PLAY ALONG: VIDEO GAME MUSIC AS METAPHOR AND METONYMY

By

ZACHARY NATHAN WHALEN

A THESIS PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

UNIVERSITY OF FLORIDA

2004

To Stacy—partner, friend, lover, wife.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF OBJECTS

Abstract of Thesis Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Master of Arts

PLAY ALONG: VIDEO GAME MUSIC AS METAPHOR AND METONYMY

By

Zachary Nathan Whalen

May 2004

Chair: J. Yellowlees Douglas
Major Department: English

This thesis argues for an approach to studying video game music such that video game music can be seen as an integral part of games' overall semantic structure. The terms *metaphor* and *metonymy* are borrowed from linguistics to describe two key functions of video game music. First, the metaphoric function of video game music provides a sense of space, characterization, and atmosphere in a game. It is also the way music in games can be frightening or can evoke particular moods. Second, the metonymic function of video game music is that which upholds the syntactic structure of the game by compelling the player's involvement in progressing the game's narrative. For example, game music supplies readers with clues about approaching enemies, therefore giving the players an edge and an incentive to keep playing.

These two functions are also explored in the context of a discussion about video game playing as a state of "immersion," "engagement," or "flow" (ideas derived from schema theory and cognitive linguistics) which suggests that an ideal state of pleasurable gaming is something like an act of creation or empowerment. Also, these cognitive

theories are supported with research and studies aimed at how viewers perceive and interpret narrative information from basic shapes moving on a screen, and how different musical accompaniments to those shapes relate to emotional interpolation or anthropomorphism of the perceived actors.

Cartoon music is also a key context for video game music, especially in the way that certain games use the same "mickey mousing" effect of synchronizing the soundtrack with on-screen actions. Finally, three games are analyzed with the tools of metaphor and metonymy to see how dominant game types relate to each other. One conclusion drawn from this analysis is that Survival Horror games tend to exaggerate conventions of older games to the point that the experience of playing games like *Silent Hill* can be rather frightening. Using metaphor and metonymy, therefore, begins to shed light on some of the implicit tensions between game genres that keep the field of games interesting and exciting as an area of study.

CHAPTER 1
STUDYING VIDEO GAMES

As recent attention in Associated Press stories[1] and a New York Times article

attest,[2] video game study is beginning to emerge from its murky status as a "an academic

ghetto." Video games provide rich opportunity for interdisciplinary study, but at least

one aspect of video games remains to a large extent undiscovered. Music in video games

has thus far remained a tangential footnote to studies that attempt to totalize the medium.

While game studies is becoming increasingly assimilated into current strains of academic

discourse, "grand unified theories" of games fail to account for the processes by which

the musical soundtrack of a game affects the user's experience.

Introduction

In this thesis, I attempt to develop a workable theory of video game music that

avoids certain formalist structures of game analysis, and instead approaches the question

of music as a part of the narrative component of games. While I intend to steer clear of

the ludology vs. narratology debate, certain assumptions and allowances must be made in

my approach that will ultimately state a position; but as the necessarily limited scope of

this inquiry requires a certain focus, I hope to move quickly beyond the metacritical

questions paralyzing certain conversations in the field.[3] Accordingly, my conclusion is

---

[1] Wadhams, Nick. "Of ludology and narratology." *Associated Press.* 14 February 2004.

[2] Erard, Michael. "The Ivy-Covered Console." *New York Times.* 26 February 2004: G1.

[3] Some examples of this paralysis can be seen in the volume *First Person Shooter: New Media as Story, Performance, and Game* where much ink is spilled defending certain approaches to studying video games. The fact that these metacritical questions still relate to political biases within the academy currently

based on cognitive theories of perception and questions of immersion vs. engagement as a means of understanding "flow" or pleasurability in games, but my specific theories rely broadly on a paradigmatic/syntagmatic model adopted from linguistics.[4]

To appropriately set the context, I must first give an account of current research into video games and video game music and explain how my own work fits into that field. I also show that the video game genre adopts certain roles for music from prior media. Specifically, early cartoon music and horror films established certain tropes which video games rely on today. Furthermore, studies of the relationship between audial and visual elements in older media prove useful for understanding game music, because certain basic ideas (e.g., diegetic vs. nondiegetic musical sound) apply to video games; and studies that analyze how viewers interpret purely visual media versus combined visual and aural media are invaluable to my study. The interactive element of video games requires its own analysis, so a combination of theories of "flow" with these earlier studies of visual/aural media lead to a set of terms that I hope will clarify how music works in the relationship of the video game to the user. I propose two terms to describe the two primary functions of game music—"metaphoric" and "metonymic"—to discuss how a game draws in players, both through the narrative, story elements (plot, setting, characters) and through the challenge of solving problems or performing tasks with skill. These terms also relate to a paradigmatic/syntagmatic analysis. Whereas every game relies on a certain amount of both paradigmatic and syntagmatic expression, instances of

---

impedes any progress the field might be making toward establishing an autonomous, defensible position in academics.

[4] While it might be possible to use these linguistic patterns as a means to conclude that video games work as linguistic expressions, I hope to avoid such grand conclusions and instead rely on the paradigmatic/syntagmatic as an analogy for explaining what I see as two simultaneous functions of music in a game.

music correspond more or less to either one of those axes. When music corresponds to a paradigmatic instance of a game's expression (e.g., providing a mood to fill a specific environment), it can be thought of as *metaphoric*. When music corresponds to the syntagmatic structure of a game's progress (e.g., "reward" music played after successfully completing a level), that music can be thought of as operating *metonymy*, or as a heuristic (that is, teaching a player the rules of successful play through positive reinforcement).

The metaphoric behavior of game music is that which relates to the game as a story or world. It is the function that draws the player into the experience, giving shape and semantic meaning to that experience. When the constant background music in the classic *Super Mario Brothers* switches from its sunny major theme to a tense minor theme, the environment of the player-character has switched from broad daylight to a subterranean cavern. This switch can be seen as paradigmatic in that the game's syntagmatic structures of play are still in place—Mario must still move from left to right and progress toward the final castle. The metonymic function of game music facilitates the player's accomplishing the goals of the game. To remain with the *Mario Brothers* example, whatever music is currently representing the environment increases in tempo as the end of the level approaches. This teaches the player to move faster toward the level's completion; and thus enforces the syntagmatic properties of the game by pushing it forward in a contiguous progression.

Obviously, these two functions are interrelated, but some games may have a preponderance of one or the other. *Tetris,* for example, has very little in the way of metaphoric music. Though there is an extent to which all games have a syntagmatic

rhythm of alternation between "safe" and "danger," it is necessary to limit this initial

argument to certain game types. I hope to show that these concepts do provide a way of

distinguishing game types and that these concepts actively correspond to recognizable

generic distinctions in games, but for the purposes of this argument, I focus on the

Platformer and Survival Horror genres.

It is important to note that this argument does not apply to games' cut-scenes—in

effect, short movies between levels that advance the plot or provide back story—because

their widespread adoption of filmic perspectives and techniques renders their analyses

more appropriate for film theory.[5]

Also, the differences between video game music and video game sound can be

subtle, especially if the music has an "industrial" style as in *American McGee's Alice* or

Silent Hill, and I often conflate the two for purposes of brevity and relevance. There are

some important ways in which video game sound deserves an entire analysis of its own,

but the broad strokes of my current argument apply to sound as well. Specifically, the

music/sound problem is complicated by a distinction between diegetic and non-diegetic

music in that the diegetic music functions similar to the incidental sounds that populate

an environment. Sue Morris writes that sound in First-Person Shooter (FPS) games is

used "to provide an audio complement to action on the screen . . . and to create a sense of

a real physical space" (Morris 88). A successful player, Morris argues, must perceive the

game's space in 360 degrees, most of which are provided as audial information, and

music playing on a radio in the game world fits well into this purpose of implying space

---

[5] Some very interesting work remains to be done in the area of cut-scenes, particularly in games such as *Half-Life* or *XIII* where the player remains in control of his or her perspective while a cut scene plays. This freedom leads to some interesting "performances" by non-player-characters in *XIII* as the games AI attempts to place the action in the player's field of vision no matter how much he resists.

through sound. My argument deals more with nondiegetic music, but many of the sounds a player hears are not generated "from" any visually represented object, and metonymic aspects of game play often are not explicitly or necessarily musical (i.e., able to be subjected to a melodic or harmonic analysis). In fact, the combined term "musical sound" may be the most appropriately inclusive label. Therefore my argument applies to many instances of game sound as well as game music.

Context

Video games are increasingly being studied as important artifacts of culture and communication, and the theoretical work of studying how and why games affect us is steadily growing to include an array of approaches. The most controversial approach to games from a humanities point of view is the adaptation of analysis techniques from prior media such as film or television. Though the similarities between video games and films are numerous—especially games with more narrative-driven content (like many of the *Final Fantasy* titles)—some scholars see games as the "alternative semiotical structure of simulation" and resist referring to games as objects or texts (Frasca 222). In other words, the game *an sich* is the experience of play itself, not the programmed digital environment and storyline built into the game by its programmers. Similarly, Markku Eskilinen has famously made the analogy that "if I throw a ball at you, I don't expect you to drop it and wait until it starts telling stories" (Eskilinen 36). The user function in games, Eskilinen argues, is *configurative* whereas user function in "literature" is *interpretive*. For Eskilinen, the games are primarily "configurative" experiences because the user's interaction is one of assembly—making the semiotic connections to construct the actual syntax of the game. Audiences of film, however, merely "interpret" a narrative with a

pre-configured syntax, that is, configured by the film's writer, director, and editor.[6] This

distinction attempts to separate games from simplified theories of game narrative and is

appropriately aimed at a user's interaction but cannot be universally true with the wide

variety of game types recognizable as video games. At any rate, the diversity in game

types and the obvious divergence of some genres of play from what we normally consider

narrative (*Tetris* is the favorite example of ludologists), a strict "one-to-one" adoption of

film techniques to study games is certainly not warranted. Still, the apparatus of video

games is related to that of film or television in that they all require at least a screen and

transmit visual information, and theories of filmic sound as aspects of cinematic

storytelling provide at the very least a starting point for examining how music and sound

has a role in video game play.

The political subtext of the ludology versus narratology debate is clearly rooted in a

question of disciplinary investment. A "colonization" metaphor is frequently invoked

with games as an undiscovered continent poised for conquer by existing academic

disciplines. Espen Aarseth warns against this disciplinary colonization in his seminal

editorial "Computer Game Studies Year One":

> Making room for a new field usually means reducing the resources of the existing
> ones, and the existing fields will also often respond by trying to contain the new
> area as a subfield . . . games are not a kind of cinema, or literature. (Aarseth n.pag.)

Aarseth suggests elsewhere that so-called "narrativist" approaches to video games

redefine narrative into something unrecognizable ("Genre Trouble" 49), however, the

alternative is far from clear. In other words, formalizing games and game types under a

---

[6] I believe there are a number of contradictions involved in this argument, but this writing does not permit a
sufficient rebuttal. At least, his argument is a good example of the "anti-narrativists" in the present debate
within game studies.

new vocabulary or one derived from computer science does not necessarily put the study

"closer" to the games, and the best answer may be that the fundamental question of

"What's at stake in game studies" has yet to be answered by either ludologists or

narratologists. At least for the time being, the current "anything goes" environment

Eskelinen bemoans ("Towards Computer Game Studies" 36) allows a variety of voices to

bring significant scholarly attention to games. Time will tell what model is the best fit;

therefore, it is still more appropriate for existing academic structures and disciplines to

turn their attention to include and account for video games. Certain approaches from film

theory offer starting points for understanding games, but as there is considerable

resistance to film study incorporating video games (cf. Roger Bellin's comments in the

New York Times) a few preliminary allowances must be made.

The most common approach to "games-as-remediated-film" is to mistakenly

identify mechanisms or apparati of film with their apparent parallels in games. For

example, the collection *Screenplay: cinema/videogame/interface* contains several essays

which casually conflate the player perspective in games with "the gaze" in cinema. For

example, Wee Liang Tong and Marcus Cheng Chye Tan write of Real Time Strategy

games which allow the player to manipulate her perspective on the playing field that

"playing the game thus becomes almost synonymous with directing a movie" (101). This

kind of slippage is fodder for the often strongly-worded division between ludologists and

so-called narratologists, but video and computer games do exist within a history of media

and they do communicate through the familiar pathways of sight, hearing, and touch.

Though the ultimate interaction between the game and its audience may be different from

that of film to its audience, reception-oriented analyses of both films and games will

share some basic assumptions and critical techniques and lead to conclusions that better account for the visual/aural/tactile content of games. Whereas the apparatus, technology, and context for films and games hold obvious differences, studies are likely to find fewer differences in the experience of viewing films and playing games, Eskilinen's objection notwithstanding. Therefore, while my analysis will borrow certain conclusions from studies of film sound and adopt a linguistic model to account for two functions of video game music, my approach will begin with the musical experience of certain games, rather than a categorical definition of games from which to deduce game musical structures. I hope to avoid this type of "top down" logic by building from studies that examine the basic ways in which aural and visual information combine in our perception to create combined impressions.

The disparate generalizations and controversies of definition demonstrate that games themselves are slippery objects, and the fact that critics have yet to reach a consensus on a critical vocabulary arises from the difficulty of describing games in assignable categories. After establishing a relationship to film music, the second problem in an approach to video game music has to do with game type. Though there are definitely some universal principles which apply to many types of games, certain game types lend themselves more readily to musical analyses. Unfortunately, the concept of genre in games lacks consensus, and certain assumptions must be made to proceed past the problem of generic formulation in games. As a means of addressing this problem, David Thomas proposes a "vocabulary" of video game criticism. He attempts to label each possible element of games and game play worth discussing and arrives at broad or awkwardly conflated headings like "graphics" and "character" within a loosely

associational hierarchy, and he needlessly separates, for example, "camera" from "point of view" (as Nick Montfort has commented on GrandTextAuto.org). While it is clear that all games have graphics, and many of them have characters, it is difficult to use these terms except in the specific contexts from which they derived. In other words, this vocabulary can neither apply to every game nor offer a grand unified theory of games. Nor can this vocabulary be "rebuilt" into games or game-types like ingredients. Questions of what makes one game different from another remain unanswered. Aarseth's textonomy offers a far more detailed hierarchy of games and types, but its textual focus is as inflexibly reductive as Thomas's is vague. Aarseth's approach incorporates all "ergodic" literature and does so with a context of textual criticism, but when these conclusions are applied to the question of ludology, Aarseth begs his own question by defining games as essentially *not* narratives at the outset of questioning whether games are narratives. Game types, then, are seen as immanent behaviors of built-in, pre-programmed interactive objects. Instances of textuality are incidental to the experience itself, and so the question of pleasurability is lost. Of the many approaches to game type, Aarseth's technique is most like a biologist's, picking apart the object of study to compare how it works against others of similar type. However, many generic labels of video games like Role-Playing Game, Real-Time Strategy, and Action describe a player's actions, not the game's internal architecture or structure. In this vein, Mark J.P. Wolf's efforts have been more in line with popular generic labels, but his cumbersome list of 46 game genres[7] weakness is that, despite his variety of game types, it is as difficult to place any specific games within one of Wolf's categories as it is to locate specific games by

---

[7] Catalogued in chapter 6 of *The Medium of the Video Game.*

category on popular gaming websites. Generic labels such as "demo" and "abstract," furthermore, do not seem that informative. Therefore, I propose that alternatives to models which avoid totalizing discourse are more appropriate for game studying. Analyzing specific games in light of a specific game phenomenon, music, and in terms of a cognitive approach to reception allows for a richer understanding of what happens when we play games and why they are so important to us. Clearly, the seduction of the text in video games has everything to do with the enjoyment of the text, and this state of enjoyment or "flow" has everything to do with the music that accompanies the visual and kinesthetic components.

In short, video game music allows for an analysis which borrows from elements of a narrative theory to argue for a re-evaluation of the video game as a technical apparatus which actively positions the viewer/user to respond to and interact with a system. This thesis will build on a rather small body of writing on video game music including Mathew Belinkie's useful history of game music online at the Video Game Music Archive (www.vgmusic.com), David Bessell's chapter in *Screenplay*, and Paul Weir's dissertation on sound design and structural approaches to music in games. Robert Bowen has also provided an insightful analysis of Atari 2600 games as musical products themselves, mapping musical structure onto the sound effects and programming capabilities of the console. Belinkie's paper is a rich history of the most influential composers working in video games, and though Bessell's chapter provides an interesting analysis of several games, his approach fails to take game type into consideration and instead compares and contrasts three games of wildly different type and structure. Questions of game type are necessarily elusive, but Bessell's comparison of the games

Cool Boarders 2, *Alien Trilogy*, and *Medievil 2* is muddied by the fact that these games represent widely different genres. Weir's work is perhaps the most useful because it is in many ways the practical counterpoint to my theoretical analysis in that Weir works in the game industry and is arguing for a sound design practice that incorporates structural (i.e., related to games' programming architecture) and interactive elements that game music provides.

Gamasutra, an webzine for game developers, hosts regular feature articles on sound and music design for games, but the three aforementioned articles and a handful of others represent nearly all of the dedicated academic work on video game music within a humanities mode. Many influential scholars have mentioned video game music as a part of broader discussions of games, but this thesis is one of a very few works focused explicitly on developing a unique model for understanding how video game music works as a narrative expression. The fact that this work is currently marginal at best to game studies' more active discourse suggests that the music in games has been taken for granted and that this area has great potential for further inquiries.

CHAPTER 2
FRAMEWORK

Immersion, Engagement, and Flow

Avoiding the reductive and ultimately useless ludology/narratology context

requires that I clarify a few terms that will lead to an alternate, more productive mode of

game scholarship. The terms "immersion" and "engagement" have been invoked

generally refer to the process of reading, specifically reading for pleasure, but in

introducing a third term "flow," J. Yellowlees Douglas and Andrew Hargadon presents a

context for describing the quality of interacting with a hypertext or interactive narrative

such that an ideal condition of flow in which "self-consciousness disappears, perceptions

of time become distorted, and concentration becomes so intense that the

game...completely absorbs us" is achieved as a dialectic between unconscious states of

immersion and conscious moments of engagement (Douglas and Hargadon 204). Victor

Nell's description of "ludic reading"[8] demonstrates the concept of immersion and its

correlative terms "absorption" or "escapism" and what it achieves in approaching the

flow state. "Like dreaming, reading performs the prodigious task of carrying us off to

other worlds" (Nell 2). Immersion is giving in to the seduction of the text's story, to be

blissfully unaware of one's surroundings and the passing of time as one escapes into the

pleasure of reading. By contrast the experience of being engaged with narrative (or any

other semantic object or expression) involves an abstracted level of awareness of the

---

[8] It is important to note Nell's use of the term "ludic" here. He is writing about the *playful* enjoyment of
reading books, but as the term suggests, his conclusions about immersion are applicable to play states in
general.

object qua object. In schematic terms, immersion is the act of relying on learned behavioral scripts at a level of automacy—being "in the moment" without having to be aware of what it takes to be in the moment—while engagement is the process of learning the scripts and requires an objective awareness of the object supplying the new schema. In other words, one engages everyday objects (vending machines, laptop computers) on a semantic level that builds on behaviors learned from past experiences and rhetorical cues from the schema itself.

Engagement, however, is the opposite case when one is forced to adapt to new experience. Experiences with everyday objects often stop short of immersion, because the object fails to provide an avenue for escape or disrupts user expectations by failing to perform its part in the script. In practice, immersion and engagement provide a continuum of experience, and to the extent that texts rely on the same cognitive processes as the "real world," successful achievement of a flow state can be likened to being actively immersed in the moment of engagement. Douglas and Hargadon provide the examples of artists, musicians, and athletes who because of their skill in manipulating a schema exhibit symptoms of flow (e.g., distorted sense of time, sense of freedom or abstraction[9]) because their interaction with schema relies on a proficient degree of agency. In video games, successful play often involves both an understanding of prior scripts and an ability to intuitively engage new scripts by acting within an abstracted schema.

---

[9] An animated short based on *The Matrix* provides a rough illustration of this concept. In "World Record," a world-class sprinter "wakes up" from the illusion of the matrix in a key race. His athletic performance is so focuses on complete control of his "matrix body" that he is able to bend the rules of reality and his mind is freed from the matrix to become temporarily aware of his real body imprisoned in a holding pod. The narrative ends cryptically, but this provides an analogy for a flow state in relation to an interactive in that "flow" involves freedom from awareness of the scripts of the interactive.

For example, games that mix genre frequently require adapting to multiple styles of play. *Grand Theft Auto: Vice City* requires skill in driving and in firing weapons from both third and first person points-of-view. The game's graphics engine and controller layout clearly favors the driving portion of the game, and players often complain of difficulty in manipulating the player-character through third person view gun battles where the game's over-the-shoulder "camera" has difficulty negotiating interior walls. This problem frequently threatens to break-the-frame of the player's immersion into the game's world by forcing frustrated engagement with the control pad, but something about the balance between the game's unintended challenges and the game's rewards yields a fulfilling sense of expertise when I successfully play the game. This feeling of efficacy contributes to the experience being characterized as a condition of flow in that the unification of efficacy with a compelling narrative yields something like a creative flow state.

Music relates to conditions of flow in at least two primary ways. First, as a metaphoric function, music works to create the specific environment or diegesis the player is immersed in. There are some important distinctions to be made in this regard concerning diegetic versus non-diegetic sound, but in terms of the paradigmatic axes of a game experience, music is what draws the player in. Also, at the syntagmatic level, music often serves as a metonym for progress in the game. In the examples I will discuss, music is most often used as positive reinforcement for good or bad performance in the game, thus encouraging the player to maintain the syntagmatic continuity of the game experience by successfully progressing through the game's content. Music can also literally be a heuristic device in a game like *Legend of Zelda: Ocarina of Time* where a

player must memorize and play specific musical phrases to access locations and special abilities in the game. A game is only syntagmatically contiguous as long as a player is advancing, but it is possible for a game to be diegetically immersive along its specific paradigmatic presentation. In order for a user to achieve the desired flow state of game play, she must embrace the paradigmatic gestures of metaphoric function of game music and respond to and interact with the metonymic functions.

Music has an impact on flow in at least one other regard. Many writers (Juul, Eskilinen, Douglas, Morris) have written about the perceived distortion of time experienced by committed game players, and it is important to note that several studies of filmic sound also conclude that music helps accomplish a similar suspension of temporal disbelief. Annabel Cohen gives an example of a cinematic event in which a young baseball player leaps to catch a fly ball. The action suddenly becomes slow motion, and the audience collectively holds its breath along with the now silent soundtrack. Triumphant music resumes when the hero returns to earth with the ball safely in his glove, but the film's silence during the protracted moment of suspense does not strike the audience as an odd moment of temporal instability because the music works to regulate the flow of the movies temporality (Cohen "Perspectives" 361). The frame of immersion is not broken for the audience because the return of sound "narrates" the tempo of the diegesis. The same analysis also applies to game music, and this temporal phenomenon works equally in metaphoric and metonymic functions.

A similar question that is often confused with immersion has to do with apparatus theory. These theories examine the effects of the physical technology of viewing cinema or television. Specifically, these apparati yield dominant viewing modes and, whereas

cinema audiences employ "the gaze," viewers' relationship to television can be described as "the glance" (Flitterman-Lewis 217). Morris extends this analysis to video games and concludes that "if film has 'the gaze' and television has the viewer's 'glance,' then [First-Person Shooter] games have the penetrating 'stare'" (Morris 90). The key idea of "penetrating" the screen allows for certain rich psychoanalytic approaches to video games,[10] but it is a mistake to confuse this imagined literal immersion in the 3D environment of the game with narrative immersion in the game play experience. This perspective-based immersion is clearly something different, and though this may be part of a phenomenology of video games, it is beyond the scope of my argument. Morris is, however, making a comparison that characterizes the experience of serious involvement in a video game (specifically a first-person shooter) with a similar analogy to immersion and while it may appear that she is making the common mistake of conflating "immersion" with a first-person point of view, Morris is in fact describing the degree of narrativised engagement involved in successful online game play. In this version, sound is crucial to experiencing the space in three dimensions and in the player's placing himself within the 3D world of the game. The goal of successfully experiencing the flow of play is cognitive or figurative immersion, and the resulting "loss of time" is similar to the immersive experience of ludic reading.

A Linguistics Model

The syntagmatic and paradigmatic axes of language relate to the semantic structure of language that is a dialogue between the two complimentary forces. Figure 1 shows a chart adapted from Joel Dor's introduction to Lacan that demonstrates the

---

[10] Cf. Laurie Taylor "When Seams Fall Apart: Video game space and the player." *Game Studies*. 3.2 (2004). <http://www.gamestudies.org/0302/taylor/>.

interplay of these two forces. I am adopting the metaphoric and metonymic functions as descriptions of musical operation because these terms highlight the act of translating their respective axes to the reader/user. This assumes that video games are semantic constructions, and—while this inquiry implicitly argues a position on this controversy— the functions of video game music can only be seen as metaphoric and metonymic in the context of that linguistic model. This framework is, in a sense, of the same vein as Espen Aarseth's formalizing methodology, but it is important to note that my use of these structures is at this point merely to provide that framework as a context for approaching the overall question of the experience of video game play.
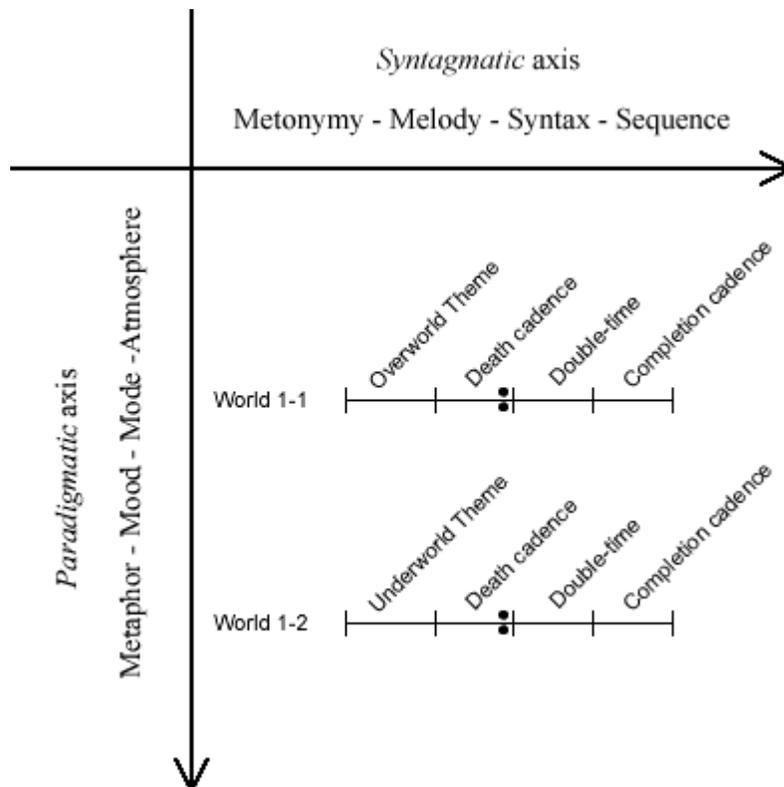

Figure 1. Relationship of the metaphoric (paradigmatic) axis of language to the metonymic (syntagmatic) axis demonstrating a reading of the first two levels of *Super Mario Brothers*

Music functioning metaphorically, therefore, moves the user's experience of a video game along the paradigmatic axis (downward in this diagram) to create an effect of substitution. This function also operates on a basis of similarity and recognition corresponding to received notions of musical sound in films.[11] Roman Jakobson's influential definition of metonymy is also useful for identifying functions of music which operate along the syntagmatic axis. For Jakobson, discourse develops and proceeds either through a recognition of similarity or of contiguity, and the metonymic pole is the function of continuous association. Jakobson's example is a free-association test using the word "hut" as the stimulus, and subjects were asked to record the first word that came into their minds. Answers like "burnt out" and "is a poor little house" are said to be metonymic or contiguous because they exist in a predicative or narrative context (the first provides a positional syntax which makes sense grammatically—"the hut was burnt out"—and the second provides, in addition, a semantic relationship between the idea of a house and a hut) while answers like "cabin" or "hovel" are substitutive or metaphoric in that they provide synonyms which "replace" the stimulus (Jakobson 42).

Seeing a video game as a mode of discourse is a bit problematic, but in the unfolding of simulated on-screen events, there is clearly a substitutive or paradigmatic dimension in which one object, event, or character can replace another, and there is clearly a progression through events that relate to one another in a predicative arrangement. By focusing on the metaphoric and metonymic functions of music, I am

---

[11] Specifically, the "leitmotif" formula of identifying a character or object with a musical "signature" operates metaphorically as a substitution both for that character (in an audial/visual dialectic) and for other characters (in a temporal dialectic).

attempting to locate the transferal of the pre-programmed structure of the video game to the experience of the player as an question of cognition.

I am not, however, attempting to equate the metaphoric function with immersion or the metonymic function with engagement in any kind of structuralized behavior, but the "path" of immersive information by way of music generally follows a metaphoric trajectory and metonymic music expedites the engagement in the process. In other words, music as metaphor and metonym work both to make the syntax of the game coherent and consequently to contribute to the state of flow.

Music itself affords a metaphoric and metonymic and analysis which describes loosely the way that musical structure is perceived as a coherent unit. Musical theory can identify complex musical elements like pitch, tempo, and timbre and can describe the effect those elements have on the perception of music. For the purposes of this thesis, a basic feature of musical sound demonstrates a useful association with the metaphoric and metonymic axes of language. On a surface level, at least, musical sound has sonority or an identifiable musical character based on one sounds relationship to another. This can occur simultaneously in a harmonic relationship or sequentially in a melodic relationship.

For example, the key interval in a minor chord or scale is the minor third. In the key of E, the tonic or base note is E, and a G note is at the position of the minor third. Playing these notes together produces the core of a minor chord, and substituting a G# for the G changes the chord to major and produces a different effect. This substitution relates the chordal or harmonic nature of music to the metaphoric or paradigmatic axis of language. Playing a melodic sequence of a G followed by an E produces a similar effect, but in this case the relationship can be related to metonymy because the syntactical

context of the notes provides their basis for association. If this sequence is interrupted by other notes, or a period of silence, the connection is perceived less clearly. There are numerous other relationships in music, but the basic harmonic/melodic provides a basis for discussing metaphoric and metonymic uses of music in that the music itself contains and conveys this linguistic structure and uses that perceived association to reinforce metaphoric and metonymic expressions of video games.

Game Genre and Music

Music takes on several roles in video games and different forms of music fill the aural landscapes that accompany the visuals of video game environments. Typological questions in music have so far not led to the type of taxonomic rendering that games and new media in general have been subject to in countless analyses, but one could imagine such a development. The few essays that attempt to address video game music aesthetically seem to lack an operative understanding of game type, so one could argue that an exhaustive catalog of game genres and sub-genres should be paired with a similar category of musical genres and modes to arrive at a formula for determining how music functions to accomplish the mysterious immersive effect of successful video games. Indeed, tentative essays such as David Bessell's chapter in *Screenplay* seem to suffer from faulty parallelisms and tendencies toward essentialist conclusions that lack a genre-informed critique. His essay is a straightforward comparison and contrast of three games, *Alien Trilogy, Medievil 2,* and *Cool Boarders 2*, but his examination noticeably fails to account for the fact that his subject matter compares games of different genres which employ different genres of music to accomplish their desired effect of immersion. The lack of correspondence between the subjects logically allows for uselessly general conclusions about video game music (for instance, that "video games use music in

different ways"), and one way around this problem would seem to narrowly focus on a

specific game type or music type with specific questions like "How do First-Person

Shooters use orchestral sounds to invoke specific emotions or narrative situations?" but

the taxonomic tendency in video game studies distracts from the potentially more useful

work of game studies and jeopardizes what is at stake in studying games in the academy.

In other words, playing into received notions of "type" invites distracting criticism and

moves the conversations a further step away from the real question of how video game

music "works" in conjunction with the visual and kinesthetic aspects to create an

immersive experience.

Therefore while this study moves toward a comprehensive account of the function

of music in games, some necessary exceptions must be made. It is more useful to the

task at hand to restrict the inquiry into music's role to a select few genres. It is hoped that

this will lead to subsequent analyses of related genres and, eventually—following a

coherent genre mapping—bear out the metaphoric/metonymic model as a comprehensive

theory of video game music. Thus, while the implications of this study will be broadly

applicable to the field of game studies, the analysis itself and immediate conclusions must

be necessarily limited to a few genres.

The "Platform"[12] and "Survival Horror"[13] genres will be the two primary genres I

focus on because I hope to show that the platform game structure established archetypal

---

[12] Wikipedia, an open-source web database of knowledge, contains an entry that defines the Platform genre
as follows: "Tradtionally [sic], the platform game usually scrolls right to left, with the playable character
viewed from a side angle. The character climbs up and down ladders or jumps from platform to platform,
fighting enemies, and often has the ability to gain powers or weapons." Definitions of genres in games are
inherently problematic, but the Wikipedia definition allows me to temporarily avoid definitional debates.

[13] A Wikipedia entry defines Survival Horror as "a genre of video game in which the player has to survive
an onslaught of undead or creepy opponents, usually in claustrophobic environments in a third-person
perspective."

musical patterns for music and relationships to story elements which the survival horror genre exaggerates to the point of psychosis. The platform genre was the first game format to adopt exploration of space as the primary metonymic indicator of progression, and survival horror games use that space again, not as a maze-like puzzle in itself but, again, as a metaphoric vehicle for the communication of engaged emotional response. Whereas the platform gamer operates on a success-frustration continuum, survival horror operates on the more complex safety-fear continuum as an exaggeration of the platform games' archetypal conflict as communicated by the musical soundtrack.

A typical platform game's music is more closely associated with the structure of game play—a fundamental safety vs. danger dynamic that propels the player-character through metonymic progress—but the music presents a narrative of the game's diegetic character. The survival-horror genre is easily identified by its zombie-filled story content and mood-inducing music, but successful survival-horror franchises also use sound as a configurative interface in two key relationships, player/combination (metonym), and player/substitution (metaphor). For example, in the first *Silent Hill* game, the player character carries a radio which emits certain patterns of music-like static when enemies approach out of the ubiquitous fog. A player must learn to use the sounds to predict the size, distance, and type of enemies approaching in order to survive. Thus the game's structure or mode of play is reinforced by the music, and the game designer's decision to place the music within the diegesis maintains the continuity of the first interface, narrative/structure. Furthermore, the use of non-diegetic music in the game is at an eponymous minimum, so the intrusion of the music does not break the frame of the user's engaged presence in the game world.

CHAPTER 3
FORMS

Ancestral Forms

Since comparing films with games at all is a controversial position, it is worth

pointing out some of the basic points of similarity from which we can derive a useful

model of analysis. The key fundamental overlap between video games and films is the

fact that film and music fundamentally rely on both aural and visual cues to convey a

sense of a consistent diegesis. Still, it is appropriate to justify this connection further.

Therefore, I intend to discuss theories of film music and cite examples where the

conclusions seem to apply to games as well. Then, through comparative examples, I will

show how the added element of interactivity and the resulting discrete temporal

framework displaces several of the assumptions based on the comparison of game music

to film music. The specific examples will lead to more generic conclusions about how

music operates in specific structures and, finally, will draw on cognitive theories of

immersion and engagement to propose an understanding of "flow" as a mode of

experiencing a text.

Paul Ward proposes an interesting corollary point about games as a form of

animation in that both games and animation strive for a form of representation that is

more exactly termed "emulation" than "simulation" in that both the game and the

animated film rely on similar production techniques.[14] Significantly, both the game's

---

[14] Obviously, a game generates animation in real-time reaction to player input while a feature animated film like *Toy Story* is rendered in advance, but the underlying technology is similar.

interactive world and the diegesis presented by the animated film respond to the characters in a manner that can only be believed if it is not realistic. Paradoxically, the amazement we feel at the level of detail presented in the environment of the characters may draw us in as a spectacle of technology,[15] but the actual dimensions of the represented world are not dependent on their referent, reality, but on the capabilities and narrativised goals of the characters. In both cases, animated film and game animation, timed musical cues and sound effects typically suggest a responsive, narrative specific environment aimed at either immersing the viewer/user in the spectacle of storytelling or engaging the viewer/user in the kinesthetic emulation of problem solving in a narrative context.

The first step in configuring the relationship of film and video games is to look for similar types of metaphoric and metonymic functions of music in film. Film music in general follows recognizable patterns of story development which rely on music to create an emotional effect in the audience, or to provide "navigational" cues which alert the viewer about plot developments. For example, a common narrative cue occurs when a mortally wounded character dies. The actor closes his eyes, and the soundtrack supplies a strong "hit" on a minor chord which indicates that the character has died. The fact that other characters typically accept this moment as final and do not attempt to revive the deceased character as one might do in real life is attests to the narrative weight of the death moment when it is reinforced with a cue from the soundtrack. Cartoon music also

---

[15] Andrew Darley argues that the potential computer games offer for "immersion" (he is using the term in a slightly different sense than Douglas and Hargadon) is a question of degrees. The technology of computer games allows for a better or more convincing exploitation of the normal visual codes we have adopted from earlier media to the extent that computer games can offer a more realistic illusion of being in the space of the game (163).

relies on metaphoric and metonymic functions of music to impel its effect of emulating reality, and there is a more fundamental transference of technique between cartoon music and video game music, as I will discuss below. First, for the association with film music, it is important to note a few influential theories of film sound and how they relate to the metaphoric/metonymic functions of music so that similar practices can be observed in video games.

According to Stam et. al. most film-music analysts tend "to distinguish only between redundant music—i.e., music which simply reinforces the emotional tone of the sequence—and contrapuntal music—i.e., music which 'goes against' the emotional dominant of the sequence" (59). This simplified binary is important because it only relates to the emotional identification of the audience with the subject in the film, and complications of this system such as Chion's "empathetic music," "a-empathetic music," and "didactic contrapuntal music" similarly relates only to the audience's relationship to the film subject as opposed the audience's recognition of the film's syntactic continuity. Syntagmatic properties of sound receive little treatment in these musical formulas, but music is clearly related to the perceived contiguity of several of the identifiable syntagmas operating in films (Stam et. al. 40). Other analyses identify the functions of film music as aiding memory and suspending temporality (Cohen "Perspectives" 361), and it is interesting to note that these functions are identified in the context of cognitive approaches to film whereas Stam, Chion, and Claudia Gorbman are working within a structural or semiotics framework that dissects the film as a textual object. My approach of employing the metaphor and metonym, techniques of linguistics, seeks to combine both as the textual object of the video game requires constitutive interaction to the extent

that structural or formalist approaches like Aarseth's are insufficient if they ignore the cognitive operations of piecing the text together—(i.e., beyond the "nontrivial" interaction demanded by the technology (Aarseth *Cybertext* 1)). The video game's reliance on input from the user makes it a text whose syntagma must be, in part, "outside" the game itself.

The difference in the temporal disposition of each medium—film and games—clarifies, in a sense, the boundary erected by interaction and provides yet another way of analyzing the immersion vs. engagement continuum. Most importantly, the syntagmatic function of film music is necessarily distinct from metonymic functions of video game music, but broader metaphoric functions still apply the same way as in film to the extent offered by the relationships between the player and the player-character. The difference is that, the emotional relationship of player to character is not as important as the relationship of the player to the game by way of the character. The cartoon provides a stronger candidate as a prior media form to compare video games to because cartoons also must generate in the audience a relationship with the environment of the cartoons. Cartoon audiences must suspend a significant amount of disbelief about the emulated reality of both the cartoon and the game world to perceive the character's actions within that world as coherent.

Early cartoon music also provides a better comparison to video games because, as Ward's writing suggests, there is a stronger tie between games and cartoons than has been recognized. Cartoons rely on music to reinforce the impact of their visuals, so the relationship of the viewer to the character operates under the redundant mode identified in film theory (in the "death scene" example, the music restates the narrative action), but

in a different sense. Cartoon music can be emotionally expressive, of course, but its

primary function is as a kinesthetic vehicle such that live-action film is often deemed

"cartoon-like" when musical cues accompany or emphasize violent physical action. The

point may be to provide a humorous counterpoint to the visual of the violence and to

characterize the violence as not hurtful so that we laugh at it (Strauss 8), but Michel

Chion's more poetic description of cartoon sound suggests a more profound involvement.

Describing Tex Avery's *What Price Fleadom*, Chion writes

> …and sound—ineffable and elusive sound—so clear and precise in our perception
> of it, and at the same time so open-ended in all it can relate—infiltrates the
> reassuring, closed and inconsequential universe of the cartoon like a drop of reality,
> a tiny, anxiety producing drop or reality. (122)

Studies of cognition have corroborated this observation with results which suggest that

objects are perceived as alive and exhibiting anthropomorphic behavior when their

motions are accompanied by a synchronized soundtrack (Cohen "Perspectives" 361). The

possibility he describes relates to the paradigmatic or metaphoric function of sound,

whereas for Chion, one of the key functions of sound is to aid in an audience perception

of a spatial diegesis. At the very least, the musical cues and non-musical sound effects

instill objects with even more life than the simple verisimilitude of figures in motion.

This effect is termed—often pejoratively—"mickey mousing,"[16] and seems to be at

odds with the "serious storytelling" potential of cartoon music expressed in, for example,

Fantasia. Mickey mousing occurs in both animated and live-action cinema when the

music provides a direct, aural imitation of what is happening on the screen (Neumeyer

and Buhler 6). The telling involved in simple mickey mousing certainly seems to be more

physically or kinesthetically oriented, but in that it represents a characters relation to its

---

[16] or "mickeymousing" in Chion.

fictive universe, mickey mousing corresponds to the metaphoric or paradigmatic axis of my approach. Music which applies musical cues to physical, slapstick violence also places the character within the aural transmission of the story diegesis and accomplishes the emulation of reality that Ward mentions. This exact practice is also used in video games with only a few differences as the following examples demonstrate.

The earliest uses of the mickey mousing effect occur in classic cartoon works such as *Skeleton Dance*. Scored by the legendary Carl Stalling, *Skeleton Dance* demonstrates the complicated blend of diegetic and non-diegetic music and sound that merges to create an immersive story. The narrative is structured around a group of skeletons performing a dance routine to an orchestrated song reminiscent of Saint-Saëns' *Danse Macabre*.[17] But the introduction of the story blends music with sound effects to create an eerie atmosphere. The following image (Figure 2A) shows two cats responding to the sight of a skeleton rising from his grave. As the skeleton rises, we hear an ascending D minor scale (Figure 2B) on a stringed instrument—a common figure in cartoon music, and the cats fright is mimicked in a similar arpeggio (Object 1).
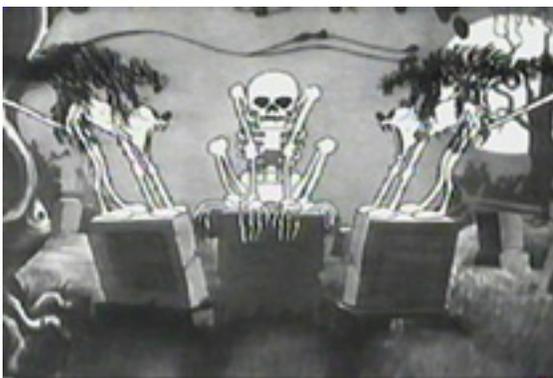
A.   B.

Figure 2. An example of mickey mousing in Disney's *The Skeleton Dance*. A) The
skeletons rise from the grave is synchronized with an ascending scale. B)
Musical approximation of sound accompaniment for A. © 1929 Disney.

---

[17] According to Stalling, some writers have even mistakenly said that the music for *Skeleton Dance* is actually *Danse Macabre* (Stalling 39)

Object 1. Sound clip from *Skeleton Dance* corresponding to Figure 2. WAV file
(obj1.wav; 6 seconds; 131kb)

Similarly, as the skeleton begins to skulk about, his footsteps are punctuated with a

staccato harmonic minor scale in D, emphasizing hollow, wooden timbres in the

percussion (Figure 2). As the piece continues—a "foxtrot in a minor key" (Stalling 39)

with quotes from Edvard Grieg's *March of the Trolls*—the orchestration mimics a

hollow, dry sound one might expect from dancing skeletons by using a marimba or

something similar to carry the melody and accentuate the skeletons' percussive

motions.[18] These harmonic choices correspond to metaphoric uses of music to convey a

specific mood in accompanying the visual, but the trajectory of the plot and the

metonymic combination of the visual and aural drive of the piece forward and maintain

its contiguity as an "emulated" event. Diegetic and non-diegetic music[19] blend with the

sound to create a specific and compelling mood. The music as an underscore of physical

action soon blends into a choreographed dance number where the skeletons clearly

respond to and produce the musical accompaniment we hear. Thus the "location" of the

music has become clearly diegetic, whereas as the initial mickey mousing gestures are

non-diegetic underscore. The fact that this shift is accomplished seamlessly corresponds

to the metonymic contiguity of the video game in that atmospheric or "tone setting"

sound of the video game's worlds quickly and smoothly give way to didactic or heuristic

implementations that emphasize the video games syntagmatic structure.

---

[18] A marimba is a percussion instrument similar to a xylophone but with wooden keys that are normally struck with soft mallets. The tone is richer and "warmer" than its metal counterparts, but when a percussionist uses hard mallets to play the keys, the sound is hollow and dry.

[19] Chion and Claudia Gorbman have both drawn up complicated formulas of filmic sound that identify degrees of origination between the "black and white" analysis of diegetic and non-diegetic sound, but for the purpose of the present argument, the smooth, unproblematic combination of the two accomplishes the metonymic combination I associate with video game music.

To further illustrate the difference between the metaphoric and metonymic functions in cartoon music, another piece scored by Stalling illustrates this same type of continuity with a different spatial metaphor in play. *Galloping Gauchos* has an Argentinean setting, and the music is appropriately reminiscent of the tango (Figure 3). The same blend of mickey mousing takes place (enacted in this case by Mickey himself) in the opening sequences. This time, Stalling employs similar ascending figures to accompany and characterize ascending objects. Figure 4 shows Mickey tossing a cigarette to impress Minnie, but the lighter timbre of a slide whistle playing a chromatic glissando match the daylight atmosphere of the event and set the light-hearted tone associated with Mickey.

Figure 3. Mickey rides into town on an ostrich in *Gallopin' Gauchos*. The character of Mickey is bright and friendly, despite the swagger evident in this image, and the setting of the piece is specific enough that Carl Stalling chose to score this short predominantly as a tango. © 1928 Disney.

Figure 4. Mickey flips a cigarette in the air and catches it with his disembodied teeth to impress Minnie. © 1928 Disney.

These examples illustrate the importance of non-diegetic music and sound to the communication of cartoon stories. In accordance with the simple redundant/contrapuntal continuum of film music, the character we are supposed to view as loathsome is "mickey moused" with predominantly minor or diminished scales and arpeggios while Mickey Mouse is predominantly narrated with major or diatonic scales. This same principle will apply to video game music in its metaphoric function, but a perspective from cognitive psychology elaborates the importance of this audio-visual expression.

Perspectives on Animation and Causality

Exploring the potential for simple shapes and sounds to evoke narrative, cognitive meaning, Annabel J. Cohen has conducted studies which test subject's interpretations of certain types of movement into emotional condition as well as the effect musical accompaniment had on the interpretation of the same moving figures. Her first of several studies identified musical features that correspond to interpretations along a five-point happy/sad scale. Specifically, major triads played in different octaves at different speeds revealed that higher, faster repetitions yielded a higher ("happier") score than lower, slower repetitions (Cohen 362). The fact that such a simple sound system could correlate so strongly to an emotional scale hints at the complex emotional interpretations of harmonies, chords, and key changes. Such complexities would require a more elaborate emotional model, and the results would, no doubt, vary more for each individual listener, specifically across cultures and musical conditions.[20] At any rate, Cohen's studies

---

[20] In response to this problem, musicologists attempting to deal with narrativity in instrumental music adopt semiotics as a framework. Jean-Jacques Nattiez (cf. footnote 10) uses Claude Levi-Strausse as a starting point, for example.

suggest similar conclusions to Alan Leslie's: that emotional interpolation may be inherently part of interpreting sensory information.

Cohen also led studies which tested the correlation between visual and aural stimuli by asking subjects to use the same five-point scale to comment on a simple animation of a bouncing ball. The ball's movements matched the triads, moving up and down at slower or faster rates and at higher or lower positions. Accordingly, "low, slow bounces were judged as sad, and high, fast bounces were judged as happy" (Cohen 362). When the two stimuli are combined, the results are consistent with either the motion or the music, but when the two diverge, the musical accompaniment was shown to influence the interpretation of the visual. A slightly more involved study subsequently experimented with the affective meaning of story interpretation.

Using shapes that again were generally perceived as two lovers escaping a bully,[21] two soundtracks were tested for their effect on viewer's interpretation of the scene. There were differences; specifically one "character" was seen as more active when viewed with a soundtrack which expressed temporal congruence to "his" movements (Cohen 363). This apparent association led Cohen to develop the "Congruence-Associationist framework" which holds that "through structural congruence, music directs specific visual attention and conveys meaning or associations" (Cohen 370).

In *Actual Minds/Possible Worlds* Jerome Bruner mentions several studies of the perception of causality that were performed by cognitive psychologists seeking to determine if perceiving causality is an innate or learned feature of understanding.

---

[21] Cohen makes no specific reference to Heider and Simmel, and the specific shapes involved are different. It may simply be that the archetypal love story line is simply one of the most basic, universal stories we all tell and experience.

Michotte demonstrated that "when objects move with respect to one another within highly limited constraints, we *see* causality" (Bruner 17, emphasis in original). Further studies—Alan Leslie's, Fritz Heider and Marianne Simmel's—indicate that we also see "intentionality" and that the ability or desire to interpret information as essentially a story may be fundamental or automatic from birth (Bruner 18). One can draw many interesting conclusions from this type of study, notably the implied anthropomorphism of simple objects that we see as exhibiting intention, but the implications are clearly that just about anything can be a story.[22] Annabel Cohen carried these studies in a different direction by addressing the kinds of stories we make out of the perceptions we have.

Heider and Simmel tested subjects' interpretation of a series of moving shapes on a blank background. According to Bruner, the test subjects invariably interpreted the scene as "two lovers being pursued by a large bully who, upon being thwarted, breaks up the house in which he has tried to find them" (Bruner 18). It may be that the testers intentionally modeled their moving shapes after every episode of "Popeye," or it may be that certain elements in that film, such as the proximity or similarity of the two "lover" shapes led to certain, inherent conclusions.

With this cognitive framework as a tool, one can begin piecing together the cognitive functions and semiotic interactions that compose the interrelation of visual and aural elements which create meaning in cinema, cartoons, and video games. The congruence-associationist framework also provides a way of discussing the

---

[22] In her playful but insightful *Picture This: Perception and Composition*, Molly Bang attempts to tell the "little red riding hood" story with as few shapes as possible. A small red triangle represents the main character, for example. Through running commentary, Bang explains how the proximity and relative sizes of other shapes, their colors and location on the page affect the sense of the story. Her "ground up" approach nicely demonstrates some of the conclusions of Heider and Simmel's studies of causality.

phenomenological difference between what happens when we watch movies and when we play video games. Much work in film studies already assume the kind of correlation that Cohen and her colleagues found to be a cognitive function, and a system of conventions have developed these pre-existing schemas for musical narration.[23] Applying similar findings to specific video games in the context of metaphoric and metonymic functions of music will show the semantic operations of music and sound in video games.

Examples

In this section, I will analyze specific video games that exemplify metaphoric and metonymic functions of music, but it is important to note that these examples are not meant to implicate all genres and classes of video games. The three games I will focus on here, *Super Mario Brothers (SMB)*, *Legend of Zelda: Ocarina of Time (LZ:OT)*, and *Silent Hill(SH)* were chosen for their strong narrative component and because they provide ready examples of the types of correlations I intend to draw with cinematic conventions of music. However, as my intent is not to develop a totalizing view of video game sound, certain game genres will not lend themselves as easily to this present analysis.[24] Furthermore, while the first two examples are a bit dated, they are not meant

---

[23] Historically (at least since the 19th century) there has been a divide in classical music between "Absolute" and "Program" Music. Program music like Smetana's *The Moldau* depict non-musical pictorial settings or events; *The Moldau* musically traces the journey of the Moldau river in the Czech republic, and Berlioz's *Symphonie Fantastique* is an autobiography of sorts. By contrast, absolute composed as music for music's sake or "music composed with no extra musical implications" (*Alfred's Pocket Dictionary of Music* 9). Nattiez argues that the semantic possibilities and temporal frame of music permit narrative approaches to music (Nattiez 244), but such approaches must recognize that music alone relies primarily on syntagmatic continuity.

[24] I am thinking here of the "sim" category of video games (*SimCity*; *The Sims*), but the rhythm genre of games (*Dance Dance Revolution*) poses similar challenges for opposite reasons.

as archetypal or foundational instances of music in games though they do indicate

significant accomplishments in video game music.

Super Mario Brothers

In 1985, Nintendo of America released what would become arguably the most

influential console game *Super Mario Brothers*. The side scrolling Platform game would

spawn several spin-offs through, so far, four generations of consoles and dozens of rip-

offs inspired by *Mario*'s success. While it would be an oversimplification to say that

Super Mario Brothers is important simply because it initiated video game tropes like

power-ups, extra lives, and a metaphor of geographic expansion conveyed by progress

through progressively difficult levels (Poole 42), *SMB* is, like *Skeleton Dance*, an

opportunity to examine important aspects of its respective medium. More importantly,

SMB provides a ready example of musical functions borrowed from animation at an early

stage in video games' development. Specifically, Mario's (or Luigi's) movement on the

screen is accompanied by a musical mickey mousing gesture. In line with Koji Kondo's

peppy theme music, Mario's "jump" (Figure 5a) is accompanied by an ascending

chromatic glissando (Figure 5b). Like Mickey's cigarette toss (Figure 4), Mario's leap

has a pleasant sound (i.e., it does not use minor or diminished intervals), not only because

we are supposed to identify favorably with Mario, but also because a typical game player

will likely hear the same sound repeated hundreds of times in a dedicated period of game

play.[25] The mickey mousing effect is also intended to emphasize the physicality of Mario

and his kinesthetic involvement with his environment. In Figure 6a, Mario has "powered

---

[25] Mario's characteristic jump is also historically significant because he was the first player-character to use jumping as his primary means of both exploration and combat, so much so that his original name in pre-*Mario* iterations like *Donkey Kong*'s "carpenter character" was "Jumpman" (Poole 42).

up" to Super Mario, so, as Figure 6b demonstrates, the sound effect of his jumping is mimicked as the same musical figure an octave below the original. Other movements and collisions in the game respond to Mario in a way that enhances the impact of the represented on-screen events. In this case, the musical mickey mousing is in tune with the metaphoric creation of a believable game world, one which is characterized by the non-diegetic theme music.
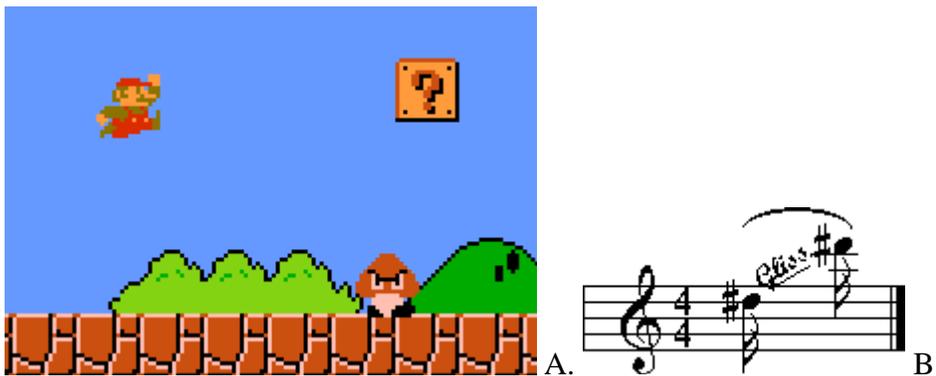

Figure 5. Regular (small) Mario jumping produces a musical phrase which is repeated continuously as one plays the game. This effect is clearly derived from mickey mousing in film and cartoons. A) Mario jumping. B) Approximate musical notation for Mario's jump effect. *Super Mario Brothers*. (*Nintendo Entertainment System*®) © 1985 Nintendo of America Inc.

Object 3. Sound clip of "small Mario" jump effect. WAV file. (obj3.wav; 3.5 seconds; 708kb)
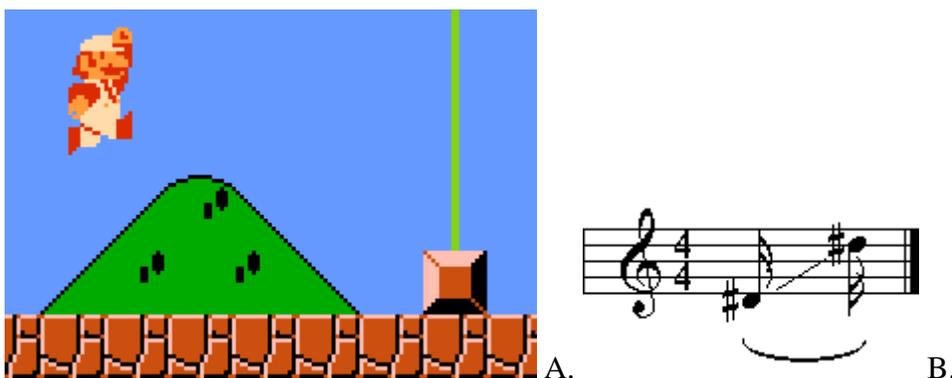

Figure 6. When "Super Mario" jumps, his mickey mousing effect becomes exactly one octave lower. This illustrates the kinetic, emulated physicality of mickey mousing which enhances the sense of the character's body in space. A) Super Mario jumping. B)   Approximate musical notation for Super Mario's jump effect. *SMB*. (*NES*®) © 1985 Nintendo of America Inc.

Similarly, music and sound effects serve a syntagmatic or metonymic function in encouraging successful game play by providing positive reinforcement as consequences for actions in the game. "Dying" in *Super Mario Brothers* (Figure 7) produces an arresting staccato pulse followed by a conciliatory musical cadence reminiscent of the music one hears upon misestimating the value of a vacuum cleaner or dish set on *The Price is Right*. The music is a descending figure, mimicking Mario's ejection from the playing field. The music is a coded message of failure, but similar messages of success reinforce the successful completion of levels in the game, and, on a smaller level, the satisfying "ching" of collecting gold coins reinforces the behavior which is also strategically advantageous to advancing in the game. Considering an entire level as musical composition, "death" or "success" musical messages serves as a cadence to that world's musical structure. Bowen's analysis of Atari 2600 games as musical structures identifies death music as a cadenza to the rhythmical music of the game's sound effects (Bowen n.pag.). In these ways, music works at a syntagmatic level across a musical structure to encourage the user's continued play. The game's syntagmatic structure is dependent on user input, so music that engages further participation can be said to function metonymically toward the continuity of the game play experience.

Figure 7. Mario "dying." *SMB*. (*NES*®) © 1985 Nintendo of America Inc.

In a different role, Kondo's "Overworld Theme" (Object 6) has been described as a funk or jazz tune "but with so much energy pumped into each articulated note, one is not sure whether it invokes cheesy Vegas lounge music or a Dixieland band" (Belinkie n.pag.). This sunny-sounding tune is heard only in areas of the game world (the Mushroom Kingdom or Overworld) where the level is above ground (Figures 5A and 6A). Transporting via tunnel to the underworld (Figure 8), one hears the "Underworld Theme" (excerpt Figure 9) which modulates to the key of G minor and has a hollow, eerie feel. Also, though the key of the piece is scored at G minor, the melody lacks a tonal center (i.e., it never comes to rest on the tonic, G) and relies on tense chromatic passages. The chromatic tone clusters contribute to the feeling of enclosed claustrophobic space of the underworld, and the lack of tonal center conveys the disorientation often felt in underground spaces.

Object 6. Musical excerpt from "Overworld Theme." WAV file. (obj6.wav; 20 seconds; 452kb)

Figure 8. In the Underworld the music changes to match the shift of location that has occurred in the story-line. *SMB*. (*NES*®) © 1985 Nintendo of America Inc.

B.

Figure 9. Excerpt from arrangement of Underworld theme for piano. Arr. Brian Auyeung

Object 7. Sound clip from Underworld. Note how the lack of tonal center and use of minor tone clusters accentuates the loneliness and "angularity" one can imagine feeling under ground. WAV file (obj7.wav; 12 sec.; 275kb)

Other areas of the game world have their own musical signature as well. Figure 9 shows the Musical accompaniment for the underwater stages, a lilting, somewhat peaceful waltz. These basic themes so far characterize the environment of Mario's world. They allow us as listeners to make certain predictable association with types of melody—major vs. minor is just the simplest identification one could make—but they also signify to the player that the world itself is static in that the music repeats on a loop until the global danger state changes. A player must successfully complete a level within a time limit, 300 seconds, and the music provides a motivational cue as time is running short to encourage the player to complete the level. The music remains in the same key, but doubles its tempo, adding a sense of urgency to the mood of the environment. This cues acts as a heuristic or metonymic device, and it breaks the frame of immersion encouraged by the repeating loop that plays through most of the level. The music is then shifting into a mode of engaging a player's response by calling him to faster or more skillful interaction with the game. Similarly at the paradigmatic stratum, the syntagmatic structure of music as metonym again appears in the tensely chromatic score for the castle level.

The fourth "level" of each "world" is set in the interior of a castle, and build up to an ultimate battle with a boss character, subordinate manifestations of Bowser. This music is similar to the Underworld theme in its lack of tonal center and reliance on chromatics. Here, the confined space afforded to the player (Figure 10) is mirrored in the dense cluster of notes that carry the theme (Figure 11).
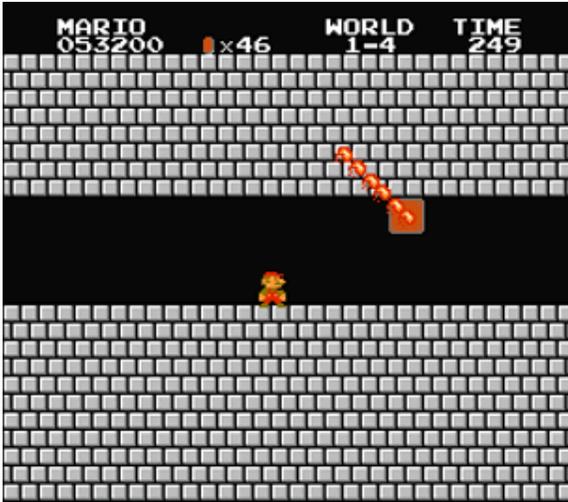
Figure 10. The space of the castle levels is even further compressed than the Underworld levels. *SMB*. (*NES*®) © 1985 Nintendo of America Inc.

Figure 11. Approximate score for castle level. Significantly, the notes on the staff mimic the compression of the game's space in their density. Arr. Brian Auyeung

Object 8. Sound clip of music in a castle level. WAV file. (obj8.wav; 16 seconds; 342kb)

Therefore the music acts metaphorically as an indicator of mood and environment, and it acts metonymically as a structural device to engage the player's continued involvement and action in the game. The paradigmatic shift of environments is signaled and accompanied by shift in musical mood, and the syntagmatic contiguity of the game as an assemblage of several different world-types is maintained by the didactic effect of

the music as motivation. The music's tempo is all that moves it from a paradigmatic role to its syntagmatic function.

Legend of Zelda: Ocarina of Time

Another game that extends these somewhat archetypal musical patterns is *Legend of Zelda: Ocarina of Time*. This game extended the popular and influential *Legend of Zelda* series into the 3-dimensional world made possible by the *Nintendo 64* console. Like *Super Mario Brothers*, *Ocarina of Time* employs music to function as both metaphoric and metonymic devices, but the complexity of the musical score and the real-time blending allowed by the game engine creates a more lush, cinematic feel. Composer Koji Kondo again uses particular melodic themes to identify specific areas of the game world in something like Wagner's leitmotifs acting in reverse.[26] Furthermore, *Ocarina of Time* employs music directly as a heuristic device to further game play in that players must successfully memorize short musical themes which enable special areas or abilities.

Ocarina of Time's genre is not as straightforward even as *SMB*. It is usually classified under "Adventure" games (or the unhelpful Action/Adventure categorization), but it clearly has elements from the Platform genre (jumping to solve puzzles, exploring space, defeating "bosses" to complete areas of the game) and the Role-Playing Game (RPG) genre (keeping track of and purchasing items, using a map, and "leveling up" one's character). The setting of the game is clearly one of Fantasy in that one encounters elves, fairies, wizards, and humans uneasily coexisting in a world powered by magic and

---

[26] Many of Wagner's operas assign a musical "signature" to characters that the audience hears when that character appears on stage. Leitmotifs can also interact with one another to mimic the tension of the drama, but one of their purposes is to help the audience identify characters as they enter the stage. The fixed, stationary audience witness a very large numbers pass through the space of the stage in a Wagnerian opera, but in *The Ocarina of Time*, the audience travels and the leitmotifs are attached to the stationary environments of Hyrule.

potions. The tone of the story and visuals are also more serious than *Mario*'s.

Accordingly, the game's mickey mousing effects mostly become realistic sound effects.

The player-character, Link, does undergo a jumping sound effect, but the musical

ascension is replaced by an aggressive grunt. Collecting coins has a similar "ching"

which is, by now, universal in games which involve collecting coins, and success in the

game is similarly reinforced by a musical "reward." *Ocarina of Time* thus enacts the

same paradigmatic and syntagmatic structures as *Super Mario Brothers* but the

complexity of the paradigmatic structure and the use of music as an actual heuristic

device involved in game play allow the identification of some more intriguing metaphoric

and metonymic operations through the eponymous ocarina.

Figure 12. Playing the ocarina in *The Legend of Zelda: Ocarina of Time*. © 1998
        Nintendo of America Inc

Link's most important item is his Ocarina, which a gamer must learn to "play" with

the controller. In "ocarina mode" (Figure 12), a player presses keys that correspond to

notes on the potato-shaped instrument. Figure 13 shows the basic 5-note scale one needs

to unlock key melodies, though additional manipulation from other control buttons makes

it possible for a skilled player to reproduce a complete scale.[27] Successfully playing a

---

[27] At least one web site offers instruction in playing and composing with the ocarina through the controller
("64Zelda Music Studio" <http://member.nifty.ne.jp/mio/64z/door_e.html>).

melody fragment unlocks an animation which completes the melody and performs the specified action where appropriate. Not only do these musical themes flavor the experience of play, they are also reproduced in the backgrounds of several of the games environments.

Figure 13. Scale of base Ocarina note positions

Figure 13 shows the melody that must be played to perform "Saria's Song" which permits teleportation to the Lost Woods. In the Lost Woods, the constantly running theme music (Object 9) extends and elaborates Saria's song in a small-scale, looping "theme and variations" structure. Thus the syntagma of the musical heuristic merges with the paradigmatic axis of the Lost Woods' theme. The Temple of Time Theme also replays the "Song of Time" in a chorale effect mimicking a cathedral's echoing dimensions. The importance of this blending of metaphoric and metonymic functions is also significant in both of these cases because the player hears a melodic figure repeated in the orchestrated underscore that Link will have to "hear" at a later time to use the ocarina to unlock the appropriate power. The powers of the melodic fragments cannot be unlocked until the player has reached the appropriate moment in the game, so the paradigmatic atmosphere music also acts as melodic foreshadowing to the extent that often goes unrecognized and a players report feelings of déjà vu as the melodies they learn have an eerie familiarity.

Figure 14. "Saria's Song" from *LZ:OT*

Object 9. "Lost Woods Theme." Listen for the repetition and variation of "Saria's Song." WAV file (obj9.wav; 20 seconds; 500kb)

The significance of *Ocarina of Time*'s musical score goes beyond the subtle interactions of foreshadowing and heuristic, however. The game engine's sophistication is such that, for the first time, musical phrases can blend seamlessly as Link crosses one sonic area into another and, more importantly, as Link encounters a dangerous enemy. Object 6 is a clip of what happens musically as Link approaches an enemy. The effect is initially subtle, but blossoms into full-blown "attack" music which, much like the Castle Theme from *Super Mario Brothers,* heightens the drama of the conflict and alerts the player to more focused interaction. The sound engine of the *Zelda* game demonstrates the same principle of maintaining contiguity, but the role it plays is somewhat different since the 3-dimensional construction of Link's environment often allows a player to choose whether or not to approach the source of the "danger music," but the same overarching structure holds true when Link encounters level bosses and the final enemy, Ganondorf. The application of this safety/danger binary in the fluid schematic of the 3-dimensional space of Hyrule (Princess Zelda's Kingdom) exhibits the complexity and richness of the simulated environment. The paradigmatic soundtrack of the game is both charming and haunting, and the complexity of the blending and overlapping musical themes invite serious immersion in the game world, but, again, the danger to the character that the "danger music" signifies threatens to disrupt the immersion of the story and forces the player to engage the game as an active participant. The successful experience of both dimensions, therefore, approaches an ideal flow state in play.

Object 10. *LZ:OT* "Danger" theme—the blending of safety state/danger state musical metaphors. WAV File (obj10.wav; 44 seconds; 946kb)

Silent Hill

So far, the two games I have discussed have demonstrated that fulfilling the metaphoric and metonymic functions of video game music often amount to two overarching modes of video game music, safety state and danger state. Each musical type is a "state" because individually they are simply substitutions, one for the other, along the paradigmatic axis, but in the act of transferring from one to the other, the syntagma of the game requires interaction from the user to maintain contiguity. A different category of music signals these metonymic moments, and reinforces player interaction with "reward" music or "failure" music. Overall, the trajectory of these semantic impressions the music creates is directed by the music scale being major or minor. Major passages relate "safety" or "reward" states while minor or diminished chords signify "danger" or "punishment." Other complexities are clearly involved, but this simple division suffices for the present argument.

In Survival Horror games, the syntactic structure is for the most part the same, but the musical choices are not as straightforward. The classic *Silent Hill* has a rich and varied soundtrack, but there is no music in a major key. In fact, the "safe state" is not present at all in the same sense, so the music never settles on or appears to move toward any kind of resolution. This is in part because the play of Survival Horror games (generically derivative of the "Adventure" genre) is not punctuated with the same rhythm of trial and error attempts at a skilled task. The dominant problem solving mode of Adventure and Survival Horror games is puzzle solving, and the Survival Horror game is unique in that armies of zombies and other undead creatures block the path to puzzles' solutions. Other games with monstrous enemies, *Doom*, for example, require the simple annihilation of enemies, but the limited ammunition and inefficient camera angles that

define Survival Horror make avoiding enemies as much of a priority. Therefore, musical scores like Akira Yamaoka's for *Silent Hill* never have the safe moments of exploration offered by platform games, and they must sustain a consistent and pervasive mood of terror or apprehension in the player. The Adventure genre format calls for exploration as the primary user input, so in *Silent Hill* the music is always in a degree of "danger state" in order to compel the player through the game's spaces. The mood of the game is crucial to the horrific "feel," but it is also, therefore, enacting a metonymic function by compelling continual progress through the game. The town of Silent Hill is never a safe place, so players maintain the game's contiguity by trying to escape Silent Hill which is an embodiment of the musical danger state. In general Survival Horror games rely on conventions of horror film sound to effectively create the mood of horror required for the game, but the trajectory is slightly shifted. Neumeyer and Buhler write that

In suspense films, subjective crisis and psychological rupture are often prominent themes, with the character experiencing a debilitating loss of centre, which is figured musically by the absence of a tonal centre. In horror films, the monster often embodies a kind of dystopian projection, a means of figuring unintended consequences of the system, which take musical shape as tonality gone awry to the point of incomprehension (Neumeyer and Buhler 23).

Silent Hill does offer a "debilitating loss of centre" for the main character, Harry Mason, and the music is significantly atonal, often eschewing melody at all and utilizing a percussive "industrial" sound. But the environment itself is the site of "dystopian projection," more so than any of the actual monsters. As Figure 13A and 13B illustrate, the space of Silent Hill undergoes rapid physical change from a foggy, empty town that is

otherwise normal to a blood-soaked, nightmarish parody of the same space. This change

is always reflected musically as the quietly unnerving throb of the foggy Silent Hill gives

way to a cacophonous ringing of metallic noises and atonal chaos. This musical chaos is

the only cue to reflect the player-character's psychological state; he is nearly always

facing away from the camera, and the pre-rendered cut scenes and voice-overs are

delivered in as dull a voice-acting performance as any in recent memory.

Figure 15. "Normal" school building. *Silent Hill* © 1999 Konami, Sony Computer
　　　　Entertainment Japan

Object 11. Sound clip of 'normal' school (Figure 15) with a basic, ambient soundtrack.
　　　　WAV file (obj11.wav; 23 seconds; 501kb)

Figure 16. Same space in the school—radically altered. *Silent Hill* © 1999 Konami, Sony
　　　　Computer Entertainment Japan

Object 12. Sound clip of altered school with aggressive, threatening soundtrack. WAV
　　　　file (obj12.wav; 18 seconds; 378kb)

Survival Horror games in general do often use the same formulas of music as classic horror films, but in the context of the metaphoric and metonymic functions of video game music, the semantic alignment of the music is slightly altered. Specifically, silence is often employed in films to create a sense of building tension, and in the dynamic of paradigmatic game music, silence, when used, is equivalent to the safe state, though it accomplishes an opposite effect.

Another Survival Horror title *Resident Evil: Code Veronica* (*RE:CV*) typifies this displacement of the safe/danger binary. Figure 17A shows the player-character, Claire, exploring a hallway in the opening sequences of the game. There are no enemies, so non-diegetic music is silent. The next scene initiates an encounter with zombies (Figure 17B), and enacts the familiar danger state accompaniment of rhythmically intense music in a diminished or minor key. The context of the Survival Horror genre associates this game with horror film such that the silence of the first scene puts the player on edge rather than reassuring him that there is no danger in the immediate environment increases the expectation that danger will soon appear. The appearance of the danger is, therefore, heightened in intensity by way of its sudden intrusion into silence.
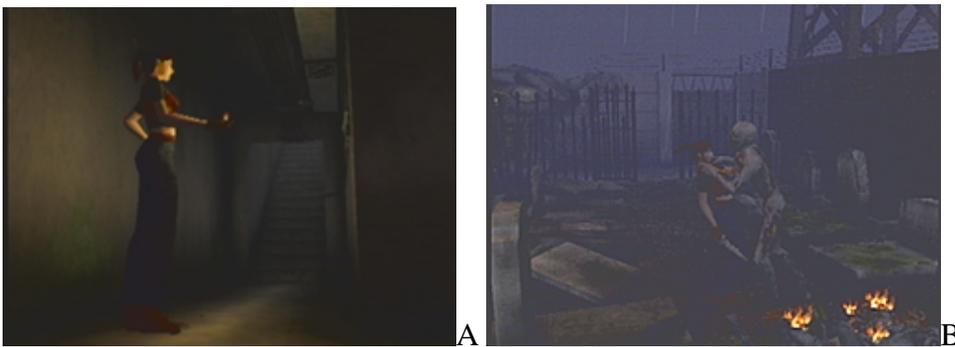

Figure 17. Silence vs. "danger music" in *RE:CV* A) Silent exploration B) Dramatic zombie attack. *Resident Evil: Code Veronica X* © 2001 Capcom U.S.A. Inc.

These moments from the opening sequences of *Code Veronica* are the first chance for the player to encounter and deal with forces of the undead, but *Silent Hill's* opening sequences reveal a different approach that also reveals an allegiance to horror film uses of sound. In Kubrick's *The Shining*, for example, the musical will often rise steadily to a cacophonous crescendo to match a character's escalating terror or psychosis, and in *Silent Hill* a similar effect is created by overlapping musical sequences that are cued as "event triggers" when the player enters progressively horrific areas.

The opening cut-scene of *Silent Hill* provides the set up for the story, which has to do with Harry Mason taking his daughter, Cheryl, on a vacation to the resort town of Silent Hill. After a mysterious accident en route, Harry awakes to find himself alone in a mysteriously foggy and strangely empty Silent Hill with no sign of Cheryl. The music is faint, mostly atmospheric ambience that matches the foggy streets with a "swooshing" sound or a low throb. Harry hears footsteps, and, in one of the eeriest sequences in any video game, a player must follow a shadowy figure—who may or may not be Cheryl— who always stays just beyond the edge of visibility. The figure eventually leads Harry into an alley, which enacts the sequence of images and sound clips in Figures 18 - 21. The forced camera angles cause the point-of-view to career wildly as Harry enters different rooms of the alley, and as the alley way becomes suddenly darker, Harry's terror (and the player's) is both reflected and dictated by the soundtrack growing in volume and atonal chaos.

Figure 18. "That's strange. It's getting darker." *Silent Hill* © 1999 Konami, Sony
Computer Entertainment Japan

Object 13. Sound clip corresponding to Figure 17. Note the "air-raid siren" sound effect
which has increased its volume significantly from its minimal presence in the
basic ambience. WAV file (obj13.wav; 21 seconds; 457kb)

Figure 19. Further down the alley. *Silent Hill* © 1999 Konami, Sony Computer
Entertainment Japan

Object 14. Sound clip to accompany Figure 18. Note the percussive "industrial" sound
effect. WAV file (obj14.wav; 21 seconds; 455kb)

Figure 20. Further still. Organ sound seems to trigger when Harry steps over puddle of
blood. *Silent Hill* © 1999 Konami, Sony Computer Entertainment Japan

Object 15. Sound clip to accompany Figure 19. The ascending organ sound begins to offer a sense of key or tone, since all the sounds so far have been industrial or percussive, and this organ sound is the first "real" organ, but this organ line is decidedly atonal its semblance of a melody. WAV file (obj14.wav; 20 seconds; 440kb)

Figure 21. End of the alley. "What's going on here?" *Silent Hill* © 1999 Konami, Sony Computer Entertainment Japan

Object 16. Final sound clip from alley sequence. The grunting or wheezing sounds in the clip are produced by the child-like zombie-creatures. WAV file (obj15.wav; 30 seconds; 658kb)

At each successive stage of the alley, the visuals become more nightmarish, and at each stage represented above in Figures 17 - 21, a new voice is added to the soundtrack. Finally, after passing by a few ominous hospital implements and discovering what appears to be a flayed and crucified human corpse, Harry is trapped inside a room with a pair of child-like, knife-wielding zombies. The player has control over Harry, but since Harry has no weapons, is powerless to fight back and can only run away from the creatures in a tight space. In a horrifying moment, the creatures attack and appear to chew on Harry, and the player must watch helplessly. The anxiety of this moment is heightened by the gruesome visuals, the sound track, and by the standard video game trope of character-death. The consequence or punishment in an Adventure game for allowing the player-character to die is being forced to repeat material that has already been explored, and since the overarching, eponymous goal of Survival Horror is to

survive, actual character-death may only occur a handful of times throughout playing

Silent Hill. The music that drives the growing terror of this alley sequence leads to a

simulated death (i.e., Harry does not really "die" in the game; this scene leads to a pre-

rendered cut scene of Harry waking up in a diner wondering if what just happened was a

dream) builds on a filmic technique of building suspense, but the musical metaphor of the

sequence mimics the visuals of the environment, the "embedded internal" experience of

Harry, and our own emotional response as the player because the music is non-diegetic.

That is, the musical underscore seems to happen "outside" of the world of the story as a

device to charge the emotional response to the sequence. The music is, therefore, acting

symbolically from Harry's point of view in that he does not "hear" it, but another feature

of the game, unique to *Silent Hill*, suggests a more complicated possibility for the

diegetic/non-diegetic question of musical origination.

Harry is eventually equipped with weapons to fight against the various creatures

that he will encounter as he proceeds through his quest to locate his daughter, but his

most important tool is a "broken" radio that emits sound of a recognizable frequency

whenever a monster is near. The claustrophobic player perspective and ubiquitous fog or

darkness make hearing more important to successful game play than seeing. Once a

player is used to the system, she can use Harry's targeting ability to automatically aim at

the nearest enemy, whether it is on screen or not, upon hearing the specific noise emitted

by the radio. Since most of the enemies will approach from above or behind Harry, a

player may not ever see certain enemies, and since the sounds appear gradually and swell

to a crescendo as the monster gets nearer, the effect works on the same principle as the

alley sequence in the opening of the game. Since this is also a strategic device built into

the game, and because it merges with the soundtrack though its source is visibly present in the game environment, the radio's sounds enact a metonymic musical function that amounts to a syntagmatic unification of the game play experience. The radio sound is crucial to game play, so the syntagma is a metonym enacting player engagement.

By combining conventions of both video game and horror film, the creators of *Silent Hill* create an experience that is driven musically by the grotesque exaggeration of metaphoric functions. The syntagmatic structure is "shifted" toward a psychotic effect by the removal of the "safety state" syntagma, and the metonymic functions operate through an arresting juncture between diegetic and non-diegetic sound.

CHAPTER 4
CONCLUSION

In this thesis, I have sought to explore various applications of a metaphoric/metonymic model of video game music in specific video games, but I have attempted to avoid making any universal claims about the general or absolute nature of the phenomenon across all genres of video games. While the basic safety/danger binary can be witnessed in many genres, the metaphoric use of music to create a sense of space is limited to genres that already lend themselves to a narrativistic interpretation. My use of the linguistic model of the paradigmatic and syntagmatic axes may prove useful in other analyses that investigate the semantic properties of video game narrative, but the implications of this theory in regard to music are, perhaps, most easily applied to the question of immersion, engagement, and flow. Douglas and Hargadon write of the "Fifth Business" as "the agent who exists solely to chivvy the characters and plot toward its conclusion" (Douglas and Hargadon 200, 201). I disagree with their conclusion that an anthropomorphized agent would better serve users of interactives like Adventure games which often require complex or obscure puzzle solving scripts. But it seems that music is one of the ways video games help balance out the tension between immersion and engagement that arises in an environment that involves both story and algorithm.

By simultaneously enriching the worlds of video games and assisting the player's navigating the syntagmatic structure of video games, music is essential to the semantic operations of a video game as an interactive story.

LIST OF REFERENCES

Aarseth, Espen. "Computer Game Studies Year One." *Game Studies.* 1.1 (2001): 31 March 2004. <http://www.gamestudies.org/0101/editorial.html> .

--. "Genre Trouble." *First Person: New Media as Story, Performance, and Game.* Eds. Noah Wardrip-Fruin and Pat Harrigan. Cambridge: MIT Press, 2004.

--. *Cybertext: Perspectives on Ergodic Literature.* Baltimore: Johns Hopkins University Press, 1997.

Absolute Music. *Alfred's Pocket Dictionary of Music.* Comp. and Ed. Sandy Feldstein. Sherman Oaks, CA: Alfred Publishing Co. 1985.

The Animatrix: World Record. Dir. Takeshi Koike. Perf. John Wesley, Victor Williams. 2003. DVD. Warner Home Video, 2003.

Bang, Molly. *Picture this: Perception & Composition.* Boston : Little, Brown, 1991.

Belinkie, Matthew. "Video Game Music: Not Just Kids Stuff." *Video Game Music Archive.* Online. 15 December 1999. 29 March 2004. <http://www.vgmusic.com/vgpaper.shtml>.

Berlioz, Hector. *Symphonie fantastique,* op. 14. The Philadelphia Orch. Cond. Richard Muti. EMI Classics, 1999.

Bessell, David. "What's that Funny Noise? An Examination of the Role of Music in *Cool Boarders 2, Alien Trilogy,* and *Medievil 2.*" *Screenplay: cinema/videogame/interface.* Eds. Geoff King and Tanya Krzywinkska. London: Wallflower Press, 2002.

Bruner, Jerome. *Actual Minds, Possible Worlds.* Cambridge, Mass. : Harvard U P, 1986.

Capcom. *Resident Evil, Code: Veronica.* (PS2). Sunnyvale, CA: Capcom, 2000.

Chatman, Seymour. *Story and Discourse: Narrative Structure in Fiction and Film.* Ithaca: Cornell U P, 1978.

Chion, Michel. *Audio-Vision: Sound on Screen.* Trans. and Ed. Claudia Gorbman. New York: Columbia U P, 1994.

Cohen, Annabel. "Film Music: Perspectives from Cognitive Psychology." *Music and Cinema.* Eds. James Buhler, Caryl Flinn, and David Neumeyer. Hanover, NH : University Press of New England, 2000.

---. *The Functions of Music in Multi-Media: A Cognitive Approach.* Proc. of Fifth Annual Conference on Music Perception and Cognition, Aug. 1998, Seoul National U. Seoul: Western Music Research Institute, 1998.

Darley, Andrew. *Visual digital culture: surface play and spectacle in new media genres.* New York : Routledge, 2000.

Dor, Joel. *Introduction to the reading of Lacan : the unconscious structured like a language.* Eds. Judith Feher Gurewich and Susan Fairfield. Northvale, N.J. : J. Aronson, 1997.

Douglas, J. Yellowlees and Andrew Hargadon. "The Pleasure of Immerstion and Interaction: Schemas, Scripts, and the Fifth Business." *First Person: New Media as story, Performance, and Game*. Eds. Noah Wardrip-Fruin and Pat Harrigan. Cambridge: MIT Press, 2004.

Erard, Michael. "The Ivy-Covered Console." *New York Times.* 26 February 2004: G1.

Eskilinen, Markku. "Towards Computer Game Studies." *First Person: New Media as story, Performance, and Game.* Eds. Noah Wardrip-Fruin and Pat Harrigan. Cambridge: MIT Press, 2004.

Flitterman-Lewis, Sandy. "Psychoanalysis, Film and Television." *Channels of Discourse, Reassembled: Television and Contemporary Criticism.*2nd Rev. Edn. Chapel Hill: U of North Carolina P, 1992.

Frasca, Gonzalo. "Simulation Versus Narrative: Introduction to Ludology." *The Video Game Theory Reader.* Eds. Mark J.P. Wolf and Bernard Perron. New York: Routledge, 2003.

"Galloping Gauchos." Dir. Ub Iwerks. 1928. *Walt Disney Treasures - Mickey Mouse in Black and White*. DVD. Walt Disney Home Video, 2002.

Grieg, Edvard. *Lyric Suite*, Op. 54: No. 4: "March of the Trolls." Cond. Leonard Bernstein. Sony, 1994.

Jakobson, Roman. "The Metaphoric and Metonymic Poles." *Metaphor and Metonymy in Comparison and Contrast.* Cognitive Linguistics Research 20. Eds. René Dirven and Ralf Pörings. New York: Mouton de Gruyter, 2002.

Juul, Jesper. "Introduction to Game Time." *First Person: New Media as story, Performance, and Game.* Eds. Noah Wardrip-Fruin and Pat Harrigan. Cambridge: MIT Press, 2004.

Konami. *Silent Hill.* (Playstation). Redwood City, CA: Konami, 1999.

Mio T. "64Zelda Music Studio." 12 December 2000. 2 April 2004.
    <http://member.nifty.ne.jp/mio/64z/door_e.html>.

Montfort, Nick. "Notes from Form, Culture, and Video Game Criticism." [Weblog entry.]
    Grand Text Auto. Georgia Tech. 6 March 2004. 29 March 2004.
    <http://grandtextauto.gatech.edu/archives/000263.html#more> .

--- and Noah Wardrip-Fruin Eds. *First Person: New Media as story, Performance, and
    Game*. Cambridge: MIT Press, 2004.

Morris, Sue. "First-Person Shooters - A Game Apparatus." *Screenplay:
    cinema/videogame/interface*. Geoff King and Tanya Krzywinkska Eds. London:
    Wallflower Press, 2002.

Nattiez , Jean -Jacques; Katharine Ellis. "Can One Speak of Narrativity in
    Music?"*Journal of the Royal Musical Association*. 115: 2. (1990), 240-257. Online.
    JSTOR. 2 April
    2004.<http://links.jstor.org/sici?sici=02690403%281990%29115%3A2%3C240%3
    ACOSONI%3E2.0.CO%3B2-Q>.

Nell, Victor. *Lost in a book : the Psychology of Reading for Pleasure*. New Haven: Yale
    University Press, 1988.

Neumeyer, David and James Buhler. "Analytical and Interpretive Approaches to Film
    Music (I): Analysing the Music." *Film Music: Critical Approaches*. Ed. K.J.
    Donnelly. New York: The Continuum International Publishing Group, 2001.

Nintendo. *The Legend of Zelda: Ocarina of Time*. (*Nintendo 64*®). Redmond, WA:
    Nintendo of America Inc, 1998.

---. *Super Mario Brother*. (*NES*®). Redmond, WA: Nintendo of America Inc, 1985.

---. *Tetris*. (*NES*®). Redmond, WA: Nintendo of America Inc, 1989.

Poole, Steven. *Trigger Happy: the Inner Life of Video Games*. London: Fourth Estate,
    2000.

"Platform Game." *Wikipedia: The Free Encyclopedia*. Online. 10 Mar 2004 13:58 UTC.
    2 April 2004. <http://en.wikipedia.org/wiki/Platform_game> .

Program Music. *Alfred's Pocket Dictionary of Music.* Comp. and Ed. Sandy Feldstein.
    Sherman Oaks, CA: Alfred Publishing Co. 1985.

Rockstar North. *Grand Theft Auto: Vice City*. (*Playstation 2*®) San Diego, CA : Take
    Two Interactive, 2003.

Rogue Entertainment. *American McGee's Alice*. (PC). Redwood City, CA: Electronic Arts, 2000.

Saint-Saens, Camille. *Danse Macabre*. op. 40. (g, 1875). Orchestre National de France. Cond. Lorin Maazel. Sony, 1995.

Shining, The. Dir. Stanley Kubrick, Perf. Jack Nicholson and Shelly Duvall. Warner Brothers, 1980.

"Skeleton Dance." Dir. Ub Iwerks. Comp. Carl Stalling. 1929. *Disney Treasures : Silly Symphonies*. DVD. Disney Home Video, 2001.

Smetena, Bedrich. *My Fatherland: II. Die Moldau*. (T: 111). Boston Symphony Orch. Cond. Rafael Kubelik. Deutsche Grammophon, 1990.

"Survival horror game." *Wikipedia: The Free Encyclopedia*. Online. 13 Mar 2004 21:35 UTC. 2 April 2004. <http://en.wikipedia.org/wiki/Survival_horror_game>.

Stalling, Carl. Interview with Mike Barrier. Reprinted as "An Interview with Carl Stalling." *The Cartoon Music Book*. Eds. Daniel Goldmark and Yuval Taylor. Chicago: A Capella Books, 2002.

Stam, Robert, Rogert Burgoyne and Sandy Flitterman-Lewis. *New Vocabularies in Film Semiotics: Structuralism, Post-Structuralism, and Beyond*. New York: Routledge, 1992.

Strauss, Neil. "Tunes for Toons: A Cartoon Music Primer." *The Cartoon Music Book*. Eds. Daniel Goldmark and Yuval Taylor. Chicago: A Capella Books, 2002.

Taylor, Laurie. "When Seams Fall Apart: Video game space and the player." *Game Studies*. 3.2 (2004). 31 March 2004.<http://www.gamestudies.org/0302/taylor/>.

Thomas, David. "Video Game Vocabulary." [Weblog entry.] *Buzzcut*. 20 November 2003. 29 March 2004. <http://www.buzzcut.com/article.php?story=20031120153151114>.

Tong, Wee Liang and Marcus Cheng Chye Tan. "Vision and Virtuality: The Construction of Narrative Space in Film and Computer Games." *Screenplay: cinema/videogame/interface*. Eds.Geoff King and Tanya Krzywinkska. London: Wallflower Press, 2002.

Toy Story. Dir. John Lasseter. Disney/Pixar, 1995.

Ubisoft, Dargaud. *XIII*. (PC) Morrisville, NC : Ubisoft, 2003.

Valve Software. *Half-Life*. (PC) Bellevue, WA: Sierra, 1998.

Wadhams, Nick. "Of ludology and narratology." *Associated Press*. 14 February 2004.

Ward, Paul. "Videogames as Remediated Animation." *Screenplay: cinema/videogame/interface.* Eds. Geoff King and Tanya Krzywinkska London: Wallflower Press, 2002.

What Price Fleadom? Dir. Tex Avery. Writ. Heck Allen. Warner Brothers, 1948.

Wolf, Mark J.P. "Genre and the Video Game." *The Medium of the Video Game.* Ed. Mark J.P. Wolf. Austin: University of Texas Press, 2002.

BIOGRAPHICAL SKETCH

Zach Whalen was born in South Carolina and grew up in East Tennessee. He attended Carson-Newman College in Jefferson City, TN, where he was awarded the Presidential Honor Scholarship. He also did well in Cross-Country, earning 2nd Team All-SAC honors, and continues to run marathons. He completed his undergraduate honors thesis, titled "Theoryspace v2.03: Applications of Critical Theory in Hypertext Literature." After receiving his M.A. degree, Zach is continuing in the Ph. D. program in the Department of English at the University of Florida.