Research MA Thesis

Ludic music in video games

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Abstract

Like film music, video game music is a narrative device that helps portray the fictional world of a video game. But unlike films, video games are part fiction, part rules. This thesis considers to what extent music can be part of a game's rules - in other words: to what extent it can be ludic music. Not all video game music is both ludic and narrative. In fact, there are only a few cases in which music is essential to the rules of a game. I look at three possible roles for ludic music: as a guide, an obstacle, and a reward. As a guide to the player, music is interchangeable with other, non-musical sounds, and therefore not a necessary part of the rules. Music can be an obstacle to the player in the form of certain musical puzzles that encourage the use of musical skills to solve them. Music can reward a player by adapting itself to his or her actions, but this is generally not essential to their progression through a game. The most clear-cut case of ludic music can be found in karaoke-like music games, in which music acts both as an obstacle and a reward. These games also introduce a performative aspect that is not quite ludic and not quite narrative, and thereby open up a gap for new theoretical perspectives on the role of music in video games.

Contents

Introduction

What is so musical about musical chairs? Consider the rules of the game: a number of players are to run around a circle of chairs one fewer than the number of players while music is being played. When the music suddenly stops at a random moment, all the players must race to sit down on one of them. The one player that is left standing loses, and is removed from the game. In the next round the music and the game are resumed with one chair less. This goes on until one player remains who is the winner. There is no reason why a specific kind of music should be used in the game, the only thing important to the rules being that the music can be stopped at any moment. A trumpet player can play a bugle call which he stops at a random moment, or a track on a CD can be played that is suddenly paused or stopped by a non-participant. All that matters to the players is the one moment at which the music stops. More exotic, non-musical sounds could serve the same purpose: a vacuum cleaner that is unplugged, or even a single shout could mark the moment at which the players have to find a chair. For the game's rules it is all the same, just as long as all the players can clearly recognize when to sit down. While music might be a logical or an obvious choice to play musical chairs with, there is nothing *essentially* musical about the game from a rules perspective.

Among all the types of games - sports games, board games, role-playing games, card games or even party games like musical chairs and "truth or dare?" - there is only one more - and quite recent - type of game to be found that is known to feature music on a regular basis: video games. Why is this? Karen Collins describes video games as the offspring of "the bespectacled world of computer science" and the "flamboyant and fun penny arcade, with a close cousin in Las Vegas," (Collins 2008, p. 7). Sounds were used in Vegas slot machines to attract players and to generate and reinforce the feeling of success. Video games have inherited this use of sounds, and the use of sounds as rewards is still an important element in video games today. But this explains the presence of sounds and not necessarily of music. As my example of musical chairs showed, and as I shall argue many times in this thesis, there is a difference.

Another possible explanation why there is music in video games is that they are games only in part. In his book *Half-Real*, Jesper Juul argues that games are "a set of rules as well as a fictional world" (Juul 2005, p. 1). As a set of rules, video games are akin to classic board games and sports. When representing a fictional world, however, they are more like narrative audiovisual media such as films. Films have included music almost from their very beginnings, and while the presence of music is by no means natural or self-evident in that medium, as a narrative device - a device for

portraying the fictional worlds Juul speaks of - music has proven its worth.[1] This is one reason video games feature music specifically among other sounds. The question is whether this means that music is *only* used to portray the fictional worlds of video games. Isabella van Elferen disagrees. She argues that music in video games is more than just a narrative tool or "a cinematic soundtrack": "ludic music is also a guiding GPS for the spatial practice of gaming" (Van Elferen 2010, p. 13).

1. What is ludic music?

The main question of my thesis will be: "to what extent is there ludic music in video games?" But what is ludic music? The term comes from Van Elferen who bases it upon Juul's distinction between a game's fiction (narrative) and its rules (or it's "ludic" aspects).[2] Ludic music, then, is music that is somehow part of a game's rules as opposed to (just) its narrative.[3] Elements of a game's rules include guides that inform the player of the state of a game - like the musical GPS Van Elferen mentions - but also a game's challenges and rewards. For ludic music to be *ludic*, it would have to be part of *gameplay*: of the game's rules as they are presented to players, and the way players play the game according to these rules.[4] For ludic music to be *music*, it would have to be different from sound in general. Musical Chairs does not feature ludic music, because the music chosen is interchangeable with any other kind of music, or even non-musical sounds, from a rules perspective. This brings up nothing less than the extremely difficult question "what is music?". I cannot pretend to have a complete and final answer to this question if there even is one. However, since the topic of my thesis requires me to differentiate music from sound effects in video games at various points, and to determine whether a player is *making* music when playing certain games (see Chapter 4), I shall have to at least give an idea of what I think music is and what it is not.

In *The Aesthetics of Music* (1997) Roger Scruton states that "[w]hen we hear music, we do not hear sound only; we hear something *in* the sound, something which moves with a force of its

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[1] Jesper Juul acknowledges that the word "narrative" is the source of much confusion, because it has so many possible, but related definitions. I will strive as much as possible to use the definition that Juul tends to use, which is the first he mentions: "Narrative as the presentation of a number of events ... story*telling*" (Juul 2005, p. 156). I slightly expand this definition to include not just the presentation of events, but of fictional worlds in general.

[2] The term "ludic" comes from the latin *ludus* which means game or play.

[3] Music can also be *both* ludic and narrative. In fact, Juul emphasizes that "[t]hough rules can function independently from fiction [for example in abstract games such as *Tetris*], fiction depends on rules." (Juul 2005, p. 121) Rules are one way in which the fictional world can be "projected," or narrated.

[4] My definition of gameplay is similar to Juul's: he believes that "gameplay is not a mirror of the rules of a game, but a consequence of the game rules and the dispositions of the game players" (Juul 2005, p. 88). Juul's use of the word "dispositions" allows for the idea that these dispositions are not just informed by rules, but by fiction as well: players behave differently in a game that has the same rules, but looks differently. It becomes clear from Juul's later use of the word however that he solely means the players' dispositions insofar as they are provoked by a game's rules.

own" (p. 19-20). Music is not *just* "organized sound" as modernist composers like Edgard Varèse and John Case defined it, but sound organized in a particular, musical way. The elements that turn sound into music are musical parameters such as pitch, rhythm, melody and harmony (Ibid., p. 20).[5] Nicholas Cook adds to this the fact that "anything can be music if it is heard as music," which immediately leads him to the assertion that "nothing can be music if it is not heard as music" (Cook 1990, p. 12). This means that music "happens" in interaction between sounds created or presented by musicians and listeners. Cook mentions the following about what the activity of listening entails:

> There ... is a widespread consensus of opinion among twentieth-century aestheticians and critics that listening to music is, or at any rate should be, a higher-order mental activity which combines sensory perception with a rational understanding based on some kind of knowledge of musical structure (Ibid., p. 21).

While he adds that there is no consensus on what form this knowledge might take, it can be said to include an implicit knowledge of musical parameters and organization of the kind Scruton mentions. This is why I will focus on the player's listening *experience* when I consider whether a piece of music is ludic music throughout this thesis. If the rules of a game require the player to employ his "knowledge of musical structure" - which includes a combination of certain musical parameters - then the player would need to experience the sound as music in order to progress through the game, and therefore there would be ludic music in that game.

2. Where is ludic music?

I will attempt to answer my question "to what extent is there ludic music in video games?" by looking at various elements of game rules, and by ascertaining how music and the player can interact as part of these rules. The first three chapters are structured around the following questions:

1. How can music *guide* the player?
2. How can music *challenge* the player?
3. How can music *reward* the player?

In each of these chapters, I shall both be concerned with the ludic-versus-narrative and music-versus-sound oppositions which I discussed in the previous paragraph. I shall also address the question whether music is an *essential* component of a game's rules, or whether it merely doubles other elements of the game: in other words, whether the player can finish a game with the music turned

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[5] Scruton does not hesitate to remind us that these are not the only forms of musical organization, nor need all of them be present for something to be considered music.

off. To support my arguments, I shall discuss a number of case studies that potentially contain music that is an essential component of the game's rules. The case studies amount to close readings of the games' rules and gameplay, and the conclusions I draw from them should be considered an integral part of my argument.[6]

Chapters 4 and 5 centre around a very specific kind of game, namely the music game. In these games the player is invited to "make music" in some way or another. My question will be whether this really is the case from the perspective of the rules of these games. Chapter 4 basically revolves around a case study of the *Guitar Hero* series and the ways in which these games feature music. Contrary to my case studies from the first three chapters, my arguments about the music in *Guitar Hero* are partly based on interviews with players conducted by Kiri Miller in a previous study. This allows me to posit a "third" category of video game music besides ludic and narrative music. In my last chapter, Chapter 5, I will attempt to theorize the position of music in this new category, and propose an alternative to Juul's rules/fiction or ludic/narrative binaries.

Ultimately, however, this thesis should not be seen as a rebuttal of either Juul's argument that video games are both narrative and fiction, or of Van Elferen's assertion that "ludic music is ... a guiding GPS". It should rather be seen as a further specification of this assertion in light of the details of Juul's argument. In other words, I will attempt to ascertain where ludic music can or cannot be found in video games. This specification will hopefully prompt further research into particular case studies of video games that incorporate music into their gameplay in innovative or idiosyncratic ways.

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[6] On a related note: in all my case studies I will be referring to the player as male. I do not intend to perpetuate stereotypes or prejudices that all gamers are male. It should rather be viewed as merely a stylistic choice, a choice for consistency.

Chapter 1. Music guides the player

In this first chapter I will address the question whether and how music can guide the player through a game. Most video games have a number of different graphical and auditory features that inform the player where to go next, what to do, or what is his status. The most obvious guides and indicators include interface elements such as health bars (that indicate how much more damage the player can take before he dies) and mini maps (that give the player a greater awareness of their surroundings), but in essence, everything that the player can see and hear that gives him some indication of how to progress through a game is what I shall call a guide. Most games' soundtracks include both sound effects and (non-diegetic) music, and my first question is how these can play the role of a guide. My second question is if music can play this role in a way significantly *different* from nonmusical sounds in the game, so that we can truly say that it is *music* that is required to guide the player, and not just sound in general. Only then can a musical guide truly be ludic music.

1. Musical signposts

Sound can play an important role in video games, not just as a device for portraying the fictional world of the game, but also as an indicator of gameplay events.[7] In other words, sound can prompt the player to perform certain actions. In the Real Time Strategy (RTS) game *Warcraft III: The Frozen Throne* (Blizzard, 2003), for instance, the arrival of new units to be commanded by the player is indicated by a small voice clip that is unique to each unit type. That way, even when fighting in a different part of the map, players will know when their army is reinforced and can adapt their strategies. Often, the gameplay function of the sound is "doubled" by visuals. This is most commonly the case with diegetic sounds such as gunshots or the lack thereof: in a First Person Shooter (FPS) the player is reminded that his gun is out of bullets not just by a clicking sound, but obviously also by the view of their gun not shooting. Even non-diegetic interface sounds are very often backed up by visual information. In the aforementioned example of *Warcraft*, the completion of buildings as opposed to units is not just indicated by a sound, but by a text message at the bottom of the screen as well.[8] Indeed, the relationship between visual and auditory indicators can become quite complicated, especially in the case of diegetic sounds. In a multiplayer deathmatch of an FPS like *Unreal Tournament* (Epic 1999) for instance, the sound of off-screen footsteps or gunfire - what Michel

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[7] Karen Collins (2008) calls this "the use of sound symbols to help identify goals and focus the player's perception on certain objects." (p. 130) This, however, can be done for both narrative and gameplay reasons.
[8] In this case, the visual information actually adds to the auditory information, since the sound of buildings being completed is the same for every building. This means the player has to read the message to know *which* building is being completed.

Chion (1994) calls "acousmatic sounds" - can prompt a player to turn around and fire in that direction.[9] However, in a team-based multiplayer game like *Half-Life: Counter-Strike* (Valve 2000), those footsteps can come from teammates, so the player will first have to determine their position by looking at the mini map before "blindly" firing in that direction.

Music functions in much the same way as diegetic and interface sounds when indicating gameplay events. Van Elferen (2010) argues that "musical motifs and sounds are induced by as well as directive for game interaction and can therefore be described as both action-based and action-guiding" (p. 13). She gives the example of *Resident Evil IV* (Capcom 2007), where the approach of off-screen zombies is indicated by both their screams and "a hollow, thumping beat and echoing, metallic drones" (Ibid., p. 10). In this case, there is not only music, but sound effects as well. However, there are similar cases, such as the music that announces combat in *Dragon Age* (BioWare, 2009) or the example I shall give of *Left 4 Dead* (Valve 2008), where it is just music that indicates the approach of enemies, and prompts the player to ready for battle. Like the clicking sound of an empty gun in an FPS, music acts like a signifier or signpost for a gameplay event. But how is it different from sound effects?

1.1. Signposts and leitmotifs

It has been argued a number of times that video game music is not quite like film music in the way it works (Whalen 2007, Collins 2008, Van Elferen 2010). Of course, this investigation into how music can be a part of gameplay similarly investigates a function of video game music that cannot be found in films. However, when music acts as an indicator of gameplay events, it acts surprisingly similar to the way the quintessential film music device, the leitmotif, has been described. In *Composing for the Films* (1947), Theodor Adorno and Hanns Eisler argue that the leitmotif as it is used in film is essentially like a signpost, unlike Wagner's original use for the device. Their criticism is based upon two arguments. The first, with which I shall be concerning myself, is as follows:

> The fundamental character of the leitmotif - its salience and brevity - was related to the
> gigantic dimensions of the Wagnerian and post-Wagnerian music dramas. Just because
> the leitmotif as such is musically rudimentary, it requires a large musical canvas if it is to
> take on a structural meaning beyond that of a signpost. The atomization of the musical
> element is paralleled by the heroic dimensions of the composition as a whole. This
> relation is entirely absent in the motion picture, which requires continual interruption of
> one element by another rather than continuity. The constantly changing scenes are

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[9] In a deathmatch-type game, players are fighting against each other individually to get the most "frags" or kills. When a player is killed, they "respawn" (i.e. they are re-placed in the playing environment) after a few seconds to fight again.

characteristic of the structure of the motion picture. Musically, also, shorter forms prevail, and the leitmotif is unsuitable here because of this brevity of forms which must be complete in themselves. Cinema music is so easily understood that it has no need of leitmotifs to serve as signposts, and its limited dimension does not permit of adequate expansion of the leitmotif (p. 5).

The pivotal phrase here is the "continual interruption of one element by another rather than continuity." In the next sentences, Adorno and Eisler identify this process as the constant changing of scenes in films, and that musically "shorter forms prevail." The relationship between these two explanations is unclear. Does the fact that musically "shorter forms prevail" follow from the fact that there are many scene changes in films? This would contradict the idea of the leitmotif as a unifying device that binds these scenes together, which is essentially Claudia Gorbman's (1987) idea of musical suture: segments of music do not usually neatly line up with the "constantly changing scenes," but rather continue from one scene to another precisely to counteract the sense of segmentation.

But let us agree for a moment with Adorno and Eisler that, regardless of its reasons for doing so, the film musical soundtrack sports a considerably smaller "musical canvas" than a Wagnerian music drama, thereby demoting the leitmotif into a signpost. The filmic leitmotif is "drummed into the listener's ear by persistent repetition, often with scarcely any variation." (Adorno and Eisler 2005, p. 4) While in a film this may be detrimental to the narrative qualities of the music, in a video game this can actually be advantageous. A video game does not usually feature the "constantly changing scenes" that Adorno and Eisler talk about, favouring a more continuous series of events. Inverting their arguments, the unvarying repetition of leitmotifs turns the continuity of gameplay into "a continual interruption of one element by another." There is a gameplay advantage to this, and this is the directing of the player's attention to the right event at the right moment. Musical cues in a way "cut" continuous stretches of gameplay up into disparate scenes, indicating how the player ought to anticipate these situations. Zach Whalen (2007) notes that games often use so-called temporary "danger music", which after battle ends reverts to "safe music" (p. 73). Van Elferen's case study of *Resident Evil* is an example of this. The "echoing, metallic drones" (Van Elferen 2010, p. 10) that accompany the approach of enemies create a new "scene" of danger that ends when the music stops.

Even if the leitmotif is not as redundant in video games as it is in film, for Adorno and Eisler there would still be the problem of the repetitiveness of the musical cues. A game experience generally features a lot more repetition in the soundtrack than a film experience. The reasons for this

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are mostly technical, related to the unpredictability of the player's actions (see Collins 2008, chapter 8). Moreover, it is usually recognized as a technical problem that game designers and composers need to overcome. Collins uses quotes from game composers to show that "looping is generally frowned upon as an ineffective way of using music in games," because repeated listening can lead to "listener fatigue."(p. 139-40) But Collins does not level the same complaints against sound effects. Their repetition is taken for granted, because they are mostly sounds that are necessary gameplay elements: without hearing the voice of the *Warcraft III* units, even for the hundredth time, we won't be fully aware of the situation in the game, and so we are thankful that they are there. Musical cues that serve important gameplay functions will be perceived in the same way as these sound effects. The fact that they are repeated exactly, without any alterations or modulations common to leitmotifs (even in films), keeps the player from having to guess at the possible gameplay function of these alterations, and focus on the event that they signify. In short, music that has a gameplay function is necessarily repetitive in order to convey a clear message, to act as a pure signpost.[10]

1.2. Case study - musical warnings: The Tank in *Left 4 Dead*

Left 4 Dead (*L4D*) is a game with a theme similar to the *Resident Evil* series, namely the theme of zombies, which is a staple of many video games spread across many different genres. Where *Resident Evil* is a survival horror game, *L4D* is an FPS, and moreover, predominantly a multiplayer FPS. That it has elements of survival horror games is mostly due to the fact that *L4D* and the *Resident Evil* or *Silent Hill* (Team Silent 1999) games share a common ancestor in film. The relationship between *L4D* and *RE* is expedient however, since both Zach Whalen and Kevin Donnelly argue that horror film and video game music "exemplif[y] the way that film music works more generally" (Donnelly 2005, p. 14). Like *Resident Evil IV*, *L4D* has musical cues that announce the approach of zombies, but the way the game works, combined with the fact that it is a multiplayer game, makes the gameplay function of these cues unique. It will therefore serve as a clear example of musical cues as signposts and their relation to leitmotifs in film music.

Left 4 Dead's campaign mode is played with four players, who each take on the role of a survivor of a pandemic. The survivors must make their way through levels such as urban streets, forests, or subway tunnels while they are being attacked by infected humans suffering from a rabies-like virus who behave like fast running zombies reminiscent of films such as *28 Days Later* (2002).While the layout of the levels is the same each time a campaign is played, the computer - called the AI Director - determines where the survivors encounter the zombies. Their placement is in part random, and in part determined by the condition of the players: their health, their remaining

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[10] James Buhler (2000) acknowledges that film music "secularizes" the leitmotif "precisely by emphasizing its linguistic quality, the process of signification." (p. 42)

ammo, and the weapons they carry. The AI Director also determines the appearance of sudden "waves" of infected and of so-called "special infected" characters, like the "Tank", a huge infected that deals massive damage to the survivors and takes many bullets to kill (see Image 1). These two semi-random events, the wave and the Tank, are both accompanied by distinct musical cues. I shall focus my discussion on the Tank event.

Image 1. *Left 4 Dead* - The Tank attacking the survivors.

The semi-randomness of the event means that a Tank can be encountered at any place in a given level: either in a small cramped sewer tunnel, a large open field, or an office room with cubicles. The Tank will however always be "spawned" by the director out of the line of sight of the survivors. This means that the first indication of the presence of a Tank is auditory. The players can hear him breathe if all is quiet, but usually they are alerted to his presence by a musical cue that is far more easily distinguishable from the sounds of the environment and other infected. This musical cue is the same each time it plays: a sudden timpani hit accompanied by a foreboding chromatic motif played by low horns. The drum and the motif are repeated a semitone higher, and then lower again, after which the *L4D* main theme plays in similar orchestration and tempo. The main theme ensures continuity with the rest of the soundtrack and at the same time points to the importance of the opening notes of the cue. When first heard, players are immediately reminded of war and battle by the drums and horns, which intertextually point to many war games and films that feature the same orchestration and rhythms. The incipit of the cue differs drastically from other cues in the *L4D* soundtrack, which tend to feature sharp piercing dissonant strings and metallic noises and high pitched "disembodied" women's or children's voices, both kinds of music more closely associated with the horror genre.

While the first hearing of the Tank cue may prompt the player to prepare for straightforward battle as opposed to a ghostly or horrifying encounter, the cue is heard several times during a single campaign, which usually takes about an hour to finish. The variation in the encounters with the infected and the multiplayer-focused gameplay make sure that these campaigns are played through many times over by players. Eventually, whether the player recognizes this consciously or not, the music becomes associated with the Tank encounter specifically. Only the first few notes are really needed to recognize the approach of a Tank. The rest of the cue lets the players know the Tank is still alive and coming for them, which means it is an instance of Whalen's "danger music." From a gameplay perspective, the cue works like the acousmatic breathing of the Tank: it signifies its actual, or impending presence. What makes it a more effective device for this function than the diegetic sounds of the Tank itself, however, is its nondiegetic location. While it wouldn't make much sense for the player to be able to hear the tank breathing when it is two blocks away in the diegesis, the (non-diegetic) music can continue playing at the same volume level throughout without breaking the player's suspension of disbelief.[11] This doesn't mean that the choice for music instead of a sound effect is purely a narrative choice. As mentioned above, the music is also easier to distinguish from environmental sounds than the breathing of the Tank. Ultimately, through its extreme repetition and its purely signifying gameplay function, the Tank cue becomes a signpost more than any musical leitmotif in a film could ever be.

1.3. Are the signposts musical?

In *Half-Real* (2005), Jesper Juul discusses a principle proposed by sociologist Erving Goffman called *rules of irrelevance* (p. 12). Part of learning how to play a game is learning which aspects of the game are relevant and which are not. For example, the shape of the pieces in chess is irrelevant: chess can be played with bottle caps or life size marble statues, as long as it is clearly defined beforehand which object represents which piece. It is important that this is a learning *process*. When first encountering a chess set, the relative size of the king and queen helps first time players identify their importance in the game. For this reason, Juul sees rules of irrelevance as a "place where rules and fiction meet." (p. 63) In other words: "The fictional world of a game can cue the player into making assumptions about the game rules." (p. 177) Musical cues work very much the same way. When Collins argues that "[s]ymbols and *leitmotifs* are often used to assist the player in identifying other characters, moods, environments, and objects, to help the game become more comprehensible and to decrease the learning curve for *new players*" (Collins 2008, p. 130. Italics mine), she is pointing to the same learning process.

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[11] There are exceptions to this. See my example of the game *Counter-Strike* below.

At first, the identity of the Tank cue in my case study of *Left 4 Dead* mattered to the players in their learning how to play the game. After many playthroughs however, the cue becomes subject to the rules of irrelevance, and only its "bare gameplay bones" remain in the form of two signposts: the incipit ("A Tank is coming!") and the persistence of the music ("The Tank is still after you!").[12] At this point, the incipit could sound like anything, as long as it differs from other incipit signposts in the game, much like a signifier in Saussurian semiotics. The same goes for the persistent part of the cue, as long as it is clearly distinguishable from other sounds playing at the same time. This means that as a gameplay element, the musical identity of the cue would be irrelevant.

In my case study, I already raised the question whether or not an existing sound effect in the game could fulfil the gameplay function of the cue as well as the music could. The music's two saving graces were its non-diegetic status and its distinct auditory identity from the rest of the soundtrack. Could one devise a new non-musical sound that has both these characteristics? Surely, most interface sounds in video games are both non-diegetic and distinct from other sounds in the soundtrack, in order to avoid confusion about what is diegetic and what is not. But one of the criteria for the gameplay function of the *L4D* cue was that it keeps playing over a longer, variable period of time, in order to signify the persistence of the battle. It is very hard to find a non-musical interface sound that lasts longer than a few seconds in video games, and that is not immediately called music. Even the sustained diegetic radio noise in *Silent Hill* "demonstrates musical properties" according to Zach Whalen (2007, p. 76), and there isn't any question whether the atonal drones Van Elferen (2010, p. 10) describes in *Resident Evil IV* are music or not. But doesn't this mean that any sustained non-diegetic sound in video games should be considered music?

This means that it is problematic to say that there are cues that are essential to gameplay *as music*, not just as a sound effect, just because they have certain durational characteristics. Could it perhaps be that other musical parameters - such as rhythm, tempo, and pitch - are essential gameplay guides or signposts, even after the rules of irrelevance have done their job? Karen Collins (2008) says that "[a]ccording to Koji Kondo (2007), dynamic music should showcase the participatory nature of the game." (p. 140) But this doesnot mean that it is *part* of the participatory nature of the game. Nor are all parameters that can be varied in dynamic music exclusive to music.   A good, and by now classic example of this comes from Koji Kondo's own *Super Mario Bros.* (Nintendo, 1985). As the time that the player is given to finish a level runs out, the music doubles in tempo, signifying the event in question and urging the player to complete the level. Apart from the fact that the player can

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[12] Juul also introduces another term for this later in *Half-Real*, called "optional worlds." (Juul 2005, p. 139) In video games, we can *choose* to ignore the fiction - or the narrative, of which the music is part - to focus on the gameplay.

divulge this information by looking at the top right of the screen, seasoned players will know from experience what is signified when the music speeds up. For them, a simple short sound effect would suffice. In this case the musical tempo is subject to the rules of irrelevance as well.

Accelerandos aren't confined to music either. The multiplayer FPS *Counter-Strike* is played in rounds between two competing teams: terrorists and counter-terrorists. In one gameplay mode, the terrorists are to plant a bomb which is carried by one of their team members. The counter-terrorists can win by either preventing the bomb from being planted before the round time runs out, or by defusing the bomb after it has been planted. The terrorists will win if the bomb explodes. When a bomb is planted, all players - even those not in the vicinity of the bomb at that time - are informed by the message "the bomb has been planted" in the centre of their screens, doubled by a disembodied voice reading the message aloud. From that moment on, the bomb timer starts and this is indicated by a beeping sound which slowly increases in tempo. When the timer runs out, the beeping is very fast, and the bomb explodes. As the beeping sound, which, like the message, is heard by all players in any part of the map - not quite non-diegetic, but not diegetic either, like the sound of a unit being built in *Warcraft III* - is the only indication of the time that is remaining for the counter-terrorists to defuse the bomb, it is a vital gameplay element. This example shows that certain characteristics of sounds can be gameplay elements, but that at the same time these characteristics aren't necessarily exclusively musical in nature.

2. Chapter conclusions

In a video game the player can be guided by sounds, but apart from narrative or fictional reasons, there are no cases in which these sounds should specifically be music. Sounds usually act as warnings or signposts of approaching events, or indicators that a certain situation is taking place. When a musical cue takes on one of these roles, there is no reason from a gameplay perspective why that cue should sound like it does, or why it should be musical at all. As a guide to the player, musical cues can therefore act as ludic sounds, but not as ludic music.

Chapter 2. Music challenges the player

When one thinks of challenges in video games, one immediately thinks of the main subject of many games: shooting enemies in first person shooters, overtaking cars in racing games, and solving puzzles in adventure games. Music games may have challenges specifically dealing with music, such as successfully performing a song, and I will deal with this subject in detail in Chapters 3 and 4. For now, I want to focus on the possibility of musical challenges in games that do not specifically revolve around a musical theme. If music cannot be part of gameplay as a guide to the player, perhaps it can be part of gameplay as an obstacle to the player. If there are musical challenges of this nature in games, then these would be instances of ludic music.

Game designer Sid Meier has described a game as "a series of interesting choices" (Juul 2005, p. 92). According to Jesper Juul, an interesting choice is one that is mentally challenging - "strategic rather than skill oriented" (Ibid.). But ignoring the skill oriented aspect of video games is reductive. While the genre of games Meier is famous for - the turn-based strategy *Civilization* (MPS 1991) series - may be largely dependent on strategic choices rather than player dexterity for its challenges, even the closely related real-time strategy genre (which includes games like *Warcraft III*) combines both kinds of challenges. Furthermore, there is a category of video games like *WarioWare: Smooth Moves* (Intelligent Systems 2007) that solely challenges the player's reactions. Arguably, the music games I will discuss in Chapter 4 are also part of this category.

1. Player repertoire

Like games in general, the challenges in computer games can be divided into their outward appearance, theme, or what Juul calls fiction, and their underlying structure, which is akin to what Juul calls rules. But challenges can also be categorized through the skills or methods that are needed to solve them. This can be practical reasoning or strategic thinking in the case of a game like *Civilization*, manual dexterity in the case of fighting games like *Street Fighter II* (Capcom 1992), or the player's knowledge in the case of the board game *Trivial Pursuit*. This set of skills or methods is what Juul calls the "player repertoire". While a challenge in a game can "look musical," or have a musical theme, for music to be an actual part of the gameplay the player's repertoire will need to be musical in nature. In other words, a musical challenge is one in which the player uses the same set of skills that they use for making or listening to music.

The question will remain whether or not a player's repertoire is subject to rules of irrelevance. According to Juul (2007, p. 95-7) a player's repertoire changes over time while playing

the game. It becomes more refined and specific to the game. The set of skills a player will initially use to solve challenge in a game may be a general set of skills that is derived from other sources than the game - such as music, or other games he is already familiar with - but over time the specific skill-set suited for the game in point may not have much to do with those outside sources anymore, and be solely, or primarily, applicable to the game.

2. Puzzles as challenges in games

Musical challenges in non-musical games are few and far between. Generally, video games will offer some kind of uniformity in the kind of challenges that they offer the player (see Juul 2005, p. 115-6, who considers this an aesthetic choice). Obviously, this means that a racing game doesn't have much room for musical challenges. The most important exception to this is the puzzle, which is the staple of adventure games like *Myst* (Cyan 1993) and *Monkey Island* (Lucasfilm Games 1990), but which can also be found sporadically in other game genres, such as the role-playing game (see my example of *Fallout 3* below) and the action-adventure. Puzzles are actually considered small games in themselves. According to Juul, "[p]uzzles are just a small subset of games, being usually considered the kind of single-solution tasks that constitute a step in an adventure game" (Juul 2005, p. 93). For Katie Salen and Eric Zimmerman (2004), "a *game* is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (p. 80). This means that "although the conflict is between the player and the system rather than between a set of players, a crossword puzzle is most certainly a game. In fact, all kinds of puzzles are games" (p. 81). Their self-containment allows them to be implemented in games which feature a different kind of dominant gameplay challenges, without confusing the player with regard to what is expected of them.

In *Half-Real*, Juul makes a distinction between so-called games of progression and games of emergence. Games of progression are a form of game that requires a player to perform a specific set of actions in order to win the game. (Juul 2005, p. 72-3) Games of emergence on the other hand set a goal for the player and offer him a small number of rules with which he can form strategies in order to reach that goal and win the game (p. 73-83). Games of emergence are historically an older form of games, and they include most board games like chess. Juul argues that adventure games, from the text-based *Adventure* (Crowther and Woods 1976) onwards, are the prototypical example of games of progression. Puzzles, being "single-solution tasks," form "bottle-necks" in games that can temporarily turn games of emergence into games of progression, unless the designers allow for the player to somehow circumvent the puzzle.

Even though puzzles represent distinctive gameplay elements, the reasons for adding puzzles to non-adventure games are mostly narrative. They allow the designers to control the pacing of the game's plot, and enrich the player's experience of the gameplay world. Janet Murray argues in *Hamlet on the Holodeck* (1997) that digital environments have four essential properties: they are procedural, participatory, spatial and encyclopaedic (p. 71). The latter two terms are what makes an environment immersive. An encyclopaedic game world gives us the feeling that there is always something more going on than what we are experiencing. According to Murray, "the encyclopaedic capacity of the computer can distract us from asking why things work the way they do and why we are being asked to play one role rather than another" (p. 89). A game can facilitate this visually by showing the player a large number of people standing on a market square, even though the player can only interact with a few of them. Puzzles do this on a non-diegetic level: they suggest to the player that the game world can be interacted with in any number of ways besides the dominant kind of challenges that the game affords. Even though the puzzles are made up of just another restrictive rule set, they point to something beyond the game rules.

2.1. Musical puzzles

To sum up what I mentioned above, a musical puzzle is a kind of challenge that has one specific solution that has to be achieved using a musical skill set. Their self-contained nature allows them to be implemented in video games that have nothing to do with music, the only possible objections being narrative in nature. ("Does this puzzle fit the theme of the game?") Puzzles that feature music in one way or another can be found in a number of games. Below I will discuss three examples: one from the game *Myst*, one from *The Curse of Monkey Island* (LucasArts 1997), and one from the RPG *Fallout 3*. I have chosen these to reflect as wide a range as possible of different musical skills that can be employed in solving a puzzle. The question will be to what extent musical skills are actually necessary to solve the puzzles in the examples. The *Legend of Zelda* series is also famed for its inclusion of musical instruments as gameplay elements, such as the playing of the ocarina in *Ocarina of Time* (Nintendo 1998). These are like puzzles in that they are interruptions of the game's dominant gameplay style for short challenges. The skill set that is required to overcome them, however, is more like what is required for musical rhythm games (like *Guitar Hero*), which are not puzzles, and whose gameplay I shall discuss in detail in Chapter 4.

So what does a musical skill set or repertory consist of? The cognition of musical parameters such as pitch and rhythm is an acquired skill. More advanced musical skills include playing or writing down a melody or harmonic progression by ear. It can be related to what Nicholas Cook calls "knowledge of musical organization," (Cook 1990, p. 75) which I discussed in my introduction. The recognition of musical styles and genres might at first glance be part of a musical repertory as well.

However, this kind of skill is more akin to the factual knowledge needed for games like *Trivial Pursuit*, and therefore not essentially musical. As we have seen, Sid Meier's definition of video games as a "series of interesting choices" tends to focus on a mental rather than a manual or corporeal set of skills. This is why Juul chooses to give puzzles as an example of Meier's definition (Juul 2005, p. 92-3), because puzzles require thinking to overcome their challenges. Furthermore, the nature of puzzles allows players to take all the time they need to solve them.[13] This poses a problem for music's temporal nature. One cannot "sit back and contemplate" a piece of music like one can sit back and contemplate a crossword puzzle, let alone *play* a piece of music like this.[14] Musical puzzles tackle this problem in two ways: either they will loop a piece of music indefinitely, giving the player the time to make their choices, or they will break music down to one of its parameters, most commonly pitch, and let these be the focus of the puzzle, rather than a complete piece of music. This problem also explains the scarcity of something like "rhythmic puzzles." While pitch is an atemporal parameter, rhythm is necessarily experienced as a temporal phenomenon.

2.2. Case study: pirate songs and banjo duels - *The Curse of Monkey Island*

The Curse of Monkey Island (*CMI*), the third instalment in the *Monkey Island* series, features two puzzles that have to do with music. The first is a banjo duel, in which the player tries to imitate the notes that are being picked by the opponent banjo player. The second features a song that has to be stopped by the player. *CMI* is an adventure game that follows the pirate Guybrush Threepwood on a quest to save his wife Elaine from the evil zombie demon pirate LeChuck. Humour plays a large role in the story and the gameplay of the game, and many puzzles are parodies of pirate clichés and popular culture or "ludic puns" on earlier games in the series. Part of Guybrush's quest involves acquiring a crew - consisting of a gang of pirate barbers - and pursuing LeChuck. The musical puzzles revolve around these two plot points.

2.2.1. The banjo duel

One of the pirate barbers, Edward van Helgen, will only join Guybrush's crew on the condition that Guybrush beats him at a banjo duel. This is an obvious reference to the opening scene of the film *Deliverance* (1972), and the duel features the same sort of call and response music that can be heard in the film, complete with a slow increase in tempo and virtuosity between the two musicians. Van Helgen plays a short musical phrase on the banjo, and Guybrush, guided by the player, will have to imitate this phrase correctly on his own banjo. The duel ends when the player has correctly imitated a number of phrases with a "blistering" metal-like solo by Van Helgen, that Guybrush could not

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[13] Of course, some puzzle games further challenge the player by introducing a time limit to solve the puzzles. During this time limit, however, nothing about the puzzle "changes," and all the player has to do is ponder the puzzle that was presented to him when the challenge began.

[14] This argument is central to Carolyn Abbate's (2004) characterization of music as a *drastic* phenomenon.

possibly imitate. The player will then have to actually shoot Van Helgen's banjo, upon which Van Helgen praises Guybrush's cheating ways as true pirate behaviour, and join his crew. The last part of this section isn't actually a part of the puzzle, but the next part of the "progression," as it is solved through the same methods and actions as the game's "regular" challenges.

The player interaction in the banjo duel itself consists of clicking one of the five strings on Guybrush's instrument. First we see a shot of Van Helgen picking the strings on his banjo (see Image 2). He plays four musical phrases, ending each phrase with a loud note that is slightly out of tempo, and which does not quite fit the harmony and melodic line. Then we see a shot of Guybrush with the exact same composition as the previous shot (see Image 3). He plays the first phrase Van Helgen played, minus the final note. The player has to supply the correct note, by clicking one of the five strings on the banjo. Then Guybrush plays the second phrase, and so on. When the player has imitated all four phrases correctly, a few more sequences follow. They are played exactly the same way from a gameplay perspective, the only difference being that the phrases get shorter, faster and more virtuosic, without the player having any control over these elements. The reason for the notes not matching up with the rest of the melodic phrases is possibly that they are chosen at random by the computer, in order to prevent the player from memorizing the sequence and completing it by trial and error. The consequence of this is that while the player can finish the challenge by ear, this is complicated by the "amusical" quality of the notes. The specific "camera" angles make the picking of the strings by Van Helgen clearly visible, however, and the player can use sight as well to finish the challenge. Like many of the sound effects I described in Chapter 1, the auditory information is doubled by the visuals.

Image 2. *The Curse of Monkey Island* **- Van Helgen playing the banjo.**

Image 3. *The Curse of Monkey Island* **- Guybrush playing the banjo.**

2.2.2. The pirate song

The second musical challenge in *CMI* takes place on Guybrush's ship. He intends to chase LeChuck, but his lazy three-man crew would rather stare over the railing and sing sea shanties than sail the ship. After a lengthy cut scene they break out into the song "A Pirate I Was Meant to Be," accompanied by a non-diegetic band consisting of a clarinet, an accordion, and a banjo, which seamlessly follows from the background music. The song is styled and structured like a nineteenth-century shanty, complete with a four line stanza with alternating solo and response. The pirates' voices are appropriately hoarse, and they sing with stereotypical Irish accents. Guybrush tries to stop the song, but each sentence of his is answered by the pirates in rhyme, and becomes the first line of their next verse. For instance:

Guybrush:	Less singing, more sailing!
Crew (solo voices):	*When we defeat our wicked foe his ship he will be bailing*
	If ye try to fight us ye will get a nasty whackin'
	If you disrespect our singing we will feed you to a kraken
Crew (chorus):	*A pirate I was meant to be, trim the sails and roam the sea!*

Player interaction in this sequence consists of dialogue choices. The player can choose between four lines, and after each verse, new lines open up. After a while, the player is able to choose the line "We'll surely avoid scurvy if we all eat an orange," which derails the song, since it is impossible to rhyme on the word "orange." The pirates try in vain ("uhh.. door hinge?") and the music slowly dies out. In order to afford the player an indefinite amount of time to make his dialogue choices (like he is accustomed to from the rest of the game), the instrumental music after the crew's chorus loops. When the player has made his choice, there is a short break in the music, indicating the beginning of the next section.

While music is featured abundantly in this puzzle, it doesn't challenge the player's musical skills but rather his knowledge of rhyming words. While verse is an important part of many kinds of music, it isn't exclusive to music. Furthermore, since knowledge of musical styles is relegated to the "trivia" skill-set, there is no reason why a rhyming vocabulary shouldn't as well.

2.3. Case study: the spaceship puzzle in (*Real*) *Myst*:

Myst is a first person adventure game that takes place on a deserted island world. The game does not offer a clear goal or exposition when starting out, and the player is encouraged to explore the island. Exploration is done by clicking through a series of still frames which contain certain objects that can be interacted with. Puzzles and challenges come in the form of complex mechanisms and puzzle devices, whose solutions lead to a further unfolding of the game's slow and deliberate plot. For this case study I have played a remake of the game, called *Real MYST* (Cyan Worlds 2000).[15] While the game's plot and puzzles remain the same in this version (compare Image 4 and 5 for the example puzzle of this case study), the game's environments are rendered in real time, and while the player still moves from one "still" frame to another, the game shows his movements between one frame and the other.
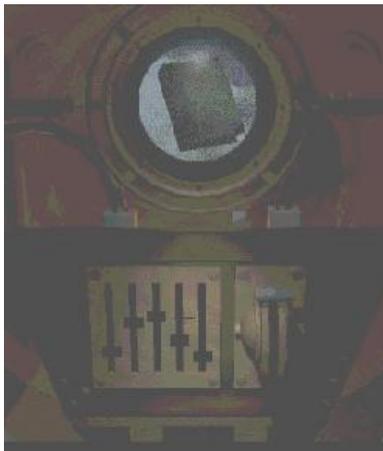
Image 4. *Myst* - View of the controls in the spaceship puzzle.

Image 5. *Real MYST* - View of the controls in the spaceship puzzle.

In one of the game's locations, the player is required to solve a musical puzzle in order to start up a spaceship-like vehicle. On one end of the small cabin of the ship is a set of controls, consisting of five sliders, a large lever and a view screen that is turned off (see Image 5). On the other end is an organ with one keyboard of three octaves (see Image 6). The five sliders on the controls produce the same sounds as the organ, and each slide has thirty six settings that correspond with the thirty six semitones that the organ is able to produce. When the lever is pulled, the console will

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[15] The reasons for this are purely technical. I had trouble getting the original *Myst* to play on the PC hardware I had available to me.

produce a melody made up of the five tones of the slider settings from left to right. When the right melody sounds, the puzzle is solved and the view screen will light up. The player can discern the right melody from a "key": a set of instructions that can be found elsewhere (see the top right corner of Image 6). The instructions are meant for the organ keys however, rather than the control sliders. They tell the player what keys to press on the organ and in what order.

Image 6. *Real MYST* - View of the organ in the spaceship puzzle.

The musical skills that are needed to solve this puzzle are mainly pitch recognition. When the player presses an organ key, he has to not only figure out that he is meant to press the corresponding slider on the controls, but also to remember the right pitch that sounded from the organ. The time that is needed to traverse the room from the organ to the controls is not insignificant, and picking the correct pitch from a set of thirty six semitones requires certain musical experience. This repertoire requirement can be circumvented by players in two ways. The first is by putting the sliders in the correct order by trial and error. This approach is hugely impractical however, as the player would have to try up to 36^4 or over one and a half million possibilities, as the game will only inform the player when *all* the sliders are in the correct order. The second is to "count" the number of semitones on the keyboard, using the instructions, and counting the number of steps of each slider, as the lowest setting of the sliders corresponds with the lowest key on the organ keyboard. This approach is far more attainable than pure trial and error, but made difficult by the controls of the puzzle, as the sliders are very sensitive, and it is easy to lose count. Still, "amusical" players will find this approach an adequate alternative to pitch memorization. While this means that *Myst*'s spaceship puzzle is similar to *CMI*'s banjo duel in that its auditory is doubled by the visuals and therefore the music would not be *essential* to the gameplay, I would call *Myst*'s puzzle more musical for two reasons. First, the puzzle's visual information (i.e. the sliders' settings) is obfuscated to such an extent that the player is quite explicitly encouraged to listen instead of to look.

Secondly, the player has far more pitches to choose from, which requires a much greater deal of precision in their musical hearing.

2.4. Case study: *Fallout 3*'s Tranquility Lane

Fallout 3 is an interesting example of a game of emergence that features puzzles. It is a first person RPG that takes place in a post-apocalyptic era, mostly in what has now become the wasteland surrounding Washington D.C. The player takes on the role of a young man or woman who has just exited Vault 101, an underground complex built just before the nuclear war that turned the world into what it is in the game. The player character, or PC, is on a quest to find his father, who inexplicably left the vault shortly before him. While the game has "progressive" parts, like the opening sequences in Vault 101, it opens up upon exiting the vault, and the player is left only with clues on how to find his father, and an unlimited number of options on what to do next in the wasteland. While the clues point to a town called Megaton, the player can essentially go anywhere they want and do any of the subquests they want. These subquests are usually short, semi-progressive stories in the game, that can be solved in a number of ways, but have (a) fixed outcome(s).

One of these subquests is called Tranquility Lane. It begins when the player enters a "Tranquility Lounger," a virtual reality simulator, which initiates a small "game world within a game world." Tranquility Lane consists of a pre-war, 1950s suburban area with a few houses surrounding a small playground. It is differentiated from the actual game world by a sepia colour filter. Part of the player's goals is to actually leave the simulation, as it cannot just be exited from any point. The player can do this by completing the tasks given to him by a little girl in the playground named Betty. These tasks become incrementally twisted and evil, as Betty's final order is for the player to kill everyone in the simulation with a "Pint-Sized Slasher Knife," covered in blood and all. Apart from moral qualms that the player might have with this, as a gameplay element, completing these tasks has a negative effect on the player's "karma." There is also a hidden puzzle, whose solution leads to the ending of the simulation and the completion of the quest. It is located in an inconspicuous abandoned house bordering on the playground. The interior has a number of out-of-place looking objects - like a garden gnome and a large concrete brick - scattered across the living room (see Image 7). The objects can be interacted with in a unique way for *Fallout 3*, as the player won't add them to his inventory, but they will emit a musical note. Each object has a specific pitch. Interacting with the objects in the right order will reveal a Failsafe terminal - much like the console on a *Star Trek* holodeck - on one of the walls of the living room (see Image 8). By subsequently interacting with the terminal, the player is able to end the simulation without gaining the negative karma points.

Image 7. *Fallout 3* - The interior of the abandoned house.

Image 8. *Fallout 3* - The interior of the abandoned house with the revealed terminal.

The correct order for interacting with the objects is revealed by a number of clues in Tranquility Lane. Betty will whistle a melody every now and then in the playground, and the same melody can be heard in the unique non-diegetic background music for the Tranquility Lane sequence . Furthermore, one of the citizens of the lane will tell the player that Betty has knowledge of the terminal in the abandoned house. By "playing" the melody on the objects in the house, the player can solve the puzzle. It is not necessary for the player to reproduce the rhythm of the melody, as he can take as long as he likes between each interaction. It is also possible for a patient player to complete the puzzle by trial and error, since each time a wrong object is interacted with, an "error sound" can be heard. But while this is possible, this is not the "correct" way of solving the puzzle. By "correct," I mean solving a puzzle through what Marcel Danesi (2002) calls "insight thinking" (p. 27), rather than "reckoning." Where reckoning represents the obvious and straightforward, but long and arduous route to the solution, an insight is like a sudden burst of creative thinking. In the case of the Tranquility Lane puzzle, a musical link is suddenly laid between the melody the player has been hearing and the tones the objects produce. The musical skills that are necessary for overcoming the challenge are similar to those in the *Myst* case study. They consist of pitch recognition and reproducing a melody - albeit here from a more limited number of pitch possibilities - by ear. The difference is that on the one in the Tranquility Lane puzzle there is no visual way to circumvent the auditory aspect of the puzzle. On the other hand, the possibility of solving the puzzle by way of trial and error is much greater, as there are significantly less combinations for the player to try.

3. Chapter conclusions: are the challenges musical?

I argued in Chapter 1 that when music guides the player, the gameplay function as opposed to the narrative function of the music will be revealed by rules of irrelevance. When music is part of a challenge that is presented to the player, I have focused more on the skills a player will have to employ to overcome this challenge. However, this skill set is subject to rules of irrelevance as well.

When a player is faced with the same sort of puzzle a number of times, their skill set is adapted to the bare necessities for reaching a solution, and insight thinking will become reckoning. This is why both Juul and Danesi see insight thinking as an essential part of puzzles, while it may not be necessary for other types of games. This is also why puzzles represent unique gameplay "intermezzos" in non-adventure games, and why adventure games offer the player a large variety of puzzles. From this, it follows that while musical puzzles *may* become subject to rules of irrelevance, and the musical skill set that is needed will change into a puzzle-specific set of skills, this is generally not the aim of these kinds of puzzles.

That being said, there are two objections to this conclusion. The first is that my case studies show that the nature of puzzles (they encourage indefinite contemplation by the player) favours certain kinds of musical skills, like pitch recognition. The Tranquility Lane puzzle, the Spaceship puzzle and the Banjo Duel all pose roughly the same kinds of challenges to the player. The question is whether musical experience is necessary, or whether an experienced (adventure) game experience will suffice to tackle these puzzles. The second objection is that while Juul and Danesi might frown upon trial and error as a way to solve puzzles, there are a number of examples from (non-musical) puzzles in video games that can *only* be solved by trial and error. For instance, the RPG *Mass Effect* (BioWare 2007) features a puzzle in one of the quests of the main storyline where the player has to start up a mining laser in order to blast through a force field. The player has to click a number or quarter circles in the correct order to initiate the laser. Each time the player clicks the wrong quarter, he has to start again, but the amount of circles guarantee that the player can finish the puzzle in seconds. The choices between circles are not what Sid Meier would call "interesting," as the player has no way of knowing how the choices differ (the correct circle is random every time the game is played). It could therefore be said that the puzzle functions purely as a short hurdle or gameplay variation for the player rather than a real challenge, contributing to the already significant encyclopaedic quality of *Mass Effect*. So when trial and error is a valid way of solving some puzzles in video games, does this render the possible musicality of other puzzles non-essential? If there is such a thing as a *purely* musical puzzle, then *Fallout 3*'s Tranquility Lane and the Spaceship puzzle from *Myst* are very good candidates. However, both games have ways around a "musical solution." This means that while musical gameplay is encouraged, it is not essential. While the uniqueness of the puzzles in their games might exempt them somewhat from the rules of irrelevance and prompt many players to employ their musical skill repertoire to solve them, we would have to look towards games in which music plays a more central role to find such a thing as necessarily purely musical gameplay.

Chapter 3. Music rewards the player

Whereas in Chapter 1 I looked at the possibility for music to guide the player through the game, in this chapter I will consider the possibilities for the player to influence and even create the musical soundtrack to a game. In many games, the actions of the player will influence the way the music sounds. In Chapter 1 we have seen examples of this in the battle or danger state music that starts playing when enemies are encountered, or in the way the music speeds up in tempo in *Super Mario Bros.* when the player takes too long to finish a level. There, I discussed the effect this music has on the actions of the player. In this chapter however I would like to shift the emphasis: the possibility for the player not just to be aware of the changes in the music, but of their own influence on those changes as well. The idea behind this is that if the player is aware of his creating a soundtrack, his way of playing the game would become more "musical".[16] I will argue that this relationship between the music and the player can be seen as a kind of reward. The question will be, again, whether this is a ludic reward, and therefore whether this is ludic music.

In order to get a more precise picture of how this musical gameplay might work, and if it is musical gameplay at all, I will discuss several case studies. In each of these the music changes to adapt to the player's actions. The way music is featured is radically different in each of the cases, however, and the question will be whether this is due to the nature of the gameplay or the other elements of the games, such as their narratives. When the interactive soundtrack of a game encourages "musical gameplay," the next question would be what this would look (or play) like.

1. Dynamic music

One of the most important differences between video games and other audiovisual media is the latter genre's interactivity. Not surprisingly, this is where the main difficulty lies in composing music for video games. Just like a film score, a video game soundtrack is usually made up of cues. However, unlike a film score, it is often unpredictable when and where these cues will start, how long they will play and how many times they will be repeated. Ultimately this is determined by the player's actions. To describe a (musical) soundtrack that has no predetermined order - that, in other words, is "nonlinear" -Karen Collins introduces the term *dynamic audio* (Collins 2008, p. 4). I have already been using the term in this thesis, but for this chapter it bears further explanation. Collins discerns dynamic from non-dynamic audio mainly through linearity rather than player action. For example, in a cut scene, the same music always accompanies the same images, and therefore is non-dynamic.

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[16] By "more musical", I mean that playing the game with the partial goal of creating music could potentially have similarities to playing a musical instrument, which clearly is a musical endeavour.

Non-dynamic music is also possible whenever the player has some control over the game (Collins does not give an explicit example). An example might be the musical soundtrack of most RTS games, such as *Warcraft III*, where the same musical cue loops in the background during missions, independently of player actions or gameplay events.

1.1 Interactive and adaptive music

Collins distinguishes between two kinds of dynamic audio: interactive and adaptive (Collins 2008, p. 4). Interactive audio (including both sound and music) "refers to those sound events that react to the player's direct input." (Ibid.) When Mario jumps in *Super Mario Bros*., we immediately hear an upwards glissando confirming our press of the A-button. Adaptive audio "is sound that reacts to the game states, responding to various in-game parameters such as time-ins, time-outs, player health, enemy health, and so on." (Ibid.) The music of *Super Mario Bros.* speeding up in tempo is an example Collins gives of adaptive music: the player has no direct control over when it will happen, and it indicates a change in the game's state, namely that time is running out. Especially for music, the differentiation between adaptive and interactive music is problematic.

The difficulties with this distinction in dynamic audio become apparent from the examples Collins gives. With non-musical audio, it is quite easy to distinguish between non-dynamic and interactive sounds: the sound of a radio in the background in *Grim Fandango* (LucasArts 1998) is non-dynamic (Collins 2008, p. 126). Collins describes a piano that the player can have the main character play in the same game, which is clearly an example of interactive audio. However, when it comes to interactive music, Collins gives the example of *The Legend of Zelda: Ocarina of Time*, where the musical soundtrack changes whenever the player approaches an enemy or enters and exits a building (p. 125). Why does she label this as interactive? When the player leaves the room in which the radio is playing in *Grim Fandango*, its sound can no longer be heard. Apart from the fact that this is diegetic sound instead of non-diegetic music, the situation is exactly the same as with the music in *Zelda*.

The interruption of one musical cue in favour of another based on the player's actions greatly complicates the notion of interactive audio. If we were to take it to extremes, we would have to conclude that quitting a mission in *Warcraft III* - which prompts the menu music to play - would turn the non-dynamic music during the mission into dynamic, interactive music because of the player's "non-diegetic" action. Where to draw the line? In between approaching an enemy in *Zelda* - which triggers a gradual change in cue by means of a cross-fade - and quitting a mission in *Warcraft III* are

examples such as proceeding from one level to another in *Super Mario Bros.*,[17] and travelling from one area into another in *World of Warcraft* (Blizzard 2004) - between which there is no loading screen, unlike in *Zelda*'s example. The best solution would be to state that when non-diegetic music adapts itself to player actions or changes in game state *during* gameplay - i.e. when the player has control of the game - it can be called adaptive or interactive.

The problem of the distinction between adaptive, interactive and non-dynamic music shows how difficult a position non-diegetic music occupies in comparison with sound effects in a video game. This distinction is not made on a technological level, as my comparison between *Grim Fandango*'s radio and *Zelda*'s musical scene change shows, but only on a semantic level. Presumably, the same programming techniques underlie the way those sound cues are triggered by the player's actions. The distinction in fact relies on the way non-diegetic video game music is *experienced*: as a continuous whole or as a series of separate cues or tracks.

1.2 Aleatoric or open form music

However it may be experienced, the musical soundtrack of most games (or indeed of film or television programmes) does not exist in the form of a continuous whole. "Behind the scenes," most video game music consists of a series of separate cues, which - as we see in countless examples in this thesis - are triggered by certain gameplay events. Sometimes these individual cues can be manipulated, and musical parameters like pitch and tempo can be altered by the player, but more often than not manipulation is limited to changing the volume of a cue in order to fade out or cross fade into another.[18] Collins (2008) devotes a chapter to compositional approaches and describes how each of the musical parameters is manipulated to create dynamic music in games. The largest section is devoted to "open form" music (Collins 2008, p. 155-63): music that consists of separate parts whose order can be changed in order to create "pieces" that are different every time they are played or performed. Collins gives a number of examples of open form music that go back to the eighteenth century, but more famous examples come from twentieth-century avant-garde aleatoric music, such

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[17] Which could even be labelled dynamic, adaptive music, since after touching the flag pole at the end of a level, there is a "victory cue" in-between the level cues. The player has no control over the change from the victory cue into the next level's cue.

[18] The amount of musical parameters that can be varied in a cue is dependent on the kind of audio format that is used for the music. In order to achieve a high sound quality - realistically sounding acoustic instruments, realistically sounding playing styles, etc. - many modern games use sampled audio in the form of (compressed) *.wav* files. The nature of these files makes it hard or altogether impossible to perform alterations to the musical content (like varying pitch and rhythm) without losing sound quality (Collins 2008, p.148). Some games favour formats that are easier to manipulate, like MIDI. The *Legend of Zelda* series is an example of this. The choice between adaptability and sound quality is an aesthetic one, heavily dependent on video game genre conventions.

as John Cage's *Music of Changes* (1951). The cue format of most video games' music heavily favours such an open form method in order to achieve a dynamic soundtrack.

The question remains, however, whether the musical soundtrack to a video game is actually experienced as an open form piece. In a presentation at the 2004 Princeton Video Game Conference, Robert Bowen has argued that "the sequential production of sounds during gameplay can be considered a kind of aleatory composition such that playing a game generates a musical product." (Whalen 2007, p. 73) Zach Whalen objects the following:

> This is a fascinating argument, but the problem I see with the result is that music need not have any contact with the player. One could imagine a player 'performing' by playing the game while an 'audience' listens in on headphones. By considering the musical content of a game as a kind of output, the critic has pre-empted analysis of the game itself. In other words, taking literally the implications of applying narrative structure to video-game music, one closes off the gameness of the game by making an arbitrary determination of its expressive content (p. 73-4).

What is at stake for Whalen is primarily the validity of the word "aleatory," but the focus of his objection raises an interesting point about player experience of video game music per se. Describing the musical soundtrack of a game by itself favours a kind of over-the-shoulder perspective, a distance from the game that is unachievable by the player himself. From this over-the-shoulder perspective it is impossible to experience ludic music, since this requires interaction with the game by definition.

In this regard, the way video game music works might actually be comparable with film music. The idea that film music is most effective as an immersive device when experienced mostly unconsciously is an important thread in film music theory (see for instance Gorbman 1987), and the reverse is true as well. Kevin Donnelly remarks the following on distance in the experience of film music:

> [W]e might notice music more if we become less involved with the film as a whole. In a piece of audience research on David Cronenberg's *Crash* (1996), Marin Barker, Jane Arthurs and Ramaswami Harindranath found that some of the interviewees who were negative towards the film commented favourably about the film's music. In other words, they *noticed* the music, because they chose not to notice other aspects of the film: 'Dismissing the film on *moral* grounds leaves space for complimenting it on individual qualities. In [the interviewee] Derek's case - and he is not alone in this - the music was the striking element.' Or perhaps those who appreciate film music are able to *distance*

themselves from the screen activities to some degree. Musicians may well be able to focus on (to be aware of) the music more than non-musicians, but people who are less 'bound up' with narrative and character may well find themselves more *conscious* of the music (Donnelly 2005, p. 7).

From this quote we might infer that the degree to which we experience film and video game music as autonomous, as a continuous piece, is dependent on the degree to which we are "bound up" with narrative and character. If the music in conjunction with the other elements of a video game like *Zelda* - one in which narrative and characters are central, in other words, which is film-like - does its job well, the dynamic aspects of the soundtrack will go almost entirely unnoticed to the player. His focus is elsewhere, precisely *because* the dynamic of the music fits his actions.

Like the music in my example of *Left 4 Dead* in Chapter 1, *Zelda*'s music is made up of themes or leitmotifs. I have already argued in that chapter that ludic signposts are subject to the rules of irrelevance, and therefore their musical nature is redundant from a gameplay perspective. Gorbman's theory of "unheard" film music corresponds to this. She builds upon the semiotic and psychoanalytic theory of Christian Metz, who argues that a "cinematic signifier," such as a musical leitmotif or signpost, "does not work on its own account, but is employed entirely to remove the traces of its own steps, to open immediately on to the transparency of a signified" (Metz 1982, p. 40). Musical leitmotifs in *Zelda* and other games with a strong narrative thus divert attention away from themselves and onto a game's narrative (and gameplay in the form of signposts), so that the player is not experiencing the musical signifiers, but the game's fiction.

In order for the player to notice the musical fruits of their playing - the "open form piece" they "perform" - they will need generally to take a step back. But this means they will cease to be players and become an audience to another player. The exception to this is a game that somehow directs their attention towards the musical soundtrack, instead of the narrative or the characters.[19]

2. Music as a reward

In Chapters 1 and 2 I suggested music that guides the player and music that forms an obstacle to the player as possible ways for video game music to be ludic. Video game music could also be ludic if it somehow is a reward for the player's actions. Part of Jesper Juul's definition of a video game is that it has "variable and quantifiable outcomes" and that "the player feels emotionally attached to the

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[19] It should be noted that the musical obstacles and challenges I discussed in Chapter 2 are not part of this, as all of my examples feature musical fragments rather than a dynamic continuous whole. Their reflective nature as puzzles (requiring "thinking time") excludes them from the possibility of fitting into the soundtrack.

outcome." (Juul 2005, p. 6-7) Music might be the reward for a successful outcome of a game, something for the player to work towards. Games can reward players in different ways, from a simple "congratulations" text message to an elaborate cut-scene that brings closure to the game's story, or a high score. Music can also be a reward: The different levels of *Tetris DS* (Nintendo 2006) feature remixes of music from other Nintendo games such as the *Metroid* and *Zelda* series, but in the last level a track from the 1989 Game Boy version of *Tetris* can be heard. As a reward for making it all the way to the final level, the player is reunited with the "original" *Tetris* music.

But is this ludic music? One of the original questions I asked to ascertain whether music was essential to the gameplay was "Does the player need to hear the music in order to progress through the game?" In the case of musical rewards, this is problematic. If a reward is part of the final outcome of a game, there is no instance of further progression. After the player has heard the music there is nothing the game demands him to "do" with it anymore: it is over. Moreover, the music is interchangeable with any other thing the player might be "emotionally attached to" in Juul's words, such as a cut-scene. So for ludic music to be a reward, it needs to be a reward for one of the challenges *within* a game, rather than for the challenge that is the entire game itself. An aleatoric piece, whose shape is the consequence of a player overcoming various challenges in a game might be an example of such a reward. Furthermore, it might tie together the separate rewards for the challenges in a game, thereby creating a pattern whose continuation requires the player to keep playing.

It should be noted that a large part of Juul's description of challenges in video games is that the overcoming of challenges is its own reward (Juul 2005, p. 112). Juul does however acknowledge that "there are enjoyable aspects of games that cannot simply be explained as challenges." (Ibid.) This idea will feature heavily in the next chapter on music and rhythm games, but it has also some bearing on my argument in this chapter. The fact that the overcoming of a challenge does not necessarily demand an additional reward such as the creation or transformation of music renders these effects vulnerable to becoming superfluous from a gameplay perspective. If the challenges are interesting enough in their own rights, the music would not be essential to the gameplay. This also means that the ludic status of rewards is somewhat questionable. Juul does not explicitly talk about rewards in his description of game rules and challenges, which suggests that at least the "external" rewards for challenges (those "enjoyable aspects of games that cannot simply be explained as challenges") are in part narrative rewards. Salen and Zimmerman (2004) actually discern between a number of different rewards in video games: *rewards of glory*, *rewards of sustenance*, *rewards of access*, and *rewards of facility* (p. 346). The last three of these reward types directly influence the player's progression through the game in some way or another. Rewards of sustenance "maintain

their avatar's status quo" (ibid.) by, for instance, giving the player health packs in order to keep them alive. Rewards of access unlock new locations and resources for the player to visit. Rewards of facility "enable a player's avatar to do things they couldn't do before" (Ibid.). These are clearly ludic rewards. The first type is described as follows:

> Glory rewards are all the things you're going to give to the player that have absolutely no impact on the game play itself but will be things they end up taking away from the experience. This includes winning the game by getting all the way to the end, completing a particularly difficult side quest, or defeating the plots of evil monsters (Ibid.).

These are the external rewards for Juul, and what I will call narrative rewards. In order for a dynamic musical soundtrack to be a ludic reward it would need to fall into one of the latter three categories.

The following case studies I will discuss - *Flower* and *Chime* - will be judged according to the criteria I outlined in this and the first section. Both games employ a dynamic musical soundtrack, to which player contribution functions quite similarly. In order for these soundtracks to be ludic, the player's contribution to their "performances" would need to be essential to his progression through the game.

2.1 Case study: *Flower*

Flower (thatgamecompany 2009) is a downloadable game released on the PlayStation 3 console in 2009. In the game, the player takes control of a gust of wind that guides flower petals across various landscapes differing from level to level, such as meadows, canyons and cities. The goal is to touch closed flower buds throughout a level, which opens them and turns certain parts of the level green. After a number of flower clusters have been touched, new parts of the level open up. The level ends when the player's gust touches a small final flower, marked by a cyclone-like visual effect. Where the majority of other PS3 games are controlled with the analogue sticks and buttons on the controller, the player moves the gust of wind using the controller's motion sensors. Unlike the visual presentation and controls, the mechanics and rules of *Flower* are actually quite conventional. The game is divided up into six levels, which are unlocked sequentially, and essentially what the player does is guide his "avatar" to the end of the level. The challenges that the game poses are not hard at all. There are no "enemies" that the player can encounter, there is no time limit, and the player cannot "die" or otherwise fail a level. The only ludic rewards in the game are rewards of access: that of different parts of the levels and different levels.

Image 9. A view close to the beginning of *Flower*'s first level

The game's "laid-back" gameplay is reflected in the dynamic music, which consists mainly of consonant ambient music cues that slowly unfold as the player progresses through a level. The music starts out very simple, but gets more complicated the more flowers are touched by his gust of wind. For example, the first level starts with the camera zoomed in on a single flower in a field of grass (see Image 9). Playing in the background is a simple motif played on an acoustic nylon-stringed guitar heavily featuring the single notes A and D and sometimes G, B and E. There is no harmonic tension or progression due to the lack of leading tones and the lack of V-I relations between the A and D, and no discernible melody. This motif loops endlessly until the player presses a button on the controller and a petal pops out of the flower, accompanied by a single glockenspiel tone. The player can then control the movement of the petal by moving their controller, as if they were a gust of wind moving the petal over the field.[20] It becomes clear that the glockenspiel note was not to be experienced as a diegetic sound, as the player now hears actual diegetic sounds representing the waving of grass and the winds. When the player's petal touches another flower, a second petal pops out to join the first in the gust of wind, and then a third, and so on. Every time a flower is touched, another random glockenspiel note sounds. These do not directly correspond to the rest of the musical soundtrack, but due to the soundtrack's overall consonance and lack of melody and rhythm the glockenspiel notes seem to "fit" in between the separate guitar notes. The touching of these flowers is necessary for completing a level and they are visually marked accordingly with a little aura. The field also has "non-essential" flowers that can nonetheless be touched and their petals are added to the gust. These are

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[20] The PlayStation 3 controller has motion sensitivity.

white instead of red or yellow or blue, and don't have an aura. When they are touched, the player hears random notes as well, but these are played on a guitar, and therefore in the same timbre as the rest of the soundtrack. It can be said that the relative gameplay importance of the flowers is musically determined by timbre: the more it is differentiated from the soundtrack, the more important it is. The most important are the tightly clustered groups of flowers. Touching them causes a semi-cut scene in which the camera zooms out to show the landscape changing (wilted plants springing to life, yellow grass turning green, and so on). It is accompanied by a flourish of a relatively large string section, putting even more emphasis on the importance of these incidental additions to the musical soundtrack. The clusters of flowers also open up different parts of the level. The rewards that they offer are thus twofold: the semi-cut scene is a reward of glory, while the progression through the level is a reward of access.

Apart from the glockenspiel and guitar notes which are direct player contributions to the musical soundtrack, the soundtrack also changes in another way when more flowers are touched. Touching the second flower in the level causes the addition of a layer of string instruments in the soundtrack. They play consonant chords, which fade in and out on weak beats of the measure, causing minimal further determination of melody, harmony or rhythm. When the third flower is touched and its petal is added to the gust of wind, a piano starts playing. It takes up a similar role as the guitar and strings, alternating between short flourishes (consisting of the same notes as the guitar motif) and short chords that avoid a clear harmony or chromatics. Touching the non-essential white flowers doesn't cause the music to change or intensify in this way. When the player touches the first cluster of flowers that unlocks a different part of a level, a more radical change in the music is heard. The guitar pattern is now gone, but more orchestral instruments come in to fill the void: a string bass line with a steady rhythm and a more pronounced beat than the guitar accompaniment, and woodwinds adding a simple V-I harmony. Further changes through the touching of flower clusters make the music more melodious, more rhythmical and clarify the harmonic progressions. These are all very gradual changes with slow fade-ins and incidental melodic phrases rather than constant melodies. They add up to a slow build up towards a climax that coincides with the end of the level. It can thus be said that each change and addition of a sound layer within a level acts as a musical guide, a signpost that signals progression through the level, just like those I discussed in Chapter 1.

The player has both direct and indirect control over what *Flower's* music sounds like. He has direct control over when the flower notes sound, but isn't explicitly invited or required by the game to "play along" with the music by for instance touching the flowers in a certain order, tempo or rhythm; there is no explicit punishment or reward attached. The steady tempo, uneventful rhythm

and lack of a clear melody in the music allow for the player to do as they please musically, which is in line with the rest of the game. Still, flying your gust of petals along a trail of flowers causes flourishes of random notes which fit perfectly between the already present flourishes in the musical soundtrack, especially those of the piano. This kind of playing along encourages the player to move, but not in any specific direction towards the end goal of the level. The way this is accomplished musically, again very inexplicitly, is through the addition of new layers and changes in the fixed soundtrack as described above. The game leaves room for musical performance of this kind, but the reward it offers is a reward of glory, a narrative reward at best. It is not essential to influence the soundtrack in any particular way to progress through *Flower*. The main reason that the gameplay of *Flower* may come across as musical is because of the simplicity of the challenges the game offers. There is hardly any satisfaction to be had finding the right route towards the end of a level, which is why player attention is directed towards other, non-ludic types of rewards in the game's visuals and musical soundtrack. While *Flower* is a very musical game for these reasons, this is not ludic music.

2.2 Case study: *Chime*

Like *Flower*, *Chime* (Zoë Mode Brighton 2010) is a downloadable game originally released for the Xbox 360 as part of a charity initiative. It is a more straightforward puzzle game than *Flower* that has much in common with the classic *Tetris* (Spectrum Holobyte 1985). Like *Tetris*, the game is played by placing blocks of different shapes next to each other to create larger areas (see Images 10 and 11) - in *Chime*'s case rectangles instead of rows. The objective is to completely fill a large grid with rectangles - in other words, to achieve 100% coverage - before time runs out. After each five percent increase in coverage, extra time is awarded. However, approaching one hundred percent, the game gets more difficult as the unfilled squares in the grid get harder to reach and to fill. All in all, *Chime* is a unique twist on *Tetris*' block-centred gameplay that features much the same control methods and gradual intensifying of the action and pacing.
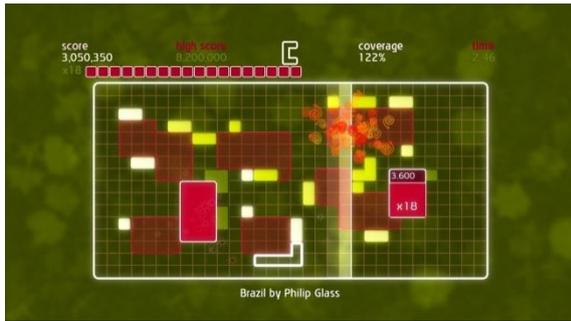
Image 10. *Chime*'s "Brazil" level.
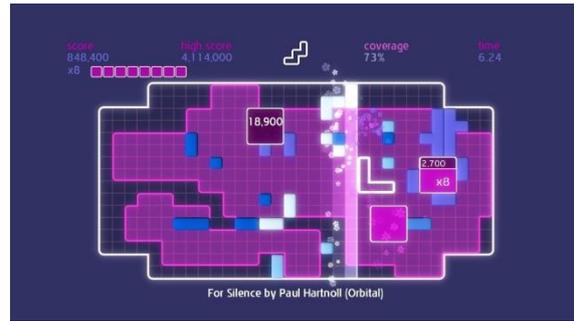
Image 11. *Chime*'s "For Silence" level.

However, unlike *Tetris, Chime* was both marketed and reviewed as a *music* puzzle game.[21] As the name suggests, music does play a central role in the game. Whereas *Tetris*'s soundtrack is non-dynamic in Collins's terms, with adaptations of Russian folk tunes (among other music) that are looped during play,[22] *Chime* has music that adapts to the player's actions and the shape of the blocks on the grid. Music is featured prominently in the game's interface and menu structure as well. Each of the five levels is named after the track that its musical soundtrack consists of. In the order of difficulty, they are *Brazil* by Philip Glass, *For Silence* by Paul Hartnoll, Moby's *Ooh Yeah*, *Spilled Cranberries* by Markus Schultz and *Disco Ghosts* by Fred Deakin a.k.a. Lemon Jelly. Furthermore, the track name and artist are displayed prominently below the grid in the game's interface. This gives the sense that the player is not just selecting a level in a menu to play a game, but also picking a track from a playlist to listen to music and watch a software music player's visualizer at the same time.

In spite of all this, one might have noticed the absence of music in my description of the gameplay of *Chime* in the first paragraph of this section. At first sounds, for the over-the-shoulder listener, *Chime*'s music is a lot like that of *Flower*. Much like *Flower*'s first level, the first level of *Chime* features a sparse, looping musical pattern that gradually becomes more elaborate as more instrument layers are added, and incidental and seemingly random single notes and flourishes begin to "dot" the musical landscape. The music that accompanies the level is composed of Philip Glass's "Brazil" - written in his typical minimalist style. The original version of the music comes from the album *Orion* (2005). It starts out with a repetitive musical pattern played on a marimba, but soon a simple woodwind melody is announced by two stately horn chords backed up by percussion. After a while, a freer and more ornamental flute accompanies the woodwinds. The music then goes through

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[21] The term "music puzzle game" was used in an official press release (http://uk.xboxlive.ign.com/articles/106/1066555p1.html, (accessed on 5-5-2010), as well as in reviews on gamespot.com (http://www.gamespot.com/xbox360/puzzle/chime/review.html?om_act=convert&om_clk=gssummary&tag=summary;read-review, accessed on 5-5-2010) and ign.com (http://uk.xboxlive.ign.com/articles/106/1065551p1.html, accessed on 5-5-2010).
[22] I am referring to the 1989 Nintendo Game Boy version that featured an instrumental arrangement of the tune "Korobeiniki." The original 1985 PC version of *Tetris* did not have any music.

a number of changes and variations over the course of ten minutes, getting gradually more intense with syncopated chords and percussion beats, before suddenly coming to a halt.

The music in the game starts out exactly the same as the original track, but the marimba pattern is looped indefinitely until the player acts. The opening horn chords are never heard, but as the player begins filling up the grid with rectangles and the coverage percentage starts rising, the woodwind melody layer is added to the mix. Furthermore, the placement of individual blocks on the grid causes the addition of incidental single notes to the music as well, much like what happens when touching the flowers in *Flower*. Unlike *Flower*, however, the notes don't directly synchronize with the player placing the blocks on the grid. One does hear a non-musical sound effect (a short click) every time one places a block, but the musical note that it produces is determined by the beat and therefore does not necessarily coincide with the exact moment the player places a block. The most immediately obvious visual connection to the music is a vertical white line with a faint trail that moves from left to right across the grid, in time with the beat (see Images 10 and 11). The grid is thirty two squares wide in each level, which means the line takes eight measures to make one pass, as all the music in *Chime* is in quadruple time and each square equals one beat. When the line touches a block the player placed, a note is played. This means that the same notes are repeated every eight measures, creating a melody or at least a musical pattern, much like the fixed marimba pattern that accompanies it. Furthermore, the pitch of the notes is determined by the vertical position of the block, and the instrument is determined by the level and the block's shape. Most levels have only one or two different instruments playing the notes. In the case of "Brazil," it is either a marimba or a small string ensemble. This means that the instrumentation of the block pattern fits the basic accompanying patterns of the music, thus blending into the soundtrack.

Where *Flower* has patches of flowers that produce more elaborate musical phrases, in *Chime*, these are produced by the rectangles that are created by placing blocks on the grid. Like placing the blocks, creating a rectangle produces a non-musical sound effect, which is mostly out of time with the music, and does not match up with its timbre either.[23] When the white line touches a rectangle for the first time, a short, random fragment of the flute flourishes from the original "Brazil" track is played. Unlike the flute in the original track, which closely follows the woodwind melody, the flourishes in *Chime* are determined by their rectangles' horizontal position on the grid. This means that the flourishes in the game can sound more individual and pronounced than their album counterparts. While the overall consonance of "Brazil" (and the other tracks used in *Chime*) ensures that the flourishes don't sound out of place harmonically and thus part of the music in principle, their

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[23] Furthermore, the sound effects are identical in every level, which further solidifies their status as sound effects rather than music.

independence as flourishes is even more pronounced in the game. Furthermore, the flourishes are accompanied visually by the rectangle flashing each time the white line passes them, further drawing the player's attention to both the rectangles and the music. This event has gameplay significance as well: when the white line passes a completed triangle, it fades into the background and overall coverage increases. It can be said that the flute flourishes are the musical part of rewards in *Chime*.

The final element of the adaptive music in *Chime* is the "background" accompaniment of the single note patterns and flourishes, which gradually changes when the coverage percentage increases. Each time the white line starts a new pass and a new set of eight measures, the game can add a new layer if the player has filled up the grid by a certain amount. At the start, this happens rapidly. After about three percent coverage, the first musical layer consisting of the woodwind melody is added. After twenty percent, there is a more drastic change, adding more instruments and changing the rhythm slightly. The next large change in the musical accompaniment comes much later, after about sixty percent. This means that the structure of the music in *Chime* relatively closely, but organically follows the structure of the original "Brazil." There too the woodwind melody starts rather soon, and there too the climax starts late. Because of the indeterminate duration of a *Chime* level, one part might last significantly longer than the other, but the player will connect his experience of the music with the percentage of coverage rather than the time that has passed, due to the intimate relation between the progression of the music and his progression in the level.

But again, is the music necessary for completing a level? Like in my Chapter 1 case studies, most of the musical information is doubled visually: coverage percentage can be seen plainly by the amount of grid that has turned into the colour of the rectangles (see Image 11), and the completion of a rectangle is accompanied by a visual flash as well as an increase in points total (Ibid.). The musical flourishes are more helpful to the player than their flash counterparts however, as there is a good chance players will have their visual attention directed at a different part of the screen, and hearing a flourish can remind them of their success on another part that they are too preoccupied to look at. However, the gameplay does not require them to act on these flourishes as quickly as the auditory information precedes the visual: it merely informs them of their progress towards completion. Add to this the question whether in this case the flute flourishes are working as music rather than sound effects - they are not - and I must conclude that on an informative level, the music is superfluous.

As a reward, however, music is probably one of the most prominent elements of *Chime*. It works on several levels (sticking to the "Brazil" example). On the "lowest" level there is the immediate gratification of adding notes to the marimba pattern by placing blocks on the grid at

different places. It is possible for the player to "play" with this element, but this does not contribute to their progress in the level, and as such it is not part of the gameplay of *Chime*, but more like a game within a game.[24] Then there is the acknowledgement of completing a rectangle in the form of the flute flourishes. As stated above, these are the least musical of the rewards. Their gameplay role and their independence of the soundtrack makes them more like *Super Mario Bros.* powerup sounds, which are musical flourishes in their own right. Finally, on the highest level, there is the synchronization of the progress through the game with the progress of the music. As stated above, it has little informative or guiding value like the music in *Flower* has, but as a glory reward, it works very explicitly in *Chime*, more than in the previous case studies. Essentially the reward is the continuation of the music and the creation of a coherent musical soundtrack. Lingering too long without completing any rectangles will cause the music to keep looping, ultimately directing the players attention to this looping, and causing boredom and annoyance of the kind composer Scott B. Morton describes in Collins (2008, p. 140). This means that there is an optimal tempo for the player to progress through a level, one that creates the musical soundtrack that most closely resembles the original track.[25] Furthermore, visually the player's attention is continuously directed towards the music as well: most importantly by the white line, which acts like a metronome, signifying the beat of the music. This causes for more subtle intermedial connections to be drawn: the progression of the music is connected to the gradual changing of the grid from green to red (in the case of "Brazil"), further enhancing the experience of music as a reward than just a typical game music accompaniment.

It seems that like *Flower*, *Chime* is a game to which the sentence "the player creates the music" can be said to apply. But when this music is considered as a reward, it is purely a glory and therefore a narrative award. The player does not *need* to listen to the musical soundtrack he creates, and his creation is ultimately a side-effect rather than a gameplay goal of *Chime*. The main difference with the dynamic music of *Flower* is that due to the pace and intensity of the gameplay in *Chime*, the player is not given much time to play with the musical consequences of his actions.

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[24] In fact, placing blocks to create interesting musical patterns or melodies will most likely be detrimental to the progress in a level. In order to produce different rhythms, the blocks will need to be spaced horizontally in such a way that they cannot form rectangles. Played in this way, *Chime* is less a game and more like the sampling software *Fruity Loops*, in which beats are created by filling in a grid, just like in *Chime*.

[25] That is not to say that the goal of the game is to recreate the original track. The player is in no way obligated to be familiar with this track to finish a level. My suggestion is that the musical means and elements that made up the original track can only be "stretched" and repeated so many times before becoming aesthetically unpleasing. This means there is only an upper limit to my "optimal tempo:" if the player is too slow, the sparseness of the musical material will become apparent, a sparseness that was avoided in the original track.

3. Chapter conclusions

I have argued that in order for dynamic music to be part of the gameplay of a game, it needs to do the following three things. First, the player's attention needs to be directed to it in some way or another. While many games have dynamic musical soundtracks, such as *The Legend of Zelda* series, the music in these games works much like film music: it diverts attention away from itself and to the overall narrative of the game. Attention can be directed towards the music by having musical changes act as a form of reward to the player's actions. Second, solving a challenge in a game that is accompanied by music should not be a reward in itself. This would mean that the musical reward is superfluous, and again attention is directed away from the music, this time towards the gameplay. *Flower* is a game that features very simple challenges, thereby necessitating the addition of other kinds of rewards, part of which are musical. Third, the player's influence on the music needs to be essential to the player's progression through the game. In other words, the reward dynamic music offers needs to be a ludic reward rather than a narrative reward. In neither *Flower* nor *Chime*, music is essential in this way, and therefore neither features ludic dynamic music. While in a sense it can be said that the player is making music in these games, and the dynamic music is central to the theme of both games (especially *Chime*), neither game strictly features musical gameplay. The sentence "the player is making music" also applies to the focus of my next chapter, music and rhythm games - perhaps even more explicitly. These games, however, add a fourth function of music, next to that of guide, challenge, and reward.

Chapter 4. The player performs the music

In Chapters 1 and 2 I have discussed the use of music in a number of games from different genres. So far, however, I have been ignoring the most likely candidates to feature ludic music: music games. The idea that music games would feature ludic music is almost tautological: for a game about music to be a game, its use of music would have to be ludic in nature. In this chapter I will consider to what extent this is the case. How exactly is music featured in music games and how does it coincide with previous uses of music I have discussed so far - music as a signpost, music as an obstacle, and music as a reward? The question whether these music games (the *Guitar Hero* series in particular) are actually musical is the subject of an ongoing debate that has already seeped into academic literature (Miller 2009, p. 401). This debate will be part of the focus of this chapter, and I will attempt to place its participants in the theoretical context I have laid out so far in this thesis.

Unfortunately, it is not completely clear what constitutes a music game and what doesn't, and therefore it is not clear where to start. The term incorporates several different genres, including karaoke games (such as the *SingStar* and *Karaoke Revolution* series) and rhythm or rhythm-action games (such as *Guitar Hero* [Harmonix 2005], *Dance Dance Revolution* [Konami 2001] and *Elite Beat Agents* [iNiS 2006]).[26] What they have in common is a musical theme; in Juul's terminology, they are musical at least in a narrative way. Many of them feature either pre-existing pop songs or new music that the player influences in some form or another. Karaoke games, the most famous examples, have the player sing along to a song track without vocals, often with the song's music video playing in the background. The narrative of rhythm games (with notable exceptions like *Dance Dance Revolution*) is generally more pronounced and more varied. Games like *Guitar Hero* and *Rock Band* (Harmonix 2007) have story modes that centre on an up and coming band making their big breakthrough, told through cut scenes and gameplay sequences that depict "live" performances.[27] Other rhythm games, like *Elite Beat Agents,* have more outlandish plots that feature music-related elements like male cheerleaders who dance to help people overcome personal problems. While there are music games that do not fall directly into one of these two general categories, these games are either hybrids that borrow from other genres - such as the aforementioned *Chime* - or niche cases whose status as games can be questioned, such as *Electroplankton* (Nintendo 2005) for the Nintendo DS. These

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[26] Collins uses the term "rhythm-action games" (2008, p. 74-5), while Juul calls them "rhythm games" (2005, p. 51), I will use the latter term.
[27] I put "live" between inverted commas because most of the tracks featured in these games are studio versions of the songs.

games generally offer no rewards beyond the satisfaction of creating music, and there is no right or wrong way to play them beyond musico-aesthetical judgments. As such, they are more like musical tools, instruments or toys than actual games. My main focus in this chapter will therefore be the musical gameplay in karaoke and rhythm games.

As a case study I will be focusing exclusively on the later instalments of the *Guitar Hero* series that feature both rhythm and karaoke game elements. This makes it easier to compare the two subgenres and to ascertain the relative musicality of their gameplay. I will start out from the criticism that the *Guitar Hero* and *Rock Band* games have received that they are not musical games, and how these arguments fit with the theories of ludic music I have outlined so far. From there, I will consider how the defences that have been mounted - especially those in academic literature - complicate the notion of ludic music given so far. This will give me a basis for the final chapter, in which the ludic/narrative music binary is further complicated.

1. Case study: *Guitar Hero*

Originally, *Guitar Hero* started out as a rhythm game for the PlayStation 2. Its basic gameplay - consisting of a note "highway" on which coloured dots approach the bottom of the screen, which prompt button presses from the player at the right moments (see Image 12) - is similar to Harmonix' earlier rhythm games, *Frequency* (Harmonix 2001) and *Amplitude* (Harmonix 2003). The main difference is the addition of a special guitar-shaped controller, which includes the five coloured buttons that appear on the highway on the guitar's neck, as well as a strum bar which needs to be pressed at the right moment along with the neck buttons. By playing the game, the player is mimicking the movements of real guitar playing on his controller. Later instalments of the *Guitar Hero* series, developed by Neversoft, as well as the Harmonix developed *Rock Band* series follow the same basic note highway principle, but add instruments to complete the full rock band combo: a second guitar controller functions as a bass guitar, a drum controller with coloured drum pads to replace the guitar's buttons, and one or more microphones for the singer.[28] The latter instrument is not tied to a note highway in the game, but rather follows the karaoke gameplay standard of a horizontal bar on which the melody's relative pitches are represented by lines (see Image 13). As can be discerned from the game's interface, the largest gameplay difference between the instruments is between the karaoke-like microphone and the other instruments, but the difference between the guitar and drum controllers has gameplay significance as well, as I will argue later.

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[28] For clarity's sake I will refer to the physical controllers as controllers, and refer to the entirety of these and their note highways and representations on the screen as instruments.

The main focus of *Guitar Hero*, apart from its idiosyncratic controllers, is on the game's soundtrack. The game represents the player with a number of songs to play through, which are the closest thing the game has to "levels." When the player misses too many notes, either by pressing the wrong button or pressing the button at the wrong time, he fails the song and has to start over. At the end, the player is scored by how many notes he has hit in conjunction with certain other factors. The songs also determine the layout of the notes on the highway. Like traditional music notation or perhaps more like tablature, these are visual approximations of the song´s instrumental parts: their spacing along the length of the highway determines rhythm, and in the case of the guitar, their placement on the different "lanes" determines how high on the neck a button should be strummed, and therefore loosely determines relative pitch. The game's difficulty settings also determine the layout of the highway. At the easiest setting, only a few dots will appear in the leftmost three lanes, representing the songs most important general melody lines and accentuated beats. At the hardest setting, almost every single note in an instrument part will be represented on the highway on every lane, with chords represented by multiple notes on the same vertical line.

Image 12. *Guitar Hero*'s note highway.

Image 13. *Guitar Hero World Tour* with guitar and bass highways on the sides, a drum highway in the middle, and a bar for vocals at the top.

2. Criticism of *Guitar Hero*'s musicality

Thematically, *Guitar Hero* digs deep into rock culture. The game's visuals are littered with rock imagery and symbols, such as tattooed bare arms, skulls and hands making the "sign of the horns." Behind the note highways there are in-game shots of the players' avatars who represent pastiches of rock and metal stereotypes with names like Lars Ümlaüt (derived from Metallica drummer Lars Ulrich, but adorned with Kiss-like makeup) and Axel Steel (from Guns 'N Roses singer Axl Rose). At the centre is, of course, the game's soundtrack, which - with some exceptions - is made up of guitar-heavy rock songs from different eras. *Guitar Hero*'s tiny plastic instruments combined with its exaggerated, cartoon-like visual style give the impression of parody, which stands in sharp contrast

with the "real" rock classics that are used.[29] The insincerity of *Guitar Hero*'s style appears to be a complete mismatch with rock aesthetics and the ideology behind it. Philip Auslander argues that (purported) sincerity and authenticity are central to rock aesthetics, with creativity, originality and "purity" as the prime virtues in each of rock music's incarnations (Auslander 1999). Moreover, different "genres" or generations tend to cast each other in the role of the "inauthentic Other" (Ibid., p. 71): "Alternative rock, for example, first presented itself in the 1980s as more authentic than the bloated art-rock left over from the 1970s, and still beloved to the baby-boomers" (Ibid.). Artists from both genres mentioned in Auslander's example can be found in *Guitar Hero* (songs from Sonic Youth and Rush are in *Guitar Hero 5*) and can be performed back to back. Considered in this light, it is not surprising that many rock music lovers - and musicians as well - take offense from the *Guitar Hero* games. Courtney Love even threatened *Guitar Hero* publisher Activision with legal action upon finding out that the likeness of her former lover and Nirvana singer Kurt Cobain could be used in *Guitar Hero* to sing songs from other artists, like Wild Cherry's "Play That Funky Music" (Kotaku, accessed 5-7-2010).

In a recent article, Kiri Miller charted some of the responses that the *Guitar Hero* games have garnered from journalists, musicians and online commentators. In her findings, criticism of *Guitar Hero* players either tends to focus around their (lack of) expertise with the game (Miller 2009, p. 401) - although this is mostly a criticism from fellow players who consider themselves better -, that the game is just "pressing buttons in time" (Ibid., p. 408), and what can be distilled into the remark "why don't you pick up a real instrument" (Ibid., p. 405). Some of these comments even exhibit the fear that *Guitar Hero* might lure people away from the challenge of learning real instruments. Peter Hartlaub of the *San Francisco Chronicle* stated it as follows:

> Something ... seems fundamentally wrong when you pick up the video games. ... What kid will ever want to pick up a real guitar, when learning to play a fake one is so easy? If Rock Band had been available in the late 1980s, would we even have a Green Day - or just three more no-name slackers killing a lot of time in their parents' basement? (quoted in Miller 2009, p. 405)

According to Miller, the reason why *Guitar Hero* fundamentally differs from making real music is its perceived lack of creativity. One of her interviewees, after having player *Guitar Hero*, concluded that "[w]hen you go see an actual musician perform ... if you get the perfect musician, they are going to perform something differently every time, and it's going to be amazing every time. But if you get the

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[29] It should be noted that *Guitar Hero 1* and *2* contain mostly faithful covers of the original songs, presumably for financial reasons. From *Guitar Hero 3* onwards, the series has moved to a soundtrack consisting fully of originals. These facts lead me to the conclusion that the covers are not part of the parody.

perfect *Rock Band* player, it's going to be the same" (Ibid., p. 414). This is essentially the same rock-ideological criticism that was levelled against lip-synching in live performances (see Auslander 1999, p. 86). Unlike a "real" musician, the *Guitar Hero* player has no choice but to perform the exact recording that is in the game. Error will result in fret noises and buzzes instead of melodic notes or chords, so the player can either obey the coloured dots that come towards him, or fail the song. This kind of perceived musical oppression runs counter to the virtue of freedom and creativity in rock ideology, thereby ostensibly making *Guitar Hero* a disingenuous simulation of "the real thing." The question is whether this strand of criticism is a valid criticism of *Guitar Hero*'s musicality, or if it merely pertains to *Guitar Hero*'s relation to rock music and ideology. If it is valid, the kind of creativity that Miller's interviewees described would be essential to making music.

3. Signposts and challenges in *Guitar Hero*

Guitar Hero's perceived a-musicality is actually partially supported by my criteria for ludic music. When one considers the game's note highway as an obstacle course, each coloured dot becomes a challenge for the player to overcome. The information that the player needs to overcome the challenge is given both visually (through the position and the colour of the dot) and auditorily (through the musical note or phrase that the dot refers to). However, while the music can be helpful to remind the player which note to hit, all the essential - necessary and sufficient - information needed to overcome the challenge is present in the coloured dot. Much like in the banjo duel from *Monkey Island* (see Chapter 2), when subject to the rules of irrelevance, *Guitar Hero*'s music becomes ludically superfluous. The player is also informed visually of the successful completion of such a challenge: when a note is strummed at the right moment when it reaches the bottom of the screen, it lines up with a dot on the player's interface which then ignites with a small flame for a moment. When a note is missed, the entire highway flashes black. Again, the auditory information that accompanies it - the unpleasant fret clicking or buzzing - is superfluous. The player has to look at the screen to finish a *Guitar Hero* song, but he doesn't need to hear it. One can in fact play and finish any song in the game with the sound turned off. As a signpost or challenge, *Guitar Hero*'s music is purely narrative.

If playing a *Guitar Hero* song is essentially following a set of instructions on the screen, how does it differ from playing an instrument, like a real guitar, from sheet music or tablature? A musician is essentially following a set of instructions as well, and one cannot deny that playing an instrument is a musical activity. There are two reasons why the latter necessarily *is* musical and the former is not. First of all, when playing *Guitar Hero*, you can either play a note right or wrong, and the game clearly indicates this both visually and auditory. A musician can play his instrument wrong by hitting the

wrong notes, but he can also play slightly out of rhythm, or hit a note too loud and it wouldn't be wrong, but not quite right. Where in a game there are clear and strict rules that define right from wrong, when making music these rules are looser and defined by musical aesthetics, which are (at least partly) subjective. The second reason is related to the first. A musician can "play" a song "with the sound turned off" like a *Guitar Hero* player, for instance by wearing headphones. He would be receiving no musical feedback on his playing, only the visual feedback of his fingers hitting the strings at certain times. But no musical knowledge or skill set would be necessary for this, just a pure "stereotyped sequence of physical motions" (Cook 1990, p. 75). Nicholas Cook argues: "if someone were to accomplish this feat, one would still hardly want to say that he could 'play the piano' in any normal sense, because his skill would not be transferable to any other piece" (Ibid.). A musician has to hear the results of his playing in order to develop the kind of skill or knowledge (what Cook calls "organizational knowledge of music") that is necessary to transfer his skill of playing one piece to the other, that is necessary to actually *make music*. The game rules of *Guitar Hero* necessitate no such a skill set.

One counterargument that could be given is that because of the temporary nature of the *Guitar Hero* challenges - i.e. the player has only a small amount of time to solve them - they are not subject to the rules of irrelevance like (musical) puzzles are. While on the easier difficulty settings players have ample time to look ahead on the highway and prepare which button to push next, on the "Expert" setting multiple notes pass the bottom the screen in a fraction of a second, thereby demanding of the player knowledge of what will come next. This knowledge can be discerned by learning a song's note chart by heart, or by learning the structure of a song or similar songs and the overall shape of the melody, which requires musical skills related to those needed for playing an instrument from sheet music. Peter Shultz actually argues that *Guitar Hero*'s different difficulty levels are a form of music theory, or reductive structural analysis much like that of Heinrich Schenker (Shultz 2008, p. 185). While the expert level note chart of a song is comparable to a musical score, the Easy setting represents its bare bones: its most important harmonic and rhythmical features. This leads him to conclude the following:

> Although music games do not usually teach musical skills and concepts directly, nor do they generally employ traditional Western instruments or notation ... they nonetheless prompt players to master semiotic domains related to traditional musical pursuits, and to examine those relationships critically. Thus even when players do not learn musical concepts or performance skills per se, the skills and concepts they develop translate easily to those domains (Ibid., p. 180).

However, while the player might develop a better musical understanding of rock songs through the different difficulty settings, the question pertinent to my investigation is whether this understanding is necessary for successfully completing the game. It is in fact more like a by-product of playing *Guitar Hero*, like for instance acquiring an appreciation of new musical styles. Whether the gameplay of *Guitar Hero* contains ludic musical signposts or not depends on whether we are willing to accept that the player cannot just finish a song by learning the notes by heart. Theoretically this is certainly possible, just like solving certain musical puzzles such as *Fallout 3*'s (see Chapter 2) by trial and error is. Practically, however, it is hard to imagine a player who turns the sound off to complete a *Guitar Hero* song, putting aside the organizational knowledge of music he has inevitably attained through practicing on the different difficulty settings. Playing guitar in *Guitar Hero* is not *necessarily* musical, but in practice it almost inevitably is. This is corroborated by the accounts of Miller's interviewees: "they keep their eyes on the new notation streaming from the top of the screen, while using *the sound of the music*, *their sense of rhythm*, and occasional downward glances to play the notes that are passing over the bottom line" (Miller 2009, p. 408-9, italics mine).

With respect to the game's drums, the shape of *Guitar Hero*'s drum controller, which is essentially like a stripped down set of electronic drum pads, actually necessitates a style of playing that is like "real" drumming. Moreover, turning off the game's sound does not mute the auditory fruits of the drummer's labour, as he would still be able to hear his sticks hit the drum pads. Unless they put on headphones like the musician in Nicholas Cook's argument, practically, *Guitar Hero*'s drummers are "forced" to make music, even when they resort to purely visual cues in the game. Despite these counterarguments, if we are to enforce the rules of irrelevance, "pushing buttons in time upon seeing coloured dots" is an adequate description of *Guitar Hero*'s rules, one which does not need to include music.

3.1. Signposts and challenges in *Guitar Hero*'s vocals

Singing in *Guitar Hero* is decidedly *not* just "pressing buttons in time," and deserves a separate look from the other instruments in the game. As I argued before, the vocals are essentially a sub-game in *Guitar Hero* that is not a rhythm but a karaoke music game. Much like the drum part, the vocalist requires at least parts of the same musical skill set their real-life counterpart has, such as singing in tune and hitting high notes and large leaps. However, unlike the drum part, the visual information the vocalist has is insufficient to successfully overcome his challenges. A vocalist's challenge consists of singing the right pitch at the right moment for the right duration. The last two are represented in the visuals unambiguously by lines on the note chart. The first, pitch, however, is displayed only relatively. The player will not always know the exact pitch at which a melodic phrase starts, or the exact interval when the melody makes a large leap (anything greater than a third will usually look

about the same in *Guitar Hero*'s vocal chart). This information is supplied musically, but not explicitly auditory. What I mean by this is that there is no auditory sign that tells the player which note to sing *before* the note is sung. The player needs to gather this information either from his existing knowledge of the melody of the song in question, or from the musical context (i.e. organizational knowledge like harmonic progression, song structure, melodic conventions of the song's genre, etc.). Again, like the guitar player on Expert, the vocalist can sing by learning the song by heart, but unlike the guitar player, this learning process is necessarily musical. So whether vocalists "play" through a song they know, or whether they encounter a song for the first time, they always employ musical skills. Karaoke games, then, clearly feature ludic musical signposts and challenges: when encountering a song for the first time, the songs musical parameters act as signposts for which note to sing next, and, when learning a song to overcome its challenges, musical skills are employed.

4. Music as a reward in *Guitar Hero*

I have argued so far that at least for *Guitar Hero*'s guitar instruments, ludic music is not necessarily involved as a signpost or as part of a challenge. I will now consider whether music is offered as a ludic reward for the player's efforts. If it is, it is one of several rewards that the game offers. Aside from the satisfaction of hearing a song with as few missed notes and nasty buzzing sounds as possible, the player is awarded a point score upon completing a song, a star rating from three to five, and the percentage of notes he has hit is displayed. During a song, the player is also rewarded with so-called "Star Power" for hitting all the notes in certain passages marked with stars instead of dots on the highway. Furthermore, in the earlier instalments of the *Guitar Hero* series, songs have to be unlocked in a "career mode". For example in *Guitar Hero III: Legends of Rock* (Neversoft 2007), the player had to successfully complete a number of songs in a three- or four-song set list or "gig" in order to move on to the next gig. In later games, from *Guitar Hero 5* onwards, the option of playing all songs from the get-go in a so-called "party mode" was added. This is not an insignificant development for the status of music as a reward in *Guitar Hero*, and I will return to it later.

The aforementioned rewards are represented in each of Salen and Zimmerman's (2004, p. 346) four categories of rewards in video games. First of all, correctly hitting a certain number of notes makes sure the player does not fail a song, and therefore is a *reward of sustenance*: it maintains his and his avatar's "status quo" as a successful performer. The point score the player receives is a *reward of glory*: it has no effect on further gameplay, and therefore is not a ludic reward. Star Power helps the player more easily progress through a song. When it is activated, the game will not punish the player as hard for missed notes, and increase the amount of points hit notes generate. This is a clear example of a *reward of facility*. Finally, completing songs to unlock more is a

reward of access, as it helps the player experience more of the game. These last three are all ludic rewards. It is more difficult to categorise the pleasure the player experiences from hearing their performed song performed correctly without any interruptions. It can be seen as a reward of glory, but then it wouldn't necessarily be ludic music. If anything, hearing the "correct" music in *Guitar Hero* should be a reward of facility: hearing the fruits of his actions precipitates the player's further progression through a song. But by concluding this, we are veering dangerously close to the argument that *Guitar Hero*'s music is like a signpost, which is not *necessarily* the case for the guitar. Again, all the information necessary to play the right notes is contained in the game's visuals.

I concluded in Chapter 3 that for dynamic music to be a ludic reward it would have to do three things: (1) it has to be the focus of the player's attention, (2) solving the challenge the music is a reward to should not be a reward in itself, and (3) the player's influence on the music needs to be essential to the player's progression through the game. Compared to my previous case study of *Chime*, the music and the player's influence on the music is definitely at the centre of the player's attention in *Guitar Hero*. Furthermore, as I argued, the experience of "solving" *Guitar Hero*'s challenges (pressing the right buttons) is hardly a reward in itself. Juul has in fact conceded that there are games that cannot be described as "a series of interesting choices" (Sid Meier, quoted in Juul 2005, p. 92). He gives the example of a rhythm game, *Vib-Ribbon*, that "does not contain any interesting choices whatsoever," but the fun comes from "being in time with the music," (Ibid., p. 115) which of course is also the case for *Guitar Hero*. In this sense, music is clearly the primary reward. The final criterion, that "the player's influence on the music needs to be essential to the player's progression through the game," is not necessarily met. This is the case only if we allow for a correct-sounding song to be a reward of facility. It also brings us to another problem, which I think is essential for the music's status as ludic: is the player truly exerting an influence on the music, as he is doing in *Flower* and *Chime*? In other words, is there genuine dynamic music in *Guitar Hero*?

Yes, *Guitar Hero*'s music might sound differently depending on the player's inputs. However, when the player presses all the buttons correctly, *as is the goal of the game*, the music will sound largely the same every time. I say largely, because there is room for variation, there are sites of potential creativity - where the player can potentially employ a musical skill set to progress through the game - and consequently for ludic music (if this musical skill set is essential to the player's progression). As I discussed earlier, the notion of creativity is a central point of debate in the criticism of *Guitar Hero* and its defences. Miller devotes a large section to her interviewees' answers to this question (Miller 2009, p. 414-8), and bases her subsequent conclusions upon them. In his Marxist analysis of the gameplay of *Guitar Hero*, Henry Adam Svec (2008) actually argues that this debate is what the game is all about:

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"[i]t is possible that some players will be oppressed by the game. I think it is more likely, however, that the game's overtly rigid, one-dimensional treatment of musical creativity will be experienced as a challenging critique of the culture industry's finite subjectivity-production" (p. 6).

In other words, *Guitar Hero*'s gameplay is ironic, which is further supported by its overly stereotypical visuals as I argued above. For Svec, the "site of creative conflict" (Ibid., p. 7) is the guitar controller's whammy bar, with which the player can alter the pitch of held notes and chords up to a full step downwards.[30] It is "a tool around which the sheer joys and desires of performance square off against the numbers and values imposed upon the player" (Ibid.) The gameplay functions of the whammy bar are to increase overall points (a glory reward) and to increase the player's star power pool (a reward of facility). This means that playing *with Guitar Hero*'s music - as opposed to just *playing* it; inputting the correct notes - offers ludic rewards. While these are parts of the music that are dynamic, and there are ludic rewards for making music, this is not *necessarily* ludic music. This is because of the way the player is rewarded for his use of the whammy bar. The scoring method does not work according to musical parameters such as rhythm, or pitch accuracy, but rather only registers that the player is moving the whammy bar: faster movement gets more points. One can see that this does not reward musical play, but manual dexterity.[31] In other words, like the supposedly non-creative elements of *Guitar Hero*, the whammy bar does not necessitate musical gameplay, and - while it contains dynamic music - it therefore does not contain ludic music.

4.1. *Guitar Hero*'s performative aspect as a reward

But is there another way for the *Guitar Hero* player to experience the music in the game as a reward? An argument to that effect is given by both Miller and Van Elferen (2010). Unlike Svec, they argue that the site of musical creativity is not just on the screen, but in front of it as well. *Guitar Hero* lets the players create a "schizophonic performance" according to Miller (Miller 2009, p. 401). It combines "the physical gestures of live musical performance with previously recorded sound" (Ibid.). The physical movements a player makes interacting with the controller are part of the "game" of playing *Guitar Hero*; *Guitar Hero* is also a performance in front of the screen. Like in Svec's arguments, there is a sense of irony or parody behind this performance: "the games both cite and encourage camp-inflected performances, in which hegemony is queered, denaturalized, and, thus

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[30] Other sites of creativity in *Guitar Hero* are the "freestyle" sections in the vocals and drums. Here, the player can improvise freely and they are scored for this.
[31] The other sites of creativity described in the previous footnote reward the player in similar ways: the more drums or different pitches the player hits, the more points he gets. Where rapid movement of the whammy bar is often used in rock and metal songs and therefore can be said to be somewhat musical, an a-rhythmical thrashing of drums in as fast a tempo as possible is generally considered to be the opposite of music making.

subverted through overarticulation" (Ibid., p. 421) in an almost Butlerian sense. For Miller, *Guitar Hero* is to rock what drag is to femininity. Her argument is summed up as follows:

> These invocations of rock authenticity neglect to acknowledge the possibility that these
> games might be compelling and valuable not just as simulations, fantasyenablers [sic],
> and stepping stones to real instruments, but because they offer people a new kind of
> musical experience. Playing *Guitar Hero* and *Rock Band* isn't just like playing a real
> instrument, but it's nothing at all like just listening to music. Schizophonic performance
> is collaborative performance: the players and their audiences join the game designers
> and recorded musicians in stitching musical sound and performing body back together ...
> In short, playing these games "feels like" making music to so many players not because
> of some sort of false consciousness or cult of repetition, but because the affective
> experience of making music is so bound up with embodied performance. (Ibid., p. 424)

This embodied performance, facilitated by the game's idiosyncratic controllers is what makes *all* of *Guitar Hero*'s gameplay musical gameplay. Van Elferen comes to similar conclusions via a different route. She goes even further than Miller in the importance she attaches to the player's performance:

> In this game the actual gameplay - the performance of a rock song - happens off-screen,
> while the graphic avatar merely represents these actions onscreen. The player's physical
> body as well as her avatar, and her [real life] environment as well as the intermedial
> hyperreal, are involved in the gameplay (Van Elferen 2010, p. 16-7).

In other words, the joy players experience from creating these off-screen performances makes up the largest part of the musical rewards in *Guitar Hero*. To say that *all* of *Guitar Hero*'s gameplay takes place off-screen would be selling the game short however. One has to include the scoring and the other rewards that I discussed above, which are not part of the "performative" aspect of *Guitar Hero*. While these other rewards are easily classified as either narrative or ludic in Juul's terminology, such a classification is more difficult for the off-screen performance. While the performance is not bound by the game's rules as the other (ludic) rewards are, it is, as Van Elferen argues (Ibid., p. 6), not wholly part of the game's fiction or narrative either. For Juul, "[t]he space of a game [rules essentially] is *part of* the world in which it is created, but the space of a fiction is *outside* the world from which it is created" (Juul 2005, p. 164). But according to Van Elferen and Miller, a guitar hero performance is not just make-believe, in the sense that the pleasure that is derived from it is like that

of a *real* musical performance - not like that of performing theater or some other form of pretending.[32] As such, it is neither a completely ludic, nor a completely narrative reward.

5. Chapter conclusions

I have argued that while *Guitar Hero* is a very likely candidate to contain ludic music, there is very little actual, clear-cut ludic music to be found in the game. The musical elements of the game's signposts and challenges are superfluous from a rules perspective. Only the vocal part, which is identical to karaoke games rather than rhythm games, clearly and unambiguously features ludic music. There are musical rewards to be found, where the player is encouraged to "play musically," in the game's use of the whammy bar on the guitar controllers, but playing musically is not necessary even in these cases. *Guitar Hero*'s performative aspect complicates the notion of ludic music, as it is neither fully narrative nor ludic. In Chapter 5 I will further explore this space between the ludic and the narrative that the case study of *Guitar Hero* has opened up.

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[32] I will discuss the difference between making music and pretending to make music in more detail in Chapter 5.

Chapter 5. Between ludic and narrative music

In Chapter 1, 2 and 3 I discussed three ludic aspects of video games in which music could play a part: challenges, obstacles, and rewards. In Chapter 4 I discussed a very specific type of game, namely the music game and the rhythm game in particular, in which music acts as both a challenge and a reward, but only in the karaoke aspects of these games. My discussion also revealed a possible third use of music in video games, which was contained in the performative aspect of music games. It can neither be defined as completely narrative, nor completely ludic. In this final chapter, I will consider the possibility for music in video games to occupy this theoretical position, and how it can be described with regard to the other uses of music discussed so far in this thesis.

I will propose two methods of exploring this theoretical space between narrative and rules. The first and the most obvious is Jesper Juul's own concept of the "half-real." The second is a different, much older theory of describing games in general by Roger Caillois.

1. Juul's "half-real"

The issue at which I arrived at the end of Chapter 4 was that of the performative aspect of *Guitar Hero*: is the "embodied performance" (Miller 2009, p. 424) we give when we are playing a song in the game – our interaction with the guitar controller and our movements in the room – like *pretending* to make music or actually like making music? I agreed with Miller and Van Elferen that it is both. This still leaves the question whether embodied performance is making *ludic* music. Let us accept for the moment that the first option, "pretending to make music" pertains to the game's narrative and is therefore not ludic: we are enacting and participating in the game's fiction. The reason for this is that, like fiction in games, pretending is optional (see Juul 2005, p. 162) and potentially subject to rules of irrelevance. We can choose to pretend and imagine we are rock stars, or we can choose to concentrate on hitting the correct buttons in order to finish a song and obtain a high score. (I will discuss this in more detail below with the help of Roger Caillois's theories.) If the second option – "really making music" through embodied performance – is to be making *ludic* music, it has to be part of the game's rules; a rule like "to successfully play *Guitar Hero*, you have to make music." The question then becomes a very broad one: is "in *Guitar Hero* the player plays guitar in song so-and-so" a statement about the game's rules, or its fiction?

Juul gives us a way of separating fictional events from factual rules which can shed light on our *Guitar Hero* predicament. A statement like "Hamlet is Prince of Denmark" is only true in the fictional world of *Hamlet*, while the statement "Tennis is a game where two people hit a ball using a racket" is true in the real world, too (Juul 2005, p. 167). He gives the following example for video games, which is analogous to the question of music in *Guitar Hero*:

> Looking at *Tekken 3*, a game that is not abstract, consider the statement: "Eddy Gordo is Brazilian and fights using the martial art of capoeira." Is this true? In this case we have to combine the question about Hamlet with the question about the rules of tennis:
>
> 1. There is no real-world person called *Eddy Gordo*, but in the *fictional world* of *Tekken 3*, there is a person by the name of Eddy Gordo who fights using the martial art of capoeira.
>
> 2. *And:* In the real world, it is factually true that you can choose Eddy in *Tekken 3*, and that you can control the character of Eddy so that he attacks his opponent using capoeira moves.
>
> The first point looks at *Tekken 3 as fiction*; the second point looks at *Tekken 3 as real activity*. The description of the fictional character of Eddy *also* describes the real-world fact that having selected that character in *Tekken 3* gives the player the option of performing a number of special moves. *That Eddy Gordo fights using capoeira moves describes the fictional world of the game, and it describes the real rules of the game*. (Juul 2005, p. 167-8)

This is the unique aspect of video games that Juul calls the "half-real." By analogy we could say that "the player plays guitar in song so-and-so" describes the fictional world of *Guitar Hero*, and it describes the real rules of the game. But here an important problem I discussed in Chapter 4 returns. Can we truly say that the statement "Eddy Gordo fights using capoeira moves" describes the real rules of the game? Does it accurately describe what a player can and cannot do in *Tekken 3* (Namco 1998)? Can a player who is proficient in capoeira use his real-world skills and knowledge to play Eddy? Consider the following alternative description of Eddy's fighting style in *Tekken 3*:

> Eddy Gordo carries the discipline of capoeira & [sic] the new meaning of fighting in Tekken 3. His deadly arsenal of moves is composed of rhythmical combinations, & [sic] breathtaking stunts, makes him unique from any other Tekken Characters.

Eddy is known by some players to be called as "cheap" because he has always different measures to win a match. On the other hand, most of his recovery moves are slow which makes him vulnerable for a counter-attack. Eddy has many hard to predict button executions for some of his moves, that's why players intended to mash buttons instead. ("Easternborder" 2003 visited 2-7-2010)

This is another description of Eddy's "rules." Most of these cannot be deduced from the statement "Eddy Gordo fights using capoeira moves."[33] The question of what is a description of a game's rules and what is a description of its fiction clearly depends on how precisely the game is described. In *Guitar Hero*, the statement "the player plays guitar in song so-and-so" and "the player pushes buttons in time on his guitar controller" are both imprecise statements which obscure the complex entanglement of rules and fiction in the game. The difference is that the latter is more likely to be accepted as a description of its rules than of its fiction - as pushing buttons in time has no place in the world of a rock star - while the former is more ambiguous.

This means that Juul's concept of the half-real cannot tell us whether the performative aspect of *Guitar Hero* is ludic or not. One cannot base such a conclusion on the ambiguity of imprecise statements about the game. It can merely tell us that in *Guitar Hero*, like in all video games, the game's fiction (or the player pretending to make music) "influences the players' understanding of the game rules" (Juul 2005, p. 167). But if in *Guitar Hero* music influences the player's understanding of how to play a song (the rules), as it undoubtedly does, that does not necessarily mean *Guitar Hero*'s music is part of the game's fiction *or* of its rules, or even part of either one of them – this is a non sequitur. If we want a proper understanding of the position of embodied musical performance in *Guitar Hero*, we will have to look elsewhere.

2. Caillois's four categories

Another way of defining music that is neither completely ludic nor completely narrative is to look at different theories of games than Juul's. In Chapter 3 I already proposed refining Juul's description of rewards in games with the help of Salen and Zimmerman's categorization. Perhaps something similar could be done with Juul's ludic/narrative or rules/fiction binary. In his book *Man, Play and Games* (2001), the French philosopher and sociologist Roger Caillois puts forth a theory of play. He borrows from Dutch historian Johan Huizinga the idea that play is an activity that stands "quite consciously outside 'ordinary life' as being 'not serious," but at the same time absorbing the player intensely and

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[33] Save perhaps from the fact that his move set "is composed of rhythmical combinations," since rhythm also plays an important role in the real sport of capoeira.

utterly." (Huizinga 1950, p. 13) This idea was later taken up by Salen and Zimmerman in their discussion of video games in *Rules of Play*, and called the *magic circle* (2004, p. 94-9). Caillois himself summed it up as "property is exchanged, but no goods are produced" (Caillois 1961, p. 5). He adds to this idea a systematic classification of play and games, which is the primary focus of his book. He distinguishes between four kinds of games: games of competition (*agôn*), games of chance (*alea*), games of simulation (*mimicry*) and games of "vertigo" (*ilinx*) (Ibid., p. 12).The classification is essentially based on a player's attitude towards a game: in a game of chance like roulette, the player "does nothing, he merely awaits the outcome;" (Ibid.) in a competitive game like chess or football, the player "tries to vanquish a rival operating under the same conditions as himself" (Ibid.).

2.1. Ludus and paidia

Not all of Caillois's examples are what the English language, in standard usage at least, would call games. His examples of a game of simulation, or mimicry, include theatre plays like *Hamlet*. Some of the criticism Caillois has received from later theorists like Juul has to do with this fact. The original language of *Man, Play and Games* (aptly named *Les jeux et les hommes*), French, is a language that does not distinguish between game and play (both *jeux* in French) like English does (see Juul 2005, p. 28-9). Consequently, Juul feels that Caillois "suffer[s] from the … problem of covering a broader area than *games*" in that he discusses "rule-based games as well as free-form play" (Ibid., p. 10). But Caillois actually differentiates the two from each other through a secondary categorization, namely *ludus* and *paidia* (Caillois 2001, p. 13). All "games" from the primary four categories occupy a place on a "continuum" between these two "opposite poles" (Ibid.). *Ludus* is what Juul would call "a rule-based game," *paidia* is "free-form play." This seeming ambivalence that Caillois "suffers" from according to Juul might actually hold part of the key to our better understanding of the music in music and rhythm games.

Like *Vib Ribbon*, the example Juul mentions (Juul 2005, p. 115), *Guitar Hero* is a game that does not contain the "interesting choices" that arise from rule-based challenges (see Chapter 2). While the game has rules - "hitting buttons in time to score points and finish a song" - and therefore is in part *ludus*, part of the fun comes from "playing" music and "playing" a rock star. Both these kinds of play are much closer to *paidia* than to *ludus*. There are no strict rules that determine how a player should act, nor is he punished for not listening to the music (or even for turning the sound off; see Chapter 4). While Juul would like to differentiate games from these kinds of play, *Guitar Hero* is a clear example of a video game whose value as a game cannot be described as a mere set of rules in

conjunction with a certain kind of fiction.[34] In what follows I will attempt a further explanation of the aspects of *ludus* and *paidia* in (music) games.

2.2 Relations between the categories

Juul's other problem with Caillois' categorisation is that "in actuality games are not choices between chance [*alea*] and competitions [*agôn*], or even placed on a scale between them, but rather almost all games are competitive *and* contain varying amounts of chance" (Juul 2005, p. 10). The most problematic for Juul's theory of games as part fiction, part rules is "Roger Caillois's empirically incorrect claim that games are *either* ruled *or* make-believe." (Ibid., p. 164) This criticism is just only in part; while Caillois argues that there are many impossible combinations between categories, there are actually six completely possible combinations to which he devotes multiple chapters (Caillois 2001,p. 71-2). One of these possible combinations is that of *agôn* and *mimicry*, which shares a remarkable resemblance to Juul's *rules* and *fiction*. To gain a better understanding as to why Juul is so critical of Caillois and where their theoretical concepts differ, we should begin by looking at *why* Caillois allows for only six possible combinations, while Juul sees the possibility of all four appearing in video games at the same time.

Combinations	Possible for Caillois?
Competition – chance (*agôn – alea*)	Yes (fundamental)
Competition – simulation (*agôn – mimicry*)	Yes (contingent)
Competition – vertigo (*agôn – ilinx*)	No
Chance – simulation (*alea – mimicry*)	No
Chance – vertigo (*alea – ilinx*)	Yes (contingent)
Simulation – vertigo (*mimicry – ilinx*)	Yes (fundamental)

Figure 1. Caillois' possible combinations of categories (Caillois 2001, p. 71).

As I mentioned above, the categories are as much *attitudes* people have towards games as they are categories of actual games. At times Caillois even refers to them as psychological *drives* in an almost Freudian sense of the word:

The desire to win by one's merit in regulated competition (*agôn*), the submission of one's will in favour of anxious and passive anticipation of where the wheel will stop (*alea*), the desire to assume a strange personality (*mimicry*), and, finally, the pursuit of vertigo (*ilinx*). In *agôn*, the player relies only upon himself and his utmost efforts; in *alea*, the player, he counts on everything except himself, submitting to the powers that elude him; in *mimicry,* he imagines that he is someone else, and he invents an imaginary

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[34] Although "playing a rock star" is actually part of the fiction, as I will explain below in section 2.2.1.

universe; in *ilinx*, he gratifies the desire to temporarily destroy his bodily equilibrium, escape the tyranny of ordinary perception, and provoke the abdication of conscience (Caillois 2001, p. 44).

Caillois bases his argument that there are six possible states on the compatibility of these psychological states or drives. One could imagine that a game in which the player both "relies upon himself" (*agôn*) and "counts on everything except himself" (*alea*) is a contradictory pursuit. However, according to Caillois, both are fundamental governed by rules that the player has to adhere to, and therefore they share a *fundamental relationship*. The laws of nature that govern sports (wind speeds in golf for example) are like the laws of chance that govern those kinds of games (Ibid., p. 74-5). As such, *agôn-alea* is a perfectly possible relationship (see Figure 1).[35] The impossible relationship, rather, comes in the form of *agôn-ilinx*. Ilinx "destroys the conditions that define *agôn*" through its "strict negation of controlled effort" (Ibid. p. 72).[36] As one can see, the relationships between the categories are not derived from empirical observation and classification, but logically deduced from their status as basic psychological states. This is where I feel Juul's criticism that Caillois is empirically incorrect is partly right. One can point to certain games or types of games that Caillois may not have encountered during the writing of *Man, Play and Games*, which all but exemplify a combination Caillois deemed impossible. A (non-electronic) role-playing game such as *Dungeons & Dragons* for instance relies on the players role playing their way through situations which are determined by a roll of the dice: *mimicry* and *alea* combined.

As Caillois' categories are as much attitudes or drives towards games as they are actual types of games, they can also be described as elements of games that attract us to playing them. Returning to the terminology I put forward in this thesis, the categories are essentially *kinds of rewards*. The feeling of powerlessness that stems from *ilinx*, or that of power that stems from winning a competition (*agôn*), is the reward we receive for playing games that fall into these categories.[37] Going back to Juul's conception of rewards and challenges, this provides us with some interesting insights. As I mentioned in Chapter 3, Juul admits that not all challenges in video games are interesting or challenging enough that solving them is a reward in itself: "[e]ven though all challenges

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[35] Juul actually makes similar arguments about the relationship between "physics-based" rules and laws of chance (Juul 2005, p. 50).

[36] An example of "pure" *ilinx* that Caillois gives is that of "high speed on skis, motorcycles, or in driving sports cars" (Caillois 2001, p. 25). It should be noted that although all of these activities are actually competitive sports as well (and therefore *agôn*), Caillois is not contradicting himself with these examples. Like his example of horse races and betting on horse races (Ibid., p. 72), skiing for a sense of speed and skiing competitively are actually two separate activities of play, which cannot be practiced at the same time: a professional skier has to concentrate on winning races by ignoring the exhilaration he experiences when achieving high speeds.

[37] These are all instances of glory rewards in Salen and Zimmerman's terms (see Chapter 3).

likely produce some enjoyment when they are overcome, different challenges can be enjoyable for other reasons as well" (Juul 2005, p. 114). Caillois' categories offer us a theory of these "other reasons."

2.2.1. *Mimicry* and narrative

As both *mimicry* and *ilinx* are categories that are not defined by the interaction with rules – quite the opposite, actually: they are closer to *paidia* than *ludus* – these do not reward challenges created by a game's rules, and therefore these are not ludic rewards. That is not to say however that they then automatically are part of a game's narrative in Juul's terminology. This is obviously not necessarily the case for *ilinx*: vertigo can be experienced regardless of whether or not fiction or narrative is involved. Think of roller coasters, or driving at very high speeds. The question of the relation between *mimicry* and narrative or fiction is more complicated. Basically, this is the difference between performing theatre and reading a novel. For Caillois the "pleasure [of *mimicry*] lies in being or passing for another" (Caillois 2001, p. 21). This implies *activity*, but Caillois argues that the sports spectator, the moviegoer, and the reader of a novel are performing *mimicry* as well through the act of identification: "[i]dentification with the champion in itself constitutes *mimicry* related to that of the reader with the hero of the novel and that of the moviegoer with the film star." (Ibid., p. 22) If the reader of a novel is performing *mimicry*, then surely this is the case for the player of a video game, who has a hand in the actions of the characters on the screen. As such, we can say that *mimicry* is a narrative aspect of video games, even though it is a category of play in Caillois' terminology.

2.3. Performance in *Guitar Hero* between mimicry and ilinx

In the final section of Chapter 3, I discussed the performative aspect of *Guitar Hero* and arguments by Van Elferen and Miller that this is like a real musical performance, and not like a simulation of a musical performance. How does this assertion translate to Caillois's terminology? Let me first state that the "ludic" aspects I discussed in the first parts of Chapter 3 – playing perfectly to attain high scores – are a clear example of *agôn*: they are bound by rules, and the competitive aspect is to score more points than your fellow players. While this is happening on the screen, the *Guitar Hero* player in the room wildly swinging his "axe" and banging his head pretending to be a rock star is a case of *mimicry*. This does not preclude a real musical performance. Like the sports spectacles that Caillois describes as a form of *mimicry* (Ibid., p. 22), the "real" rock star's showmanship is a form of playing pretend as well.

I want to suggest that the idea that the *Guitar Hero* player is making real music is best explained by the category of *ilinx* and its relation to *mimicry*. As Figure 1 shows, these share a fundamental relationship. In fact, according to Caillois, they go hand in hand by definition:

"simulation in itself generates both vertigo and split personality, the source of panic. Pretending to be someone else tends to alienate and transport. Wearing a mask is intoxicating and liberating" (Ibid., p. 75). Caillois does not extensively discuss music anywhere in *Man, Play and Games*, but we can infer from certain remarks that he associates at least certain forms of music and dance with *ilinx*. He mentions how "men surrender to the intoxication of many kinds of dance, from the common but insidious giddiness of the waltz to the many mad, tremendous, and convulsive movements of other dances" (Ibid., p. 25). When discussing shamanistic rituals wherein the partakers strive to achieve spiritual trance-like experiences (*ilinx*), he mentions masks (*mimicry*) as well as "monotonous or strident music" (Ibid., p. 88) and "hallucinating music" (p. 102). One could argue that these are very specific kinds of music that Caillois discusses which are inseparable from the shamanistic rituals of which they are part, and therefore incomparable with the rock songs one plays in *Guitar Hero*. However, given the fact that Caillois counts the very un-shamanistic western waltz as a form of *ilinx*, it is not too huge a leap to conclude that music in general is most like *ilinx* of all the four categories of play.

The above would lead to the following conclusions: if we are to agree with Van Elferen and Miller that (part of) the joy – and therefore the "reward" – of playing *Guitar Hero* is that it is not just *pretending* to make music, but actually like making music, then "what drives" us (in Caillois' words) is both *mimicry* and *ilinx*. *Mimicry* is part of what Juul would call the game's narrative, and but *ilinx* is not, as there is no fiction involved. However, *ilinx* is not ludic either, since *ilinx* is by definition opposed to the governance of rules which include video game rules as they are described by Juul. When seen in the light of Caillois' categories, the performative aspect of *Guitar Hero* does not feature ludic music, nor completely narrative music. This conclusion is completely reconcilable with my arguments on musical rewards as presented in Chapter 2: performative music in *Guitar Hero* is an "*ilinx-mimicry*" reward of glory.

I should mention that there is one important objection to this argument. The idea that music is part *mimicry*, part *ilinx* suggests that playing music is unbound by rules, when clearly there are musical systems like tonality and the restrictions that instruments force upon players. Indeed, Caillois uses the word "Dionysian" when referring to societies "ruled equally by masks and possession, i.e., by *mimicry* and *ilinx*" (Ibid., p. 87). But Nietzsche, from whom he undoubtedly borrowed the word, argued that music is part "Dionysian," part "Apollonian," which is marked by rules and order (Nietzsche 2000). This problem is not necessarily limited to the relation of music to *mimicry* and *ilinx* however, as there are "rules" to theatre performance such as Nietzsche's tragedy (the confines of the stage for example) and roller coasters (the laws of gravity) as well. Caillois' does not provide us with a refutation of this objection, however, as he maintains that "*mimicry* and *ilinx* equally presume

a world without rules in which the player constantly improvises, trusting in a guiding fantasy or a supreme inspiration, neither of which is subject to regulation" (Ibid., p. 75). The rules that govern music, however, are not like the rules that govern (video) games like *Guitar Hero*. They are not set in stone, and part of the aesthetical pleasure that is derived from music comes from "bending" or "breaking" the rules (i.e. conceiving new instruments, writing atonal music). Bending or breaking the rules of a game, however, is considered cheating, an activity which is detrimental to a pleasurable experience, and not "part of the game." My defence to this objection would therefore be that ludic music depends on game rules, and therefore "just" playing music is not ludic.

3. Chapter conclusions

The case study of *Guitar Hero* revealed a function of video game music that is neither part of its narrative, nor of its rules. I argued in this chapter that it cannot be explained through Jesper Juul's terminology. His notion of the "half-real" hints at the *relationship* between rules and fiction in games, but not at a possible theoretical space between them. A better way of describing the performative aspect of music in *Guitar Hero* and other music games is to resort to Roger Caillois' categories. While ludic aspects of games include *agôn* and *alea*, and *mimicry* is part of the narrative aspect of video games, the player's experience of making music – which is part of the performative aspect of music games – has an aspect of *ilinx*, which is neither ludic nor narrative. Caillois' categories also explicate that we can be attracted to music games for many different reasons: we can enjoy scoring a large number of points through our proficiency with the game's controller and our knowledge of the game's challenges, we can enjoy pretending to be a rock star, and we can enjoy the feeling of making music.

Because the performative aspect of the player and his controller in the room is so intimately tied up with the genre of music games however, this "third" kind of video game music cannot be found in any other kind of video game. As one interviewee of Kiri Miller puts it: "There's a big difference between pressing X and having someone shoot someone else on the screen, and pressing X a couple times and successfully putting out a guitar riff. Even though you haven't actually put out the guitar riff, the game makes you feel like you have" (Miller 2009, p. 408). Still, it is a noteworthy aspect of music in video games, one whose theoretical position forces us to rethink the possible roles of music in games as I have attempted to show.

Conclusion

I conclude from my findings in the different chapters of my thesis that ludic music is not an accurate way to describe all music in video games. In fact, I found only a few cases where music was essential to gameplay. I discussed the most clear-cut instance of ludic music in Chapter 4: the vocals in *Guitar Hero*, which are an example of karaoke games. Here all my criteria for ludic music were fulfilled: in order to progress through a song, *Guitar Hero*'s singer has to employ a repertoire that consists of musical skills, such as knowledge of pitch and melodic phrasing - so music is part of the rules' challenge. Music also guides the player, as he receives complete information about what melody he is to sing only by listening to the music; unlike in most of my other case studies, the visual information does not suffice. Of course, the experience of performing the music also rewards the player in the manner which I discussed in Chapter 5: in part narrative, but not quite ludic. The two other cases that come closest to containing ludic music are the musical puzzles in *Myst* and *Fallout 3*. Here musical knowledge or repertoire is not *essential* to solving the puzzles: they can also be solved by trial and error. However, this method requires such an extensive amount of effort in comparison to solving the puzzles through pitch recognition that it seems almost ridiculous to call these puzzles a-musical. Still I have to conclude that a musical way of overcoming the challenges is merely *encouraged* rather than essential. The same can be said for playing *Guitar Hero* with the sound off: from a rules perspective it is certainly possible, but musical listening is strongly encouraged, especially on the harder difficulty settings.

This brings me back to Juul's notion of the "half-real." Let me cite the paragraph with which he ends his book in full:

> That the rules of a game are formally defined does not mean that the player's experience is also formally defined. However, the rules help create the player's informal experience. Though the fictional worlds of games are optional, subjective, and not real, they play a key role in video games. The player navigates these two levels, playing video games in the half-real zone between the fiction and the rules (Juul 2005, p. 202).

In my introduction and throughout this thesis I mentioned how music "happens" through the experience of listening and through the listeners ability to recognize musical parameters, in other words to employ his knowledge of musical organization. If we heed Juul's words and agree that a player's experience is *informal*, it seems no wonder that it is difficult to find music among the formal rules of a game (in other words: to find ludic music in video games). After all, music is defined through experience. As a player's experience is defined by both rules and narrative, it would be

difficult to distinguish ludic music from narrative music. This is why Van Elferen argues that "game rules and a fictional world ... seem to be simultaneously blended together and enhanced by the active role of music in [*Guitar Hero*]" (Van Elferen 2010, p. 7). But my question was to what extent there is ludic music *at all*, as opposed to just narrative music. To say that musical gameplay is *encouraged* like in the puzzles of *Fallout 3* and *Myst* is to make a subjective claim about the experience of these games rather than an objective claim about their rules: it cannot tell us with certainty whether it is ludic music or narrative music that encourages us. My attempts to find music that is *essential* to play a game is therefore not splitting hairs: it is an honest quest to find certain instances of ludic music.

Another way I attempted to discern rules from narrative in video games is through the rules of irrelevance I discussed in Chapter 1. These too describe player experience, but also reveal that part of player experience is *learning* to discern rules from narrative. This suggests that when learning to play a game, the significance of the music - as music rather than auditory signposts - gradually disappears. Again, this does not mean that players are guided by ludic music at first, which then becomes "ludic sound." Since ludic music is necessarily part of rules, it was never ludic music to begin with, but narrative music that helped the player learn to play the game. This is the "navigation" between rules and fiction Juul mentions in the quote from the previous paragraph. The player "navigates," the music does not. This distinction between rules and experience allows me to revisit Van Elferen's assertion that "ludic music is ... a guiding GPS for the spatial practice of gaming" (Van Elferen 2010, p. 13). Whereas I agree that music can be a guiding GPS, I would say that this is not necessarily ludic music, and my case studies suggest that it is not ludic music in the strict sense of the word at all.

And yet there is ludic music to be found in games. I have attempted to argue that not all music in video games is both ludic and narrative, and that ludic music exists only in rare instances. My case studies have shown that these are generally instances where music is the focus of a game or part of a game, but by no means do I want to suggest that this is exclusively the case. Perhaps more interesting examples of ludic music can be found in video games that give new insights on how music in games can be employed by designers to create different experiences. With this thesis I hope to have pointed research on video game music in the direction of close readings of individual games where music functions in new and interesting ways. A theory such as Juul's with its narrative/ludic binary can be supplemented with attention to specific rule elements - signposts, challenges and rewards - to form the framework for such research. But my case study of *Guitar Hero* has already shown that music tends to complicate this binary, and forces us to resort to more general theories of games and play, like that of Caillois which I proposed in Chapter 5. The fact that not all video game

music is ludic does not mean music can only play a minor role in games; on the contrary, the use of music in video games can expand the genre beyond the interplay of rules and fiction.

References

Literature

Abbate, Carolyn. "Music – Drastic or Gnostic?" *Critical Inquiry*, Vol. 30, No. 3 (2004): 505-36.

Adorno, Theodor W. and Hanns Eisler. *Composing for the films*. Translated by Graham McCann. New York: Continuum, 1994 [1947].

Auslander, Philip. *Liveness: Performance in a mediatized Culture*. London [etc.]: Routledge, 1999.

Buhler, James, Caryl Flinn and David Neumeyer, eds. *Music and cinema*. Hanover NH: Wesleyan University Press, 2000.

Caillois, Roger. *Man, play, and games*. Translated by Meyer Barash. Urbana [etc.]: University of Illinois Press, 2001 [1961].

Collins, Karen. *Game sound : an introduction to the history, theory, and practice of video game music and sound design*. Cambridge, MA [etc.]: MIT Press, 2008.

Cook, Nicholas. *Music, imagination, and culture*. Oxford: Clarendon Press, 1990.

Danesi, Marcel. *The puzzle instinct*. Bloomington, IN.: University of Nebraska Press, 2002.

Donnelly, Kevin J. *The spectre of sound: music in film and television*. London: BFI, 2005.

"Easternborder." "Eddy Gordo. The 'Avenger'. A Tekken 3 FAQ character guide." IGN FAQs. http://uk.faqs.ign.com/articles/401/401749p1.html (accessed July 2, 2010).

Elferen, Isabella van. "¡Un Forestero! Game music as a meta-diegetic kinesonic GPS." (Forthcoming.)

Goffman, Erving. *Encounters: two studies in the sociology of interaction*. New York: Penguin, 1972 [1961].

Gorbman, Claudia. *Unheard melodies: narrative film music*. London [etc.]: BFI Publishing [etc.], 1987.

Huizinga, Johan. *Homo ludens: a study of the play-element in culture*. Translator uncredited. Boston: Beacon Press, 1950.

Juul, J. *Half-real: videogames between real rules and fictional worlds.* Cambridge, MA: The MIT Press, 2005.

Metz, Christian. *The imaginary signifier: psychoanalysis and the cinema*. Translated by Celia Britton, Annwyl Williams, and Ben Brewster. Bloomington: Indiana University Press, 1982 [1977].

Miller, Kiri. "Schizophonic performance: *Guitar Hero*, *Rock Band,* and virtual virtuosity." *Journal of the Society for American Music*, Vol. 3, No. 4 (2009), pp. 395-429.

Nietzsche, Friedrich. *The birth of tragedy*. Translated by Douglas Smith. Oxford: Oxford University Press, 2000 [1872].

Plunkett, Luke. "Courtney love will have her revenge on Activision." Kotaku, September 10, 2009. http://kotaku.com/5356206/courtney-love-will-have-her-revenge-on-activision (accessed July 5, 2010).

Salen, Katie and Eric Zimmerman. *Rules of play: game design fundamentals*. Cambridge, MA.: MIT Press, 2004.

Scruton, Roger. *The aesthetics of music*. Oxford: Clarendon Press, 1997.

Shultz, Peter. "Music theory in music games." In *From Pac-Man to pop music*. Ed. Karen Collins. Aldershot, Hampshire, [etc.]: Ashgate, 2008.

Svec, Henry Adam. "Becoming machinic virtuosos: *Guitar Hero*, *Rez*, and multitudinous aesthetics." *Loading...*, Vol. 2, No. 2 (2008).

Murray, Janet Horowitz. *Hamlet on the holodeck: the future of narrative in cyberspace*. New York [etc.]: Free Press, 1997.

Whalen, Zach. "Film music vs. video game music: the case of *Silent Hill*." In *Music, sound and multimedia.* Ed. Jamie Sexton. Edinburgh: Edinburgh UP, 2007.

Video Games

Bethesda Game Studios. *Fallout 3*. Bethesda Softworks, 2008. (Windows)

BioWare. *Dragon Age: Origins*. Electronic Arts, 2009. (Windows)

BioWare. *Mass Effect*. Microsoft, 2007. (Xbox 360)

Blizzard. *Warcraft III: The Frozen Throne*. Blizzard, 2003. (Windows)

Blizzard. *World of Warcraft*. Blizzard, 2004. (Windows)

Capcom. *Resident Evil 4*. Capcom, 2007. (Wii)

Capcom. *Street Fighter II*. U.S. Gold, 1992. (SNES)

Crowther, Willie, and Don Woods. *Adventure*. 1976. (Mainframe)

Cyan. *Myst.* Brøderbund Software, 1993. (Windows)

Cyan Worlds. *Real MYST*. Mattel, 2000. (Windows)

Epic Games. *Unreal Tournament*. GT Interactive, 1999. (Windows)

Harmonix. *Amplitude*. Sony, 2003. (PlayStation 2)

Harmonix. *Frequency*. Sony, 2001. (PlayStation 2)

Harmonix. *Guitar Hero*. RedOctane, 2006. (PlayStation 2)

Harmonix. *Rock Band*. MTV Games, 2007. (Xbox 360)

Harmonix, House of Moves, and Sneaky Rabbit Studios. *Karaoke Revolution*. Konami, 2003. (PlayStation 2)

iNiS. *Elite Beat Agents*. Nintendo, 2006. (Nintendo DS)

Intelligent Systems. *WarioWare: Smooth Moves*. Nintendo, 2007. (Wii)

KCE Tokyo. *Dance Dance Revolution*. Konami, 2001. (PlayStation)

LucasArts. *Grim Fandango*. LucasArts, 1998. (Windows)

LucasArts. *The Curse of Monkey Island*. LucasArts, 1997. (Windows)

Lucasfilm Games. *The Secret of Monkey Island*. Softgold, 1990. (Windows)

MPS Labs. *Civilization*. MicroProse, 1991. (Windows)

Namco. *Tekken 3.* Namco, 1998. (PlayStation)

Neversoft. *Guitar Hero III: Legends of Rock*. Activision, RedOctane, 2007. (Wii)

Neversoft. *Guitar Hero 5.* Activision, RedOctane, 2009. (Wii)

Neversoft. *Guitar Hero: World Tour*. (Wii)

Nintendo. *Electroplankton*. Nintendo, 2005. (Nintendo DS)

Nintendo. *The Legend of Zelda: Ocarina of Time*. Nintendo, 1998. (Nintendo 64)

Nintendo. *Metroid*. Nintendo, 1986. (NES)

Nintendo. *Super Mario Bros.* Nintendo, 1985. (NES)

Nintendo. *Tetris DS*. Nintendo, 2006. (Nintendo DS)

Pazhitnov, Alexey. *Tetris*. Spectrum Holobyte, 1985. (DOS)

Sony London. *SingStar*. Sony, 2004. (PlayStation)

Team Silent. *Silent Hill*. Konami, 1999. (PlayStation)

thatgamecompany. *Flower*. Sony, 2009. (PlayStation 3)

Valve. *Half-Life: Counter-Strike*. Sierra On-Line, 2000. (Windows)

Valve. *Left 4 Dead*. Valve, 2008. (Windows)

Zoë Mode Brighton. *Chime*. OneBigGame, 2010. (Xbox 360)

Music Recordings

Glass, Philip. *Orion*. Orange Mountain Music 0021.