. Here he worked on several EA games such as Origin's *Privateer 2: The Darkening* (1996). James has also numerous projects including *Catwoman, Freelancer* (Digital Anvil/Microsoft), *Brute Force* (Digital Anvil/Microsoft), *Reign of Fire*, *Grand Prix 4* (Infogrames), *Conquest: Frontier Wars* (Digital Anvil/Ubisoft), *Republic: The Revolution, Evil Genius* (Elixir Studios), *Theme Park Inc, Theme Park World/Sim Theme Park* (EA), *Action Man, FIFA Soccer Manager, F1 2000* (EA Sports) and others. Hannigan is also an experienced Sound Designer and has contributed to films such as New Line's Lost In Space. In 2000, James was the joint winner of a BAFTA award for EA/Bullfrog's *Theme Park World* and received two more nominations in the Music category of the same year, including for the operatic score used by the *FA Premier League*. In both 2004 and 2005, James received a further two BAFTA nominations for Elixir Studios' *Republic: The*

Revolution (Eidos) and *Evil Genius* (Vivendi-Universal Games). Currently, James is composing EA's *Harry Potter and the Order of the Phoenix*. James has also written several articles and has been featured on the cover of Develop Magazine, profiled in Post magazine, Audio Media and other publications. James has served as a BAFTA juror on two occasions and is currently on the US-based Academy of Interactive Arts and Sciences (AIAS) music panel.

I sent Hannigan some general questions to get an insight into how exactly the composition for games process works, as well as asking his opinions on the subject of film music versus game music. His opinion below will be an invaluable one, as it comes from an experienced perspective. The following is his response.

1. What made you want to compose music for computer games?

I didn't really choose it - but just found myself working on them. I was involved in other areas but was invited to join Electronic Arts[28] in 1995. My feeling was one of excitement about the possibilities afforded by games, but also frustration at having to wait for delivery technology to catch up with what I wanted to do within them.

---

[28] Electronic Arts (EA) is an American developer, marketer, publisher, and distributor of computer and video games. Established in 1982 by Trip Hawkins, the company pioneered the early home computer games industry. In the 1990s, EA began to expand by acquiring several successful developers and, as of the early 2000s, EA has become the world's largest third-party games publisher. Currently, the company's most successful products are sports games published under their EA Sports label, games based on popular movie licenses and games from long-running franchises like *Need for Speed*, *Medal of Honor* and *The Sims*.

2. Do you see any similarities between composing music for TV or film and composing for computer games? What would you say are the largest differences?

Clearly TV, films and games can be bracketed as 'moving pictures' in some way, but I think it helps to look at how they differ in terms of the experiences they offer the player/audience. The biggest difference might be that the games player is both audience to and participant in the events of a game, and no relationship between playing a game and passively viewing a film should be taken for granted. Films and games are perhaps most similar when games present a filmic reality or when games have a degree of linearity, telling a story to players instead of allowing them to create their own.

3. Who / What would you classify as your biggest musical influences? Do these influences have a large effect on your compositions?

I grew up enjoying Bernard Herrmann, John Williams, Jerry Goldsmith and others and film music in general has influenced me a great deal. I am not opposed to the use of a filmic language in some games, but am more concerned about when and where music is heard, how intrusive it is and what is motivating it. Games are not restricted to being filmic anyway, and the idea they are waiting to 'be like film,' having the same kind of emotional resonance, I think is a bit misguided. Games players, who are in some sense occupants of the game's 'filmic reality,' may not welcome having their emotions manipulated by music. And if I am working on, say, an EA Sports game I'm not going to be drawing on my understanding of film music to any great extent.

What interests me is how music can add to a game what is not obvious from visual cues, in the way that film music can - but for a different set of reasons. A lot of games music, in earlier years, has been about stating the obvious or heightening excitement (for example, battle music during battles!) - whereas I am more interested in how sound and music can expand the scope of the game, inform players of the 'game state' and so on. In other words, how sound and music can become integral to the design of the game - making the game difficult to play without it.

4. What is the single greatest determining factor in the finished sound of your computer game music? Are you commissioned to work in a certain style?

I prefer the term Games (instead of computer games) as I think the industry needs to change the public's perception that the industry is centred on technology and computers.

The delivery/rendition of music is very important. Even the simplest of ideas can be effective if realised well. The technique of the composer to externalise music and create a polished product is very important when working in a commercial context. Focusing on the 'notes and harmonies' alone is not always enough - and, in games, sometimes a problem. Music often needs to lean more towards being emotionally resonant sound than being a self-contained piece of music playing away in its own space in the background. A great deal of thought has to go into the surface of the sound, mixing, the matching of music tracks, dynamics, mastering and so forth. Although composers try to keep technology transparent, using it extensively is hard to avoid these days. So the range of skills required is increasing all the time, especially as composers are taking on more package deals - which means they are responsible for all aspects of a production. Ideally, however, a budget will allow the

composer to collaborate with others in a production. Overall some conventional understanding music is important, combined with a good ear for sound itself.

Very few games composers are known for their own 'voice' or are head-hunted in quite the way some film composers are.

5. Can you give a quick overview of how the process leading to a finished game score usually works?

Discussion goes on with producers, designers, programmers or Audio Directors (as the case may be) about the goals for music and the requirements we may have for the playback system in the game. A list of pieces is usually drawn-up, like a cue list, often relating to levels or areas in the game and of any cutscenes (linear sequences) and work begins. I will periodically check the game's progress and tailor content for playback. Creating the music is an iterative process much like the development of the software. The latest version of a 'track' is usually seen as the definitive one - unless replaced by a new version later (like an update). Some companies, such as EA, adopt more of a film model - with a clearer distinction between temporary and final music (similar to film, but without necessarily being locked to picture). Each piece of music in a game tends to exist less to tell a story but more to provide an appropriate 'blanket' atmosphere or mood for a given situation - to avoid it clashing with events in the game moment by moment, or until a transition is needed. There are changes, but they are brought about by bridging between pieces in a way governed by the playback engine - often in response to values passed by the game to the music playback system (like a system

of triggers steering the music). There is often a sense that games music has a direction but rarely arrives at any destination. Other than these considerations, music production is currently much the same as it is for anything else.

6. Do you think that Computer Game Music Theory needs to be explored more seriously as a discipline in academia?

Yes. It would be helpful if there was more understanding of how music functions within games and is distinct from film and I think practitioners should be more involved in the process of finding out.

Hannigan distances game music from that of film. He sees films and games as similar only in that they are both "moving pictures" and also can be alike when a game has a fixed narrative. He grew up listening to many of the more well-known film composers but sees film music as more manipulative emotionally than that of game music. Some games do not use filmic music techniques at all, for instance, sports-based games.

He wants to see what music within games can add to the experience as a whole, to become essential to the experience, to the point where gameplay is impossible without it. Here Hannigan is viewing games a a totally separate medium from film, in that, in the absence of the music, the player would become essentially 'deaf' to the action. Games such as those in *Metal Gear Solid 3* are already doing this. Another worthy point he makes is that game composers are not hired for their "sound" as film music composers are.

Hannigan does not view game music as being centred on technology. He should know, as his is a rare inside-view of the industry. Composers are not asked to write music in terms of specific notes and harmonies, but instead on a more 'emotional' level. The music is part of the game, and is not there to act as a 'piece' of music for itself. It exists to make the gaming experience better. Thus the view of music as an "absolute" or as a self-referential object cannot be ascribed to existing game music.

Some composers need to be very proficient technically in order to take on all aspects of a particular project, while others collaborate. The process of game composing happens in the following way: The composer is given cues in the game to work from. His/her compositions are constantly being updated. A playback engine bridges gaps or smooths the differences between pieces, while the pieces give an overall mood or atmosphere to a certain part of the game. He claims that there is no perceived final goal of making music for games. With no sense of finality in the process, one would think there might be a lack of satisfaction in writing for game music. But again, this reasoning is one which does not see music as functioning as part of a larger unit, in this case the game.

CHAPTER 12

Game music, Technology and Academia

Subjects which are bound to technology seem to have a very hard time being integrated into the ebb and flow of academic musical discourse.

"Most people of artistic tastes share the widespread distrust and dislike of machinery and argue that anything pretending to be art cannot come out of a machine...the moment man ceased to make music with his voice alone the art became machine-ridden."

(Barzun: 1961)

"One of the ways technology works in Western culture is to call attention to itself when new, for at that moment it has no social life...whatever is new is viewed as 'technological'."

(Taylor 2001: 6)

However, film music has been recognised as something which can be studied in academia. Why not computer game music? It is perhaps the newness of the medium for which it is written. Some people do not take it seriously, and granted, there is not a lot which is 'serious' about computer games: the main reason they are played is for enjoyment. Perhaps it is the fact that computer game music is associated with younger people and play. "Play" is a concept which many musicians might not like adhering to. It literally means to "amuse oneself", and thus has nothing to do with "work", a concept which is usually ingrained into the professional musicians psyche from an early age.

If Taylor's quote above is true, then computer game music is going to have a difficult time being integrated into Western culture. It's advances will be inextricably linked to technological advances: the better the technology gets, the better we will be able to adapt the music to the game, or even the game to the music. Thus, the most innovative computer game soundtracks, those heralded by James Hannigan, will arrive along with new technology, and might not get a chance to become 'normalised'.

Another factor which may dissuade people from treating game music seriously may be the crass commercialism that has now engulfed computer games in general. It forms a huge part of the entertainment industry, and I have already examined this elsewhere in the dissertation.

Belinkie has examined game music composers, above quoting "Mr. Pummell" as saying that computer game music is not serious business. However, one plays a computer game in much the same way one plays a musical instrument. They both require considerable mental concentration, and are a challenge. The results of each are usually pleasurable to the player. My argument here is that the "instrument" on which computer game music is played, (and the only reason it is truly distinguished from any other musics) is that it is played on a console, or computer.

So why exactly should computer game music be examined by academia?

Well, for one, many of today's computer game musics are based on classical music. This is another element which is prevalent in film music. Take the soundtrack to *Hitman 2: Silent Assassin* by Jesper Kyd, or *Call of Duty* by Michael Giacchino. [see audio examples 2 & 3] These musics are rooted in Western thought and Western music appreciation. Koji Kondo's

music for the *Mario Bros.* games (along with countless other Japanese composers) began as attempts to emulate Western genres of music. Thus computer game music can be seen as another arena into which Western musical influence has bled, since many soundtracks are nowadays created in Japan. This influence should be seen as something worth investigating.

A large quantity of today's games have music based on techno and dance forms. This is presumably to do with their high tempos and thus, their ability to create adrenaline-filled atmospheres, such as that in the futuristic level of *Timesplitters 2*. The specific effects of different types of musics within games warrant attention and are also worth analysing

In this dissertation I have merely scratched the surface of how music works in-game, and the different levels of involvement one can have with the other. Game studies and music studies converge at this level and need to be examined by people more qualified perhaps than myself. Indeed, Whalen has described "Game Studies" itself as having existed in an "academic ghetto" until recently.(see Whalen 2004)

More research into the different levels of involvement of game and music that can exist must be carried out in order for the discipline to grow. This may in turn help to steer it in a new direction. Maybe this will lead to an advancement of the technology used to integrate music into a game. Composers such as James Hannigan would be happy to add to this new way of using music in games, as well as a new generation of composers who have grown up with games in their life, as much, or in some cases more so than film and television.

Thus academic discourse can help come up with a language which all game music theorists / composers / enthusiasts can use and help to further the field as a whole. Successful theory leads to better education and awareness of how music and games work together.

Yet considerable headway is being made in academia for research into computer game musics. As I write this dissertation, two conventions have been organised, one in Sweden and the other in Chicago which incorporate game music as a subject. There does however, need to be more research done in the musical arena of academia, rather than just in the gaming one.

CHAPTER 13

Case Study: The Dissemination of Mario Bros. "Overworld Theme" by Koji Kondo

In this section I am looking at one piece of music in particular. I will analyse the music itself, and then examine different productions and performances of it. The piece I will be examining is the "Overworld" theme from Nintendos 1985 release "Super Mario Bros" for the NES (Nintendo Entertainment System). The Guinness Book of World Records cites Super Mario Bros. as the best-selling video game of all time. There are countless different versions of the game music, as it has been remixed and reinvented by many different musicians. This case study will look at several of these versions. How is it that one song in particular has stirred up so many people to reinvent it? It may be a shared love of the video game, and thus the song. Many professional musicians have not have heard of this tune, but it is familiar to most people of my generation. This case study illustrates how game music has taken on a whole new dimension, including even that of performance, even if there is a large novelty factor in it.

[I have created a separate compact disc for use with this case study. References to audio examples will restart at number 1 on Mario Bros. CD].

To understand the Mario Bros. Overworld theme a little more, let us first delve into the world of it's composer, Koji Kondo. He was born in Nagoya, Japan in 1960. As a teenager he undertook classical music training, and learned to play several instruments. He was hired in 1983 by Nintendo to write music for its 'Famicom' systems. Kondo here found himself in a

totally different environment. Here he was limited to composing for only four "instruments" (two monophonic pulse channels, a monophonic triangle wave channel which could be used as a bass, and a noise channel used for percussion) due to the system's primitive sound chip. Although he eventually found a way to add a fifth channel with the help of Nintendo's developers, his music remained severely limited on the system.

Kondo has stayed with Nintendo through various consoles, including the Super Famicom (Super Nintendo in North America and Europe), the Nintendo 64, the Nintendo Gamecube and most recently the Nintendo DS. These latter systems have vastly improved Nintendo's audio capabilities, and Kondo today composes music with CD quality sound.

Kondo's main influences could be said to be latin music, jazz and classical music (mainly ragtime and marches). Generally, his pieces are predominantly melody-based with little or no supporting harmony. His work is thus seen as being highly influenced by Eastern Asian music. This makes him somewhat unique among the most popular video game composers; his contemporaries such as Nobuo Uematsu and Koichi Sugiyama produce more Western-influenced compositions for their games.

Overworld Theme:

[see audio example number 1 on Mario compact disc]

The following quote characterises how many people relate to this piece of music.

"Today, 66% of college students polled can hum it's melody, even though many of them haven't played the game for years"

<div align="right">(Belinkie 1999)</div>

Belinkie has described the Overworld theme as:

"...a sort of light jazz tune, but with so much energy pumped into each articulated note, one is not sure whether it invokes cheesy Vegas lounge music or a Dixieland band. It is sort of like mellow elevator music on psychedelic drugs. At times, it invokes the Tijuana Brass with its cheerful cheesiness".

<div align="right">(Belinkie 1999)</div>

Super Mario Bros. Overworld Theme

The following is a brief analysis of the piece I have carried out.

It has a fairly simple construction, which allows it to be looped indefinitely for however long it takes for the player to finish the level. It begins with a temporary modulation to G major, which is followed by the main theme, A, in C major. This theme usually repeats once. Theme B starts at bar 11 and repeats at bar 19. There is new material at bar 27 which culminates in the introductory few bars again at bars 33-34. Theme A repeats at bar 35. Theme C enters at bar 43 and repeats at bar 51. The new material from earlier reappears at bar 59 and at bar 67 theme C plays one more time.

This relatively simple form allows it to be performed by many people, and chopped and interchanged with the other Mario Bros. themes by remixers and bands alike. Incidentally, the remixing of computer game music is a huge phenomenon on the internet. Aswell as this tune, many versions quote the Underwater theme (a waltz), the Star theme (A frenetic rhythmic figure made up of two chords and syncopated bass) and the Underworld theme (an atonal figure, instantly recognisable by three notes, repeated in octaves played one after the other). Below are some examples.

I have endeavoured in each case to contact the authors of each piece for some sort of comment, but, as is the case commonly for internet material, some people were not available to comment on their creations, or could not be located.

The Momus Quartet: (arr. Clint Woltering): [audio example 2] Four undergraduates from the University of Kentucky and Kingsport, Tennessee, also known as The University of Kentucky Trombone Quartet perform this version. This one is again in C major. There are

some interesting harmonies here and a slight change of rhythm from the original version. The Underwater theme is quoted along with the main Overworld one, and the Underworld one. The Western classical feel of the underwater theme suits the trombone quartet quite well, as it did with Kondo's full orchestra. A new theme which is played here is the Star Theme. (This played in the game when Mario picked up a powerup which made him invincible for a few seconds).

"Boston Pops" Version: [audio example 3] In fact, this is not the Boston Pops orchestra. It was released in 1991 as part of a Japanese CD called 'Orchestral Game Concert' by Warner Music Japan. It was arranged by Koji Kondo himself. It is played in C major and displays a Disney-esque score character, typefied by the harp at the end of each phrase, and pizzicatto strings. The instrumentation at 1: 15 is typical of what Kondo would later compose for games such as Super MarioKart. This version quotes the main Overworld theme, along with the Underwater theme at 1:40, and the Underworld theme at 2:35.

Mario_Bros_Suite.mp3: [audio example 4] This is a performance of the Mario theme tune along with the other themes. The band playing are called the Big Band Connection and are based in Cleveland, Ohio. Not all the musical material here is from Mario Bros. Being an 11-minute performance, this is quite impressive, being a mix of both Mario music and other material. The following is what Brian Batchelor-Glader, the man who created this version had to say to me about it.

"I composed the piece for a big band arranging class at the University of Cincinnati (Conservatory of Music). I graduated last December with a bachelors degree in jazz performance. The class was a required one. We had to do three full arrangements throughout the year. The Mario Bros. Suite was the second I wrote for the class. I had written several big band pieces before. This was a huge undertaking because I had to transcribe the songs before I could arrange them. I transcribed both directly from the game and found several midi files online that I also worked from. Transitioning from the different movements was also a challenge. I used several modern big band techniques such as sheets of sound and free group improvisation. What makes this piece really fun is that every time it is performed it is completely different due to the jazz elements. I have a couple different performances of the piece."

Allan Felipe: [audio example 5] Very little information exists about this version. It is in C major, and seems to be a classical guitar and an acoustic bass arrangement. It consists of just the Overworld theme.

Frivolous Funk: [audio example 6] This seems to be a funk rock band covering the song. The musicianship is a little loose. It's still fun and the drumming is quite manic. Both Underworld and Overworld themes are played here in C major. This band do not seem to exist on the internet anywhere else except on the OCremix site.

The Videogame Pianist: [audio example 7] This was performed by Martin Leung, otherwise known as The Videogame Pianist. This features all of the themes from the game as

transcribed above, including Underworld, Castle and Star themes. There is some strange treatment of rhythm in the second half of Theme A. This is followed by the Underworld theme, then Castle at 1:50. Then comes the Underwater waltz. At 3:04 the Star theme plays. Incidentally, at 1:05, a sound effect from the game is put into the piece.

CarboHydroM - Shell Rider: [audio example 8]   This is a very impressively produced rock band cover of the song. It consists of the Overworld theme only, with a Mario jumping sound effect put in at the end for good measure. It is played in G major. The French arranger of this version, Cristophe Blondel, aka Carbo HydroM, who has arranged many game musics was available for comment and had this to say about it:

"I'm very pleased that you chose my cover of the Mario theme to be included in your writing. Of course you can, and I'll give you now some clues about this song, as you were asking. When I started remixing, I knew somehow that I had to cover Super Mario Bros.'s main theme at least, because it's the most famous one all over the world. I made two attempts, The Mushroom Kingdom Skatepark being the first one and Shell Rider the second and best one. My style can be said to be close to punk rock or ska sometimes. I thought I would try several ways to arrange the theme, but in the end, the ska way was the one that sounded the best. It could made the theme sound way more energetic, and emphasize its happiness. So I decided to play the theme three times with different rhythm lines for each, and with the theme bridge between the second and third row. The tempo had to be pretty fast but still allow ska-ish rhythm lines to be played so I started with a 160BPM. Then I wrote the drums, and tried to put emphasis as well on some parts either by using "rhythm jumps" or by dividing the tempo by two. As for the leads [lead guitar parts] I tried to write them in a varied way too, but

81

without having to write a solo. I chose to use harmonies between two of them, and sometimes alternate panning settings. Finally, I added the little jump sound effect just before the last hit, to add a bit more fun to my cover."

I also asked him about why he has an interest in game music:

"I'm a programmer in real life who tries to make music to have fun. I live in Marseilles, a big porttown in the South of France, and I'm 25 years old. I played games a lot in the past, way more to hear the music than to beat them but still enough for that second reason. Mostly Nintendo games. I started playing at ten, the NES. I still play from time to time, but way less than before. Well mostly with friends and my family, or alone only when a game like Zelda comes out. I came to cover video games naturally, because I love both guitar driven rock and video game music. Once in my childhood, I heard a band do that kind of cover for a few SNES games. I liked that a lot, but the band was soon dismissed. So I decided to make my own, simply put !"

Super Mario Bros. A capella: [audio example 9] This is a jazz-influenced version of the main theme. It is sung with a-capella synthesized voices. It is in C major. A notable deviation from the original harmonies can be heard at 0:34 and 1:10 in the backing voices.

The Italian Plumber OC Remix: [audio example 10] This is performed by M.S. Mehawich. Not a remix at all, but just a version of the main Overworld theme played in C minor. It has a melancholy feel. Instrumentation includes a piano, violin and a bass. The Star

theme is quoted at 1:24. It slightly changes the material, as a jazz interpretation of a piece would. It is another live performance.

Super Mario Brothers by Mr. Bungle: [audio example 11] This is actually *Slowly Growing Deaf* by Mr. Bungle.

Derechos Reservados: [audio example 12] This is performed by Pedro Guzman and his band. The track features on his 1991 release "Jibaro Jazz". He is here playing the Borincanian Cuatro with his band. He calls it the music 'Jibaro Jazz' - a mixture of Puerto rican and Jibaro-music. Ironically, the instrumentation here is very similar to the synthesized or Midi equivalents that Koji Kondo uses in the actual Mario games. This version is in C major and quotes the main Overworld theme.

Remixes

"If the traditional conception of history as a continuous, linear unfolding can be thought of as analog, this new sonic sensibility might be called a digital one. It flattens the distinction between "high art" and "mass culture" and treats music history as a repository from which to draw random access sonic alliances and affinities that ignore established genre categories".

 (from introduction to Audio Culture: Readings in modern music, p. xiv)

This is exactly what the following remixes do. The Mario Bros. music is here mixed with unlikely songs such as *Ring of Fire* by Johnny Cash and *Closer* by Nine Inch Nails.

Mario Brothers 1-1 Remix by Chris J. Hampton: [audio example 13] This is basically an electronic-sounding synthesized version with a beat put onto it. It is in C major and modulates to C sharp major at 1:21. .

B Dash Version: [audio example 14] This version is a remix by a Japanese band called The Tongari Kids. It is in C major, and starts off with the Underworld theme. The song became a national hit after it was played on Japanese FM radio, and its popularity was furthered after it appeared on Japanese television. The singles has sold a total of 196,000 CD singles in Japan to date.

Jazz Plumber Trio OC Remix: [audio example 15] This is a synthesized version of the song played in C minor by someone calling themselves DJPretzel. It is played on piano, hi-hat and snare drum. It quotes the Overworld, as well as the Underworld theme.

Closer to Mario: DJSkew Remix/NIN: [audio example 16] Shane Kane aka DJSkew here mixes the Mario theme with a Nine Inch Nails song called 'Closer'. This song uses the sound effects and main themes from Mario Bros. This is also in C major. Incidentally the singer of Nine Inch Nails, Trent Reznor, wrote the music for id softwares computer game, Quake.

Dancehall Ragga OC remix: [audio example 17] Raggamuffin (or ragga) is a kind of reggae that includes digitized backing instrumentation. This is in C major and quotes the Overworld theme. It sounds as a computer game these days might sound.

Dirty Remix OC Remix: [audio example 18] This remix was created by "A Scholar & A Physician". This is quite amusing due to the amount of recognizable samples used. Some samples are taken from a Mario Bros. cartoon which existed in the early nineties. Other samples include the horn introduction to *Ring of Fire* by Johnny Cash. It is comprised mainly of the Overworld theme, which is treated in a number of different ways with audio filters.

Musicians playing games, and gamers playing music

The music above is more than two decades old, but it is still being reinvented by new musicians. Remixing, remodelling and re-inventing are at the core of what this culture does. Making your mark on a cultural icon as big as the Mario Bros. is part of this, and is linked to the novelty factor mentioned earlier

Here we have seen game music as something which has evolved way beyond its roots and become external to the game itself. Granted, there is a certain kitsch element to playing game music in a band, but the dissemination of this song has helped spawn a new culture who are willing to investigate game music further. Two of the people I communicated with regularly for this case study were Cristophe Blondel (aka CarboHydroM) and Greg Lieberman (aka KWarp). They each belong to different generations and continents, but they share the same interest in game music. What creates this interest is an initial interest in games, of course.

My point here is to draw attention to the fact that this music has had at least some influence on many people from my generation, whether they want to acknowledge it or not. The seventeen versions of the song above attest to this fact. There are many more versions where those came from, but most were either untraceable, or of reduced quality. I did not want this section to be made up of a slew of different versions of the song, but just enough to show that even professional musicians are willing to give this music a creative glance.

Of course this is not the only song which has been re-invented in this way. There are literally hundreds of other game musics which are remodelled anew each day, usually appearing on webpages of people like Cristophe Blondel. They are reformed for the simple reason that

people like them, and like playing them. The main reason that Brian Batchelor-Glader wrote his version of the song was for "fun" as was Blondel's. When I asked Lieberman (16) why he was so interested in game music he replied:

"My music history teacher once said the the best music in the world is what you like. I've always had great videogames to play when I was a kid, and great music to go along with it. I've really come to love the unique sound, style, and context typical to videogame music. Videogame music tends to have a lot of interesting things going on with the melody, as well as a clever, jamming bassline to accompany it. Videogame music by definition needs to remain interesting even when repeated for hours, which makes listening to it really addictive. I also enjoy reliving my experiences with a videogame through its music. "

Here Liebermann mentions several functions and features of game music, such as the fact that looped music in games needs to be able to hold the players attention and not get boring.

The music has made its mark on many people, and is now worth further investigation.

CHAPTER 14

Conclusion

So how does computer game music work? What are the levels on which it functions?

At its most basic level, the music works within the game for the game player. It can emotionally draw a gamer into the game, making the experience more believable. Sometimes, using established film music techniques it works to create a convincing atmosphere. It can also move a games narrative along, signalling to the player that they are progressing through the game. It can act as a signal for something which cannot be seen, such as a high level of alertness, or state of emergency. This high level of emergency can exist for a full level of a game. The music here is not meant to be background music, but instead is supposed to parallel the action. In earlier games it functioned as accompaniment to action. It did not make the experience more believable, but did make it more pleasurable.

Nowadays game music functions differ significantly from those of film music. Both media have different tasks to accomplish. Game music acts as a signal, since the experience of

playing a game is sufficient an experience, while film music exists as a substitute for experience itself. By this I mean that the immersive experience games offer to the player far exceeds that of the film-world, where music only attempts to add to this immersion. The music of present-day games has many more tasks than this to fulfill. Whereas film music is linear, and plays at certain fixed points in a films narrative, game music is now cued, and has options to play certain figures based on the actions and decisions of the player. However, some functions are shared by both media such as the building of tension and accentuating of emotion, and creating an ambience, or an atmosphere.

Sociologically, the music functions as shared experience. Although not taken seriously by some, others feel very strongly about game music. An emerging culture is that of computer game soundtrack fans. There is a general concensus among this group as to what constitutes a "good game soundtrack", but each seems to be memorable for entirely different reasons. Another community, possibly comprised of much of the latter have taken to performing and reinventing game music, many of them being DJ's. The music here acts as a shared symbol, a maybe kitsch metaphor for a generation that have grown up with game music. The amount of variations of the Mario Bros music is a testament to them. This dissertation would not have been possible without the help of this community.

From an ethnomusicological perspective, the music is a very recent phenomenon. I have examined it using ethnomusicological research methodology, by including discourse with composers of the genre, as well as analysing some specific music and opinions of people to whom the music might be important to the game. These people, and subset of Western culture exist almost entirely on the internet as composers, re-inventors, musicians who play games, and gamers who play music. Since this music has always been purely functional, there

are not many 'beliefs' wrapped up in its conception to examine. The music existed first, and the subculture of people interested in it grew up around it afterwards. However, the social aspects which now surround it were examined as much as possible. It is a music which is rooted in Japan, but conversely, a large number of the original Japanese composers were attempting to emulate Western musics. Most of the original Japanese composers are still working today, which shows how new game music is. More recently Europe, America and other developed countries have produced very succesful game music composers.

Financially the music is now functioning as product. The subculture mentioned above are fuelling the desire for the availability, while at the same time, others are criticising the obvious monetary interplay between film and record companies and games developers. These three industries are now working together to make as much money as possible. This is hardly surprising: the games industry has now surpassed the film industry in terms of global revenue. This is due, in large part, to pre-existing and current popular musics being used in games. However, this is not the end of composed game music. Several games now use both licensed popular music and composed music (see *Need For Speed: Most Wanted*), and this trend is likely to continue.

Much more research is needed into this new field, and the onus is on music departments in universities to carry this out. There is a serious lack of literature on the subject, and, like its predecessor of film music, needs to be taken more seriously by academics. I have endeavoured in this dissertation to look at it from both a musicological and an ethnomusicological perspective. I have looked at it in terms of it being a product of a particular culture, but it is now popular in both the "West" and Japan. Thus talking to composers and people involved in its creation was the option I chose. I have also looked at

one specific piece of music and its dissemmination and assimilation. In this way I have shown

the popularity and widespread interest people have in computer game musics. Hopefully the

floodgates are about to open for the study and discourse of this phenomenon.

Bibliography

DONNELLY, Kevin; Film Music: Critical Approaches, Edinburgh University Press, 2001

GORBMAN, Claudia, Unheard Melodies: Narrative Film Music; Indiana University Press, 1987

KASSABIAN, Anahid; Hearing Film: Tracking Identifications in Contemporary Hollywood Film Music; Routledge, New York, 2001

TAYLOR, Timothy; Strange Sounds Music Technology and Culture; London, Routledge, 2001

Audio Culture: Readings in Modern Music, eds Christoph Cox and Daniel Warner, London, Continuum Publishing, 2004

KENT, Steven L. The Ultimate History of Video Games, New York, Three Rivers Press, 2001

WHALEN, Zach, Play Along - An Approach to Videogame Music; The International Journal of Computer Game Research, http://www.gamestudies.org/0401/whalen/ Volume 4, Issue 1, November 2004

BELINKIE, Matthew. Video game music: not just kid stuff, (hosted by www.vgmusic.com) http://www.vgmusic.com/vgpaper.shtml, December 1999

HANNIGAN, James, Changing our tune, from www.jameshannigan.co.uk
(First published in Develop Magazine, April 2004. Edited by Dan Daley and Owain Bennallack)
http://www.jameshannigan.co.uk/changing.htm

HANNIGAN, James, Let us Play, from www.jameshannigan.co.uk
http://www.jameshannigan.co.uk/58-uk-0505-hannigan.pdf

HANNIGAN, James, The Business of Music for Games from www.jameshannigan.co.uk
http://www.jameshannigan.co.uk/business.htm

GOULD, Glenn "The Prospects of Recording" Audio Culture:Readings in Modern Music (2004) 115 - 126

NEILL, Ben "Breakthrough Beats: Rhythm and the Aesthetics of Contemporary Electronic Music." Audio Culture:Readings in Modern Music (2004) 386 - 391.

CASCONE, Kim "The Aesthetics of Failure: "Post-Digital" Tendencies in Contemporary Computer Music" Audio Culture: Readgins in Modern Music 392 - 398

BARZUN, Jacques. " Introductory remarks to a program of works produced at the Columbia-Princeton Electronic Music Center". Audio Culture: Readings in Modern Music (2004) 367 - 369

STOCKHAUSEN, Karlheinz "Electronic and Instrumental Music" Audio Culture:Readings in Modern Music (2004) 370-380.

Web Sources

http://www.9inchnails.com/articles/articles.php?id=30; accessed June 4 2006

http://kwarp.com/music.html (Greg Lieberman); accessed June 17 2006

http://www.ocremix.org; accessed May 30 2006

http://www.boards.ie; accessed August 12 2006

http://en.wikipedia.org/wiki/Koji_Kondo; accessed May 14th 2006

http://www.chudahs-corner.com; accessed July 10 2006

http://www.vgmusic.com; accessed July 27 2006

http://www.media-awareness. ca/english/resources/research_documents/studies/video_games/video_game_culture.cfm; accessed July 28 2006

Paul Weir Interview at http://www.music4games.net/Features_Display.aspx?id=80; accessed June 30 2006

Jerry McCulley review of *Halo 2* soundtrack at at http://www.amazon.com/Halo-2-Vol-Various-Artists/dp/B00067RF6E/ref=pd_sxp_f_i/104-8323324-0475910?ie=UTF8; accessed August 12 2006

Music Clips courtesy of:

Mario Theme, Trombone Momus Quartet version of Mario Bros. from Greg Liebermann and his website www.kwarp.com; accessed many times over July and August 2006

"Boston Pops" Mario Bros. tune from http://www.pallock.net/peter/sounds.php; accessed April 6 2006

Allan felipe' Mario Bros. tune from http://www.planetcap.trix.net/tchurminha/cool; accessed June 10 2006

Mario Bros Suite by the Big Band Connection, 'Live at the Bop Stop' from http://joshrzepka.com/page5.html; accessed July 19 2006

DJ Skew - Closer to Mario Remix (by Dan Crislip) from http://www.skewsound.com/miscmusic.html; accessed July 30 2006

CarboHydrom's 'Shell Rider' Mario Bros. tune from http://carbohydrom.free.fr/music.html; accessed July 10 2006

Videogame Pianist Mario Bros. tune from http://www.videogamepianist.com; accessed July 10 2006

'B-Dash' by The Tongari Kids from http://www.b-dash.com/index_pc.html; accessed May 20 2006

Ghostmaster action music by Paul Weir from http://www.earcom.net; accessed August 2 2006

Xenon 2 Megablast music from http://www.nashwan.org/soundtrack.html; accessed September 9 2006

Main Mario Bros. themes from http://www.vgmusic.com; accessed July 28 2006

All other remixes courtesy of http://www.ocremix.org; accessed July 9 2006

All other audio clips recorded by Cian Furlong

Very special thanks to James Hannigan, Paul Weir and Greg Liebermann

CD 1 contents (see Mario Bros. Case Study for CD2 contents)

1. *Doom* music: This music played throughout the first level of this first person shooter.The music used Midi very successfully. It employs hardcore guitar and drums (all synthesized) and was perfectly suited to the pace of the game. It was written and coded by Bobby Prince.

2. *Hitman 2* Title music: This is the soundtrack to the game *Hitman 2*. It plays both during the title screen and during the game. This soundtrack was written by Jesper Kyd. Like the Call of Duty soundtrack, it is a Western Classical piece of music. It is highly programmatic. It was then performed in Budapest by 110 musicians from the Budapest Symphony Orchestra and Choir. Jesper Kyd's game soundtracks are readily available in record shops to buy.

3. *Call of Duty* music: This is from the game *Call of Duty*, composed by Michael Giacchino. The game was released in 2003 and had both solo player (missions with a storyline) and multiplayer (many opponents playing online against one another) modes. The music only features in the solo player story game. Different parts of this music are used at different parts of the game. For instance, the quieter parts with just strings are used at the end of certain

missions to signify a job well done. The whole piece only plays at the end of the game during the closing credits. The composer did a good job here in not letting the music become too sentimental. The more programmatic aspects of the piece, especially the opening figures on timpani, brass and strings are kept throughout. There is a Mahler-esque feeling to the piece at times,. where the harp-figure is employed for instance. This could be successfully compared to any orchestral filmscore of today. Incidentally, the game Call of Duty includes what one could term diegetic music, with radios playing popular wartime music.

4. *Resident Evil* Boss music: This music was cued to play whenever the player reached the 'Boss' in Resident Evil, a zombie-shooting game. Boss musics are usually fast-paced, like the next example.

5. *Metal Gear Solid 3* 'Evasion' to 'Alert' Status music: This music increses in intensity after about 10 seconds. An enemy shouts "I see him!" and the music changes pace into the 'Alert' status. After about a minute the music calms back down to the 'Evasion' status.

6. 'Bunny theme' from *Doom*: This music played at a cut-scene at the end of an episode of Doom games. The player sees rabbits eating grass in a field, but as the camera pans around, one can see a wave of destruction that has engulfed Earth.

7. 'Way to Fall' by Starsailor: This song featured in the clsoing credits of *Metal Gear Solid 3*. The band were fairly well-known before this release, at least in the UK and Ireland, but the publicity garnered from singing in a game such as this would have significantly increased their fanbase.

8: 'Countdown' clock music: This is the timer music from the Channel Four quiz-show 'Countdown'. It is here to accentuate the ways in which computer game composers will use a certain technique to create tension in games, here with a clock timer. This is an established technique to make the listener feel a certain pressure on them.

9. Who wants to be a Millionaire: This is the well known background music to the popular gameshow "Who wants to be a Millionaire?". It works in a similar way to the Countdown music above, and is comparable to the 'caution' music from Metal Gear Solid 3.

10. 'Popcorn' from *Digdug*: This is from the 1983 PC release 'Digger'. During normal game play the Popcorn theme is used as background music. In bonus mode the William Tell Overture by Gioacchino Rossini plays. If the player dies, a rendition of Frédéric Chopin's Piano Sonata No. 2 in B flat Minor (also known as The Funeral March) is played. Audible here are the "reward" musics that were also mentioned in Zach Whalen's essay when discussing Super Mario Brothers. As the player collects the diamonds one after another, one can hear an ascending major scale. As bags fall, one hears a chromatic descending scale.

11. 'Popcorn' by Gershon Kingsley: This is the original music used by *Digdug'*s programmers.

12: 'Blue Danube Waltz' by Johann Strauss Jr: This is the original music copied by *Elite*'s programmers. .

13. This is the a monophonic version of Johann Strauss's 'The Blue Danube Waltz'. It featured in the computer game *Elite* which was a seminal spaceship trading game originally released in 1984. When the docking computer is activated in the Commodore 64 version and some other versions, a musical rendition of the waltz is played, which is a nod to a spaceflight sequence in Stanley Kubrick's 1968 film 2001: A Space Odyssey. It also played at the title screen. Although most elements of the music could not be programmed, the melody is enough to be recognised in the computer game version.

14. *3-Demon* Maple leaf Rag: This featured on the 1983 game 3-*Demon*, which was a wireframe 1983 DOS game based on Pac-Man. The music did not play during gameplay, only when the player looked at the high scores, or right after the game had loaded. Like *Digger* and *Elite* from the same era, it employed pre-existing music, readily recognisable by the player.

15. 'Maple Leaf Rag' by Scott Joplin. This is the original copied by *3-Demon*'s programmers. Since only one tone was available to the sound programmers, many of the complex ragtime rhythms and harmonies were lost. Still, the attempt was not unsuccesful. The song, again is instantly recognisable.

16. *Prince of Persia* title music: A good example of exoticised "other" music. The storyline behind the game was set in ancient Persia, where the Prince (of said country) has been unjustly imprisoned by the 'Evil Jaffar'. This game featured music which only played at certain times, such as when the player died, or walked onto a screen with a certain enemy.

The featured music here plays at the opening credits and during the story which is shown after those credits. It is in a minor key, mirroring some Eastern musics.

17. MGS3 'Caution' status music: This is from the Metal Gear Solid 3 title from 2005. This music plays once an enemy has been alerted to the player's presence. It plays for 99 seconds, after which the enemy cancels the alert. It is made up of flute, James Bond-esque electric guitar, synthesizer, and drums. It works in the same way as the Music from 'Countdown' or 'Who wants to be a Millionaire?'.

18. *Final Fantasy VII* Boss music: This works in much the same way as the previously mentioned Boss musics.

19. *Parappa the Rapper* music: This music plays in *Parappa the Rapper 2*. This game uses music as it's subject. The player must hit buttons in a certain order to the beat of this song in one of the levels. It is known as a "rhythm game".

20. *Resident Evil: Code Veronica* Safe House music: This music plays in the game when the player's character finds themselves in a Save-Room. There are no enemies or threats here, and this is characterised by the music. The orchestration and texture contrasts sharply with the Boss musics above.

21. *Horst-WesselLied*: This is actually a song by Horst Wessel. It is called "Die Fahne hoch", "The flag on high", from its opening line. In 1931 it became the official anthem of the Nazi Party, played alongside the National Anthem at all official occasions. It was the anthem of the

NSDAP of Germany, chosen to glorify Horst Wessel as a Nazi martyr. Today it is still banned in Germany.

22. *Wolf3d* Nazi hymn - This is the actual computer game version. Since 'Die Fahne Hoch' is banned in Germany, the game was also banned. This is the most controversial use of computer game music to date. The actual content of the game was an escaped prisoner's fight through legions of Nazis to finally come face to face with Hitler as the final Boss. This song plays at the opening screen of the game, and not during the actual gameplay. Although it is not required at all, the programmers were obviously either trying to make a statement about WWII, or looking for controversy, and thus publicity. Most players would not be aware of this music's origin in the game.

23. *Ghostmaster* music: This music is created through programming that adds together different instruments playing figures of similar tempos and 'feels', depending on the fear level achieved in the game. The player takes the role of Ghostmaster, while the object of this game is to scare humans.

24. *Xenon 2* title and background music: The Bitmap Brothers co-operated with the British musician Tim Simenon (operating under the name "Bomb the Bass" at the time) to include the hip hop track 'Megablast' as theme music to their spaceship game *Xenon 2*. There are two versions of the track in the game: a nearly faithful rendition (only missing a few spoken lines) as the loading music, and a simplified version as the in-game background music. That is what this is.

25. 'Megablast' original by Bomb the Bass: This is the original version of the music which was digitized above, with the author's help.

Game-ography

Xenon 2 Megablast is a computer game for the Amiga, Atari ST, PC, Sega Mega Drive and was developed by the Bitmap Brothers in the early 1990s. It is a vertically scrolling spaceship shooter[29] game. The game has a generic sci-fi theme and almost no plot, focusing instead on presentation and gameplay. It was the quality of the music and graphics that led to the game's memorability.

Digger is a Canadian computer game released by Windmill Software in 1983. The player is placed in an underground maze, and can dig horizontal and vertical tunnels through it[30]. At various points on the board are emeralds and bags of gold. Monsters appear at the top right-hand corner. If earth is excavated from under a gold bag, then the bag will wobble for a few seconds and then drop; if it falls more than one row, it will break open after falling, releasing gold which can be collected.

_____

[29] This means that the game shows a spaceship which is movable around a screen, while the actual screen scrolls upwards at the same time.

[30] This type of game was very common in the early days of computer games for the PC. Others included *Pacman*, *Digdug* and *Boulderdash*.

Metal Gear Solid 3: Snake Eater (commonly abbreviated to just 'MGS3') is a stealth-based game developed by Konami Computer Entertainment Japan in 2004 and published for the PlayStation 2. Set in Cold War-era Russia, the story centers on 'Snake' an American spy, as he attempts to rescue a weapons designer and sabotage an experimental superweapon. Particular emphasis is placed on camouflage and using the jungle environment itself (for example, climbing trees or hiding in tall grass) to avoid being seen by the enemy.

Doom is a 1993 computer game which was one of the first "first-person shooters"[32] and was preceeded by "Wolfenstein 3d" also by id Software. It is widely recognized for its pioneering use of immersive 3D graphics. Its graphic violence has also made Doom the subject of much controversy outside the gaming world.

Call of Duty, released in late 2003, is a first-person shooter computer and video game. It simulates the infantry and combined arms warfare of World War II. The game was published by Activision and developed by Infinity Ward. The war here is seen not just from the viewpoint of an American soldier but from the viewpoint of British, American and Soviet soldiers. The player is joined by computer-controlled allies who range in quantity. It is playable in either single-player mode (which is driven by plot) or multiplayer mode (online against other opponents and without music).

Hitman 2: Silent Assassin is the second game of the Hitman video game series. It was released in 2002 and is a stealth-based game. It is basically a standard first person shooter

_____

[32] This is a type of game in which the player is looking from a first person perspective, and is usually wielding a gun or weapon of some kind.

game, where you can also see the character you control. The player is given a visual indication of an enemy's suspicion level, based on the player's behavior (such as running indoors, wielding a weapon, or trying to sneak up behind their backs), causing them to attack him when the meter goes high enough.

Super Mario Bros. is a video game released by Nintendo in late 1985. Super Mario Bros. was one of the first side-scrolling platform games[33] of its kind, introducing players to huge, bright, expansive worlds that changed the way video games were created. Mario's primary attack is simply to jump on top of his enemies, which kills the mushroom enemies, known as Goombas, and sends the turtle soldiers known as Koopa Troopas into their shells.

Elite is a seminal space trading computer game, originally published by Acornsoft in1984 for the BBC Micro and Acorn Electron computers. The game's title derives from the player's goals to raise their combat rating from Harmless, through Mostly Harmless, Poor, Average, Above Average, Competent, Dangerous, and Deadly, before reaching their status to 'Elite'.

Grand Theft Auto: San Andreas is an action-adventure game developed by Rockstar North and released in 2004. It is the fifth game in the Grand Theft Auto series. The game involves many different specific missions and in-game games.[36] Free-roaming around a huge fictional Californian city stealing cars is the other main activity. It is set in the 1990's.

---

[33] In these games, the screen usually moves from the left-hand side to the right-hand side of the level or world in which it is set, and the player is expected to control the character accordingly.

[36] These are smaller games that exist within bigger games. For example, in *San Andreas*, one can play "They Crawled From Uranus", a simple arcade game, in a bar.

The Legend of Zelda: The Ocarina of Time was released in late 1998. It is an adventure game which takes place in the fictional kingdom of Hyrule, and was the first 3D Zelda game of the series. Playing as 'Link', the player must battle and puzzle their way though the game, finding certain items to aid him. A dungeon typically contains a special weapon, often needed to defeat the 'Boss' at the end.

Prince of Persia was released in 1990 for the PC and is a platform game. The player plays as an imprisoned prince who must fight his way through labyrinthine dungeons while also solving puzzles.

3-Demon is a wireframe DOS game (Dos is the predecessor to Windows on PCs) based on Pac-Man. The player wanders in a 3-D maze, eating pellets and avoiding red ghosts. Eating a power pellet turned the ghosts green and gives him the ability to eat them for extra points.

Wolfenstein 3d is a computer game that is generally regarded as having popularized the first person shooter genre on the PC. It was created by id Software in 1992. The gamer plays an imprisoned American soldier in a World War II Nazi war prison. The player is looking forward, like in 3-Demon, except he has weapons now. The same company went on to make *Doom*.

PaRappa the Rapper (1996) is considered conceptually similar to the classic 1980s game Simon, in which the player is required to repeat sequences of sounds and light. This title demands that the player get the timing correct, and provides clips of "rap" that are triggered

when the appropriate buttons are pressed in sync with the beat or music. Points are awarded

for correctness and "style".

Xenon 2 Megablast (1989) Bitmap Brothers
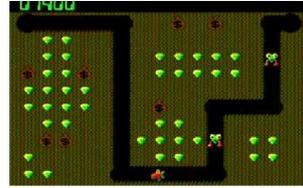
Digger (1983) Windmill Software

Metal Gear Solid 3: Snake-Eater (2004)
Konami Computer Entertainment Japan

Doom (1993) Id Software

Call of Duty (2003) Activision / Infinity Ward

Hitman 2: Silent Assassin (2002) Io Interactive / Eidos

Super Mario Bros. (1983) Nintendo
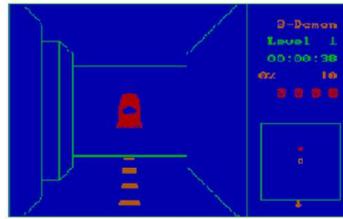

Elite (1984) Acorn Software

Grand Theft Auto: San Andreas (2004)
RockStar North

Legend of Zelda: The Ocarina of Time (1998)
Nintendo

Prince of Persia (1989) Broderbund Software

3-Demon (1983) PC Research Inc

Wolfenstein 3-D (1992) Apogee Software / Id Software

Parappa The Rapper 2 (2002) NanaOn-Sha