

MUSIC IN VIDEO GAMES

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Munday, R. (2007) 'Music In Video Games,' in J. Sexton (ed.) *Music, Sound and Multimedia: From the Live to the Virtual*. Edinburgh: Edinburgh University Press, pp. 51-67.

[51] The first and perhaps most important observation one can make about contemporary videogame music is there is no longer any such thing as 'videogame music'. This was not always the case and whether it will be the case in the future is open to question. A few years ago the genre known as 'Bitcore' (Collins 2005, 2) or 'Chiptune' defined—to all intents and purposes—the phenomenon known as videogame music. This genre, usually characterised in negative terms by its rudimentary electronic timbres and restricted number of voices, nevertheless produced some extremely innovative and memorable tunes. Since the mid 1990s, the improved memory capacity and increased processor speeds of game consoles has freed videogame composers from the technological constraints which gave the work of their predecessors such an identifiable aesthetic. Today, videogame music inhabits every style imaginable, from baroque to bluegrass, rockabilly to symphonic (Belinkie 1999). It is for this reason that I claim it no longer exists. Today's videogame music is more accurately described as music that has been written for, or adapted to, video games. Therefore the analytical focus must shift away from form and towards function.

While video games have become 'the hottest and most volatile field of study within new media theory' (Perron & Wolf 2003: 1), academic articles on videogame music are few and far between. The majority of them are more descriptive than analytical, and tend to be organised around a timeline structure.¹ Partly as a reaction against this, but mainly because I think a theoretical understanding of this area cries out to be elaborated, I will be examining videogame music from [52] a more analytical perspective, focussing primarily on contemporary games, which I define as played on platforms which have the capacity to reproduce CD quality audio.

In this investigation, my approach will be primarily text-based. The videogame as a text can be defined in the Barthesian sense as something which is produced as a result of actions or discursive operations, rather than existing as a material thing in itself (Barthes 1977: 156-7). The danger of this approach is it can lead to a conception of the subject that is too pristine and ahistorical and ignores the situated interpretations of gamers. This is clearly inappropriate for a new-media form like video games, the academic understanding of which is continually being outdistanced by the changing technology of gaming itself. It would be useful to be able to draw on other research, but at present sufficient data is simply not available to offer anything more than anecdotal or speculative observations on such important areas as: the institutional context of videogame music production, the economic reasons for its success, or the social context of its reception. This is why I am introducing a note of caution into the proceedings at this early stage, because the aim of this chapter is not so much to supply a definitive explanation of how videogame music

functions, but to communicate enough of a theoretical understanding to make the case for future research as compellingly as I can.

The analysis is divided into three broad headings:

1. Environmental: how music supports the perception of a gameworld.
2. Immersion: how music supports the player's involvement in the game.
3. Diegetic: how music supports a game narrative.

ENVIRONMENTAL

As Trevor Wishart observes, a person's sensory experience of the environment is always a multimedia one (Wishart 1986: 49). While vision is generally regarded as the most important sense for apprehending an environment, sound has certain advantages over sight. Sound surrounds the listener, blending and combining in ways that visual information cannot emulate. In the context of mediated communication, a virtual doorbell sounds exactly like a real one, because waves of recorded sound are perceived in exactly the same way as waves of real-world sound. In contrast, the visual representation of a doorbell does not have the same equality of experience (Kaltenbrunner & Huxor 2002). Visual representations are hampered by imaging technologies which render obsolete the advantages of human binocular vision. Visual images are usually two dimensional and the viewer's gaze is concentrated only in one place. In contrast, stereo sound takes advantage of the fact that humans have two ears. Stereo recordings arguably constituted the first electronically generated 'virtual reality', [53] because as Wishart observes, loudspeakers create an immersive acoustic space, in which a sonic representation of any real or imaginary environment can be projected (Wishart 1986: 43). Sue Morris claims the main purpose of a soundtrack in video games is to imply space through sound. In first-person shooters like *Doom* and *Halo*, Morris argues that successful players always perceive the gameworld in three hundred and sixty degrees, with most of the information outside of the visual frame being provided by the soundtrack (Whalen 2004).

Michel Chion conceives of sound as not merely duplicating visual information, but also enriching it. Thus he claims the meaning of images is actually determined by sound, rather than the other way around (Chion 1994: 5). This is born out by Annabel Cohen's observation that the less realistic an image is, the more music and sound effects are needed in order to fix its meaning (Cohen 2000: 367). In video games, it is worth remembering that computer-generated environments make no natural sounds: hence the importance of music and sound effects is to give them meaning.

While the above arguments make the case for sound representing environments, the question can also be approached from the opposite direction— in terms of representing environments in sound. Historically, composers have responded to the environment by painting nature in musical images. Beethoven's *Pastoral Symphony* is perhaps the most famous example of what is called 'pictorial music' (Komar 1980: 1). As an art form, music is not frozen in time like painting, nor does it speak in the monophonic voice of literature. Hence the nineteenth century essayist Walter Pater's famous dictum, 'all art aspires to the condition of music.'² A contemporary appreciation of Mendelssohn's *Fingal's Cave Overture* from the 1830s describes the work as a continuous 'sea picture', with the 'restless Atlantic sometimes fierce, then suddenly docile... its playful waves

glittering in the bright sunlight' (13). This illustrates how a purely auditory work can be interpreted in strikingly visual terms. This is why, before the advent of film or sound recording, music was considered to be the only artistic medium able to communicate a dynamic sense of being in a different place.

Early video games made extensive use of music's ability to represent environments. Zach Whalen notes, in his analysis of *Super Mario Brothers*, how Koji Kondo's melodies serve to characterise the different levels of the game: a happy 'overworld theme', contrasting with a sinister 'underworld theme' (Whalen 2004). However, wall-to-wall music is no longer a prominent feature of many contemporary video games, and consequently it can be argued that sound effects have begun to supplant the environmental function hitherto assigned to music. For example, *Grand Theft Auto San Andreas*, *Spiderman 2* and *Tom Clancy's Ghost Recon*, all use music sparingly. While this argument is correct, it can be contested because it is premised on a musicological definition of music which, as Joseph Kerman points out, focusses narrowly on tonal music, or more [54] precisely, the history of Western tonal music in the high-art tradition (Kerman 1985: 24).

This definition can be challenged if one examines how music functions in the context of other audio-visual media. Here it becomes apparent that music in this context is actually a very different music to that heard in the concert hall, or on personal music players. For instance, many film music researchers go so far as to argue that a major function of film music is paradoxically not to be heard at all (Gorbman 1987: 76; Donnelly 2005: 7). Cohen likens film music to a typeface in a book: something which is always read but seldom noticed (Cohen 2000: 366). If this analogy holds, hiring a musicologist to critique a film or videogame would be like hiring a typographer to critique a work of literature. This remark is obviously not intended to be taken seriously, but it does highlight the shortcomings of an exclusively musicological definition of music when one tries to apply it in all contexts and circumstances. What is needed for audio visual media is a definition of music that takes into account the specificity of the medium (Lipscomb & Tolchinsky 2004, 2). For video games this would include taking account of ambient sounds, sound effects, silences and even certain speech sounds (known to videogamers as 'barks') as being part of 'the score.' My attempt to fulfil this criterion results in the following definition: videogame music is a discrete patterns of sounds and silences generated by the game software which, in combination with other visual, kinaesthetic and tactile sensory stimuli, contribute to creating the phenomenon of the gameworld.

The advantage of this definition is that it permits the contemplation of a more profound connection between sound, music and the environment suggested by Gilles Deleuze and Felix Guattari in their book *A Thousand Plateaus*³. Deleuze and Guattari define the content of music as *the refrain*. The refrain designates a collection of characteristic sounds (not necessarily tonal), that function to mark out a territory. In other words, the refrain is a sign that says, 'here I am' and 'this place is mine' (Deleuze and Guattari 2004: 331). Any sound can be interpreted as a refrain, for instance bird song and animal cries are refrains, as is the sound of a motorcycle screaming past an open window with its silencer removed. When people are assaulted by such sounds they may remark, 'I can't even hear myself think'. In other words, according to Deleuze and Guattari's reasoning, they have been so successfully territorialised by the motorcycle's refrain that even their minds belong to it.

The function of music on the other hand is to repel this invasion by a process of deterritorialization. Music does not preserve the refrain but expresses it. This involves taking the refrain up and challenging it; lifting it out of its territory and changing it into something else (Deleuze and Guattari 2004: 331). Conversely, the function of the refrain is to prevent music. This may seem contradictory, but Deleuze and Guattari are at pains to point out that these categories are [55] neither stable nor monolithic. Rather, they liken music and the refrain to a couple of wrestlers who can no longer break free from each other's grasp (341). The refrain therefore acts as a kind of magic circle that people draw around themselves to prevent the 'music' of the outside from invading (343), or, *vice versa*, music can act as the magic circle that prevents the refrain. Hence, the popularity of personal music players is their ability to define a fortified personal space around the listener by blocking out sounds from outside. Videogame music arguably performs a similar function, cocooning the player in a sonic zone of protection, where she can forget about interruptions and lose herself in the game.

The above arguments contend that a musicological definition of music fails to illuminate its meaning, both in the context of audio visual media and arguably also in real-world environments. It fails because it is primarily concerned with tonality and instrumentation and treats as secondary music's ability to communicate a mood or emotion to the listener. The power of music is such that it can turn an ostensibly non-threatening environment into a sinister place (Whalen 2004): sombre music can darken a sunny picture, whereas no end of sunny pictures can ever lighten sombre music. However, this effect is not symmetrical since sombre pictures are not lightened by sunny music either, so much as made comic by its ironizing sense of defiance. This lack of symmetry suggests a sombre mood takes interpretative precedence over any particular qualities a medium possesses, presumably because it makes good evolutionary sense for human beings to be more responsive to danger signals than benign ones. Of course, this reasoning is speculative and therefore the contrary proposition can be asserted just as convincingly—namely that the power of music derives not from instincts but from conventional associations which have been naturalised over time. And the fact that such debates between semioticians and musicologists continue to enliven music theory (Donnelly 2001: 2 - 3) is a testament to music's resistance to being reduced to a mere category.

However, in the light of this debate, it is interesting to note that Deleuze and Guattari's theory does not refute the assertion that the power of music might stem from a conventional source. Rather, they suggest that these conventions are formed in a more primordial semiosis. The aggregate of refrains in a given environment is already music, and human beings are therefore already part of an orchestra as both listeners and players. In fact, this is the conceptual ground upon which our notions of 'what music is' rests. Viewed from this perspective, the musicological definition of music is overly narrow. However, the real problem here is not exclusivity, but that the musicological definition abstracts music away from its environmental referent, which means that, rather than clarifying the mysterious power of music, it leads instead to its further mystification.

IMMERSION

[56] Music is important in video games because it contributes to the player's sense of immersion. Generally speaking, immersion has two meanings, the first meaning describes the literal sensation of being totally submerged in water, as in the baptism ceremony, where the Latin word *immergere* or 'dip' first came into common usage (SOED 1973: 1025). The second meaning is a metaphorical application of the first. Here, immersion either describes the heightened sense of a particular aspect of a person's immediate surroundings, or the sensation of being transported into a mediated alternate reality. The activity of threading a needle or hammering a nail can be immersive in the former sense, while reading a book or watching a film can be immersive in the latter. For immersion to occur, the activity or stimulus has to be sufficiently engaging to block out the normal sense impressions of one's surroundings. This implies that immersion has a privative aspect as well as a stimulating one and in the context of immersive media, it means that the real world must be dimmed in order that the mediated one can be illuminated.

There is little doubt that playing video games can be immersive. One study found that UK children aged nine to sixteen play them for an average of forty four minutes a day. Another noted the duration of play often tends to last longer than intended, with fourteen percent of subjects playing for over two hours a day (Newman 2004: 59). The feeling of being immersed in a videogame can come from any number of factors, including: the activity of play, involvement with the task, or the feeling of being transported by the story. The subjective nature of these experiences and the different contexts in which they operate illustrate that immersion cannot be defined with any conceptual precision. Nevertheless, it is a useful term, because the enjoyment of a videogame is, to a great extent, premised on a player's deep involvement. In this respect, videogame music plays an important contributory role. There are two main processes that account for this, which I call *cognitive immersion* and *mythic immersion*.

Cognitive immersion

Cognitive immersion focuses on the way certain neuropsychological aspects of the brain are stimulated by videogame music to promote the player's involvement in the game. One thing that distinguishes audio perception from visual perception is the ability of the brain to perceive any number of sounds simultaneously, and yet still focus on a particular sound to the exclusion of others. This phenomenon is known as the *cocktail party effect* (Altman 1992: 29). Music exploits the ability of human beings to appreciate polyphonus sound in a particularly rarefied and complex way. However, in the context of video [57] games, music is but one of a multitude of information sources, simultaneously occupying a number of sensory channels.

Cognitive immersion is premised on the idea that the human brain is divided into many different areas, whose job is to perform specific perceptual and cognitive tasks. At an early stage of perception, these areas operate independently of each other, and only at a later stage are they cognised as an integrated whole. (Cohen 2000: 364). It is generally thought that music contributes to videogame immersion by occupying the area of the brain dedicated to dealing with non-linguistic sounds. In this way, music prevents this

area from hunting around for stimuli outside of the game. Music also functions as a 'wall of sound' which serves to prevent potentially distracting sounds from entering into the gaming situation. In the context of normal gaming, these cognitive operations are performed in the background, the player's conscious attention being focussed on the graphics and the gameplay itself.

This 'modular theory' of the brain, first proposed by Jerry Fodor in 1983 has yet to be proved (Cohen 2000: 368), but results from experiments suggest that certain tasks are localised to certain areas of the brain. For instance, it has long been known that an area known as the Wernicke's area handles the cognition of speech (364). Experiments conducted on patients who had only one cerebral hemisphere intact found that right-handed patients who had retained their right hemisphere performed much better in musical memory tasks than right-handed patients who had retained their left hemisphere. Separate research also suggests different parts of the brain 'light up' when certain kinds of listening occur.

If cognitive immersion is correct, it would suggest the choice of music played in a videogaming situation is immaterial to the immersion it provides. This hypothesis is anecdotally supported by a study commissioned by the BBC in 2005. Researchers surveyed just under three and a half thousand gamers across the UK. They found that at least seventy percent of them had other media on in the background, either the television, radio or personal music (Pratchett 2005, 5).

I imagine this finding will make uncomfortable reading for those who study videogame music exclusively within an aesthetic tradition of film music because it suggests that aesthetic considerations are secondary to music's ability as an aid to concentration. Of course the survey data needs to be qualified further before such an assertion can be made. For instance it utilised a very broad definition of 'videogame', which included the solitaire game bundled with the 'Windows' operating system and mobile phones games. Also it did not provide information about whether the players' familiarity or unfamiliarity with a game affected their listening behaviour. These variables obviously have a bearing on how the claim of the BBC survey is qualified and addressed. However, it is equally obvious that a finding as important as this cannot be [58] dismissed. More implications of this will be discussed in the conclusion of this chapter.

Mythic immersion

Many video games, especially the role-playing type, tell mythic stories. Roger Callois claims the pleasure of these games comes from the player pretending to be someone else (Callois 2000: 19). This act of pretence is not intended to deceive, but takes advantage of the game's licence for the player to transcend her everyday self and act as a hero or a villain (21). Royal Brown defines the extent to which something becomes 'mythical' as the degree to which a character, object, or event escapes its causal or historical determination (Brown 1994: 9). In this sense, if we accept Callois' reasoning, the more mythic the game scenario, the less inhibitions the player has in exploring certain aspects of her personality that are normally constrained .

Many if not all of the mythical themes found in video games are propagated in popular culture by the cinema. A film like *Star Wars* (1977) is a good mythic template for role-

playing games, because it is an archetypal story of good against evil and because it provides a common currency of characters, settings and situations readily adaptable to imaginative play. Role-playing games in the real world typically employ props to deepen the immersion of the player. In *Star Wars* games, two sticks can stand in as lightsabers, or commercially manufactured toy lightsabers can be used; the effect is the same, although the demand on the player's imagination is different in each case. Video games take this notion a stage further, since the fantasy setting no longer has to be imagined. This leaves the player free to concentrate on exploring those normally constrained aspects of her personality that are freed by the mythical scenario of the game.

However, this does not explain the importance of music to these games, since traditional role-playing games have never required a musical accompaniment. Contrastingly, many role-playing video games, such as the *Final Fantasy* series, are especially noted for their epic cinematic scores. The reason for this is that video games have aligned themselves with an aesthetic tradition of 'mythic drama' found in both opera and film.

Music, taken by itself, is often accorded a powerful mythical function. Kevin Donnelly argues that the abstract nature of music bypasses human rational defence mechanisms (Donnelly 2005: 9), whilst Claudia Gorbman points out that lushly scored, late Romantic music creates an 'epic feeling' (Gorbman 1987: 81). These ideas are most developed in the theories of the composer Richard Wagner, who explicitly likens the function of music to myth:

The orchestra is so to speak the loam of endless universal feeling, from which the individual feeling of the separate actor draws power... In a [59] sense, [music] dissolves the hard immobile ground of the actual science into a fluent, elastic, impressionable ether, whose unmeasured bottom is the great sea of feeling itself

Wagner 189-90

Wagner's compositional technique was to associate people, objects and ideas with musical phrases known as *leitmotifs*. By creating these leitmotifs and intertwining them, Wagner attempted to weave a dynamic musical tapestry, unconstrained by the spatial and temporal limitations of more denotative representations (Wishart 1986: 52).

Film music borrows the basic idea of the leitmotif from Wagner, but has been criticised for reducing its mythic signifying function to that of a mere signpost (Donnelly 2005: 58). However, as James Buhler argues:

the demythifying impulse of film music leads not away from myth but back towards it. Thus, even in a wholly demythologized state, the function of the leitmotif remains mythic

Buhler 2000: 43

Buhler's theory offers an explanation for the paradoxical transformation of cinema, from an industrial technology whose only use was in scientifically documenting reality, into the dominant story-telling medium of the twentieth century (Brown 1994: 17). In Cinema, the abstract nature of music, when combined with the objective nature of photography, produces a powerful tension: music seemingly mythologizes the

photographic image, while the photographic image realises the mythical aspects of the music. When these devices are used in the service of a narrative by a skilled filmmaker, a powerful effect occurs. I call this the aesthetic of cinematic realism.

The aesthetic of cinematic realism has powerfully influenced the aesthetic of video games to the extent that it can be argued contemporary videogame designers do not attempt to represent an unmediated sense of reality, but rather the heightened reality of a cinematic experience. Those working in videogame music often cite film music as a model: ‘We want to take the experience that everybody has at the movies and make it into something that you control’ (Liam Byrne quoted in Belinkie 1999); ‘every game audio designer will tell you that the ultimate goal is movie-quality game soundtracks’ (Carl). In this respect, the aim of the makers of videogame versions of films like *Star Wars* or *Lord of the Rings* seems to be not to place the player in the world of the films’ *stories*, but in the world of the *films* themselves.

However, in striving to recreate the aesthetic of cinematic realism, videogame designers face a different set of formal problems to those of filmmakers. The videogame image is arguably already mythic, because it is computer generated and as such is abstracted away from reality. The mythical quality of computer generated imagery is exemplified by some of the imagery in a game like *Gran Turismo 4*, which is uncanny in its verisimilitude and therefore already possesses a mythical power without the need for a Wagnerian sounding score. In fact an [60] epic sounding score would actually distract from that power of the images, turning the spectacle into kitsch.

Cinematic music can be criticised when it is used in video games because it acts merely as a kind of quotation of the epic music found in cinema, connoting all the epic associations of the aesthetic of cinematic realism, but without actually performing any of its functions. Thus, it can be argued that the cinematic aspirations of game designers have led to a further collapse of the Wagnerian model of mythic music, reducing the leitmotif to the lowly status of a looping underscore.⁴ In this respect, Jean Baudrillard might be considered a better theorist for video game designers than Wagner because the mythical power of the videogame image is that of the *simulacrum*, which Baudrillard defines as ‘a real without origin, or reality: a hyperreal’ (Baudrillard 2004: 1). However, the problem here is that this concept would not be able to account for the aesthetic of cinematic realism because it cannot be used to distinguish between levels of realism found in indexical media like film, and levels of myth found in non-indexical media like computer generated imagery, since Baudrillard theory denies reality to both.

In examining the concept of mythic immersion, it is clear that music in video games cannot function in exactly the same way as it functions in cinema, because there are not the same tensions between myth and reality. If this tension is to be maintained, it becomes necessary to anchor the spectacle in some other referent of reality. The most obvious candidate is to use real-world sounds effects instead of music, in this way the mythical videogame images are realised in sound. Of course, if game designers choose to go down this road (and many are already doing so) then their games will inevitably end up being less cinematic, but then the question that needs to be asked is “is that a problem?” since video games are not cinema. In this case perhaps this whole debate is merely symptomatic of the challenges videogame designers face in attempting to define their own unique aesthetic.

DIEGETIC

The third of my videogame music categories is diegetic, or the ability of games to tell stories. It is a discernible tendency of human beings to ascribe narrative meaning to the most inert or abstract phenomena. In cognition studies, test subjects anthropomorphize even the most rudimentary animated shapes such as circles and triangles and make up stories to ‘explain’ their behaviour (Cohen 2000: 362-3). Music adds meaning to these stories, either by confirming the visual message, or resolving the ambiguities in an unclear message (363 - 364).

A videogame’s ‘story’ manifests most conspicuously in its cut scenes—which, as Whalen points out, can be best understood using the techniques of traditional [61] film analysis (Whalen 2004). However, this is not to imply that video games are not devoid of narrative content when they are played. For while game stories might not resemble traditional literary or cinematic narratives, as Espen Aarseth contends, the struggles (aporias) and triumphs (epiphanies) of the player, actually reach deeper into ‘a fundamental layer of human experience from which narratives are spun’ (Aarseth 1997: 92)

In terms of narrative, video games are more schematic than either film or literature. A game may present a player with a set of goals to aim for, and a corresponding set of obstacles to overcome. But video games do not micro-manage their narratives in the way that films, plays, or novels do (in fact, bad video games are criticised for doing this). Steven Poole notes that videogame soundtracks fall into two main classes: either pop compilations or specially composed scores (Poole 2000: 81). The choice of music tends to be determined by the game's narrative content. Games with simple narratives (like *Gran Turismo 4*, *Wipeout* and *SXX Tricky*) use pop music soundtracks while games with more complex narratives (like *Halo*, *Metal Gear Solid 2*, and *Goldeneye*) use specially composed scores. It is often the case that music is used so conventionally in these contexts that it is possible to guess the narrative content of a game merely by glancing at the music credits.⁵

In the case of games with simple narratives, the primary function of music is to motivate the player. Tonal and rhythmic music has long been thought of as an aid to motivation. During the Cold War, for example, music was played to military personnel who watched the radar screens for signs of incoming missiles, precisely because it helped them to concentrate for longer periods of time. But worryingly, this policy was only instigated after a series of experiments conducted by the psychologist William Wokoun showed that, even in this pressurised environment, a person could only concentrate for a maximum period of half an hour (Lanza 1994: 150).

Zach Whalen argues that the application of what he calls a *safety/danger binary* drives the motivational function of music in game narratives (Whalen 2004). In early video games like *Space Invaders* or *Pac Man*, music signalled a danger state simply by altering its tempo or pitch (Newman 2004: 78). Today, more sophisticated methods are used. In *Enter the Matrix*, for example, the game's action is accompanied mostly by sound effects, with music only coming in when a mission reaches its climax and this has the effect of heightening the tension. Here, in addition to energising the player, motivation consists of providing emotional cues that reinforce the meaning of the various rewards and setbacks a player faces.

Music can also be used to reflect the player's psychological state. For example, horror games employ dissonant music to rack up the tension and put the player on edge. For, as Whalen points out, horror games lack a safety state where the player can relax (Whalen 2004). A novel variation of this device is [62] found in the Gamecube title, *Eternal Darkness: Sanity's Requiem* (2002). The game has a 'sanity meter' to monitor the player's psychological state. At scary points, the meter drops and the player hears all sorts of odd noises, like wind chimes, babies crying, and the sound of a woman being violently beaten (Majaski 2002). These sounds have no obvious connection to the story, and so appear to be happening outside of the game, an effect also enhanced by the designers' clever use of the Gamecube's spatial-audio capabilities. Thus the audio transgresses the imaginary boundary separating the game and the player, creating a powerfully disturbing effect.⁶

As discussed earlier, videogame music also borrows from many cinematic conventions. However, in this context the music functions not to mythologize but to structure the game's narrative elements based on familiar dramatic conventions. Games, like films, have opening and closing title sequences where music is used as a formal device to ease the transition between the real world and the storyworld (Buhler et al 2001: 35). Furthermore, they both employ the notion of the leitmotif, although in this context it is the particularly cinematic interpretation of the leitmotif that Wagner would have disparaged and Kevin Donnelly referred to as a 'signpost' (Donnelly 2005: 58). Cinematic leitmotifs are used primarily as a storytelling signposts, that tell the player a certain environment is dangerous, or that a character is not to be trusted. Finally both film and video games use music to provide stylistic cues to aid the comprehension of their particular setting and narrative genre. For example, stealth games use suspense music, games set in jungles may employ stereotypically 'jungley' musical motifs such as tribal drums and chanting, while fantasy games typically opt for epic sounding orchestral scores.

However, despite many shared functions with film music, diegetic videogame music differs in a fundamental respect. Theodore Adorno defines serious music as structured around a specific part/whole relationship, dealing chronologically with causes and effects (Lastra 1992: 71). This definition could very well describe the structure of narrative also. Tonal music compliments a film narrative, because both are causally predetermined⁷ and as Michel Chion observes, 'each audio element enters into a simultaneous vertical relationship with a narrative element contained in an image' (Chion 1994: 40). However, a significant amount of the videogame narrative is not causally predetermined, because it is generated 'on the fly' by the actions of the player. This creates a conflict with tonal music, because sudden changes in music produce a very jarring musical effect. Consequently, video games are unable to recreate the same vertical correspondence between their musical themes and narrative events (Bessel 2002: 141).⁸ Tonal game music therefore flounders in its attempts to imitate cinema, because as the game composer Mike Pummel succinctly puts it, 'the game doesn't know where the music is, and the music doesn't know where the game is.' (Belinkie 1999)

[63] Nevertheless, some attempts have been made to develop game music along interactive lines. This technique, known as *adaptive audio*, is defined as music modulated in real time by the actions of the player (Wilde 2004: 1). While adaptive audio is successful at altering the volume of the music, or dynamically applying effects like

reverb, it is less successful when it comes to ‘adapting’ the rules of tonal composition. The problem here is a musicological one and therefore not amenable to a technological quick-fix solution. The challenge facing composers of adaptive music is to write tonal sounding music that somehow manages to overcome these prohibitions. Not surprisingly, many composers choose not to (Bessell 2002).

CONCLUDING REMARKS

I have divided this examination into three distinct areas, although it must be borne in mind that the division is only analytic and therefore arbitrary. In reality there is much cross-talk: for instance, the claim that music has a mythic power which I critiqued in the immersive section can be further contended by considering the conclusion of the environmental section, suggesting that the so called mythical power of music, rather than having no real world referent, is rooted in the everyday struggles of different animals in the environment. Similarly, the reasons given in the mythic immersion section for cinematic music's lack of power in video games can be further justified in the diegetic section, by the lack of correspondence between linear tonal music and non-linear game narratives. However, there are also contradictions. For example the claim advanced in the environmental section that music is a powerful signifier of meaning is contradicted in the immersive section when I suggest that many gamers have other audio playing in the background. The contradictions show that while this chapter has been quite ambitious in attempting to map out the theoretical groundwork for the study of music in video games, its reach has often been greater than its grasp.

Of the three areas of videogame music, I consider the immersive function to be the most important. Music acts both as a territorial zone of protection (Deleuze and Guatarri), and as a means of occupying the brain (Cohen). These two theoretical explanations, although supported by quite different lines of reasoning, actually lead to the same conclusion—namely that the primary function of music in mediated gaming situations is to keep the outside world at bay so that the player can focus exclusively on the game. If this theory is correct, it would suggest the choice of music is immaterial to its immersive function. This is a conjecture supported by the findings of a BBC study, which reveals seventy percent of gamers choose to have other audio playing in the background (Pratchett op. cit.). While this does not imply that music *per se* is becoming less important to the videogame experience, it does suggest that [64] video games (along with television, radio, music player, etcetera) constitutes a potentially rich multimedia environment—its individual sensory components being orchestrated by the player rather than authored by any one provider. What general aesthetic or social implications this particular finding discloses have yet to be properly recognised, let alone theorised about.

For this reason alone, more research needs to be undertaken in order to understand how players are using music in video games. The results from the BBC survey threaten to undermine confidence in aesthetic theories of game music, which have borrowed from film, and which have up until now dominated the academic study of this phenomenon. Yet, to conclude that videogame music serves no aesthetic function beyond blocking-out the sounds of the real world would be a mistake. The questions left open here need to be delineated more clearly by further study before they can be answered. In this respect I hope this chapter is seen as a challenge for those seeking to elaborate an aesthetic for videogame music, rather than an argument that forecloses the possibility of one.

ACKNOWLEDGEMENT

I am indebted to Kevin Donnelly for his advice on this chapter

NOTES

¹ Some of these 'descriptive' articles are very good, I would particularly recommend Matthew Belinkie (1999) and Karen Collins (2005). And there are a few honourable exceptions where the analysis of video games music is concerned. Zach Whalen's (2004) excellent online article "Video games [sic?] Music" and David Bessel's (2002) chapter "What's That Funny Noise?" published in the book *Screenplay* are ones that immediately come to mind, but there are others. This chapter builds on an complementing this work, but I feel it would be a wasted opportunity, given the scarcity of scholarly material available, merely to summarised their findings without trying to contribute something of my own.

² Although attributed to Walter Pater, it is not an exact quotation. The nearest Pater came to expressing these sentiments is in the following passage: 'The arts may be represented as continually struggling after the law or principle of music, to a condition which music alone completely realises.' (Pater 1925, 138)

³ Deleuze and Guattari's theory cannot be adequately summarised here, because it is deeply interwoven with the wider themes of their book. However, I think certain aspects of it can be lifted out of their proper context and usefully applied to the study of videogame music.

⁴ This argument surveys the problem from a particularly narrow perspective and ignores the fact that cinematically styled videogame music is both hugely popular and widely admired. For example, Nobuo Uematsu's sweepingly cinematic scores for the *Final Fantasy* series of games made him the most commercially successful videogame composer ever (Belinkie).

⁵ There are a few exceptions to this rule, most notably the *Grand Theft Auto* series which uses no tonal music until a player steals a vehicle. Then music plays via the vehicle's radio. The use of sound in these games is so innovative that it deserves a whole chapter of its own, as it is the best example of the kind of dedicated videogame aesthetic I refer to at the end of the section on immersion. Suffice to say that the radio in GTA presents a reflexive commentary on the world of the game, and [65] presents a satirical commentary of American culture specifically its consumerism and its attitudes to violence. For more information see IGN *The Pet Sounds of Grand Theft Auto III*: <http://uk.ps2.ign.com/articles/098/098444p1.html> and Wikipedia's entry on *Grand Theft Auto III's* audio.

http://en.wikipedia.org/wiki/Grand_Theft_Auto_III_soundtrack

⁶ Thanks to Richard at 'Games Park', Aberystwyth for this observation.

⁷ The term 'causally predetermined' is not to be confused with 'linear' and neither is 'non-causally predetermined' the equivalent of 'non-linear'. The so called non-linear narratives of films like Kubrick's *The Killing* and Tarrantino's *Pulp Fiction* tell their stories out of chronological order and Nolan's *Memento* adopts the novel device of

telling its story in reverse. However, these non-conventional uses of narrative are still causally predetermined, because their non linearity only applies at a stylistic level, while the cinema text itself is what Aarseth calls 'transient' (Aarseth 1997, 63), a term which means that the actual perception of a film as it runs through the projector is temporally inflexible, in the sense that users cannot influence the way the narrative is presented to them.

⁸ This may be a way of clarifying the infamous dispute in game studies as to whether games are primarily 'ludic' or 'dietetic'. (Frasca, in Perron & Wolf 2003, 222 - 223). The intimate connection between tonal music and narrative could be used by researchers as a measure to determine how much a game did or did not conform to the conventions of classic narrative, simply by noting the presence or absence of tonal music at any point in the game.

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